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Creating a Learning Environment to Increase Early Adolescent Motivation: A Dissertation

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Abstract

This study focuses on early adolescent motivation in school. It is an inquiry that seeks to understand the factors that contribute to students' engagement in their learning through student and teacher perceptions. I examined significant research often cited as impacting motivation, including early adolescent development, middle school structures, transitions, student/teacher relationships, and parental involvement. I surveyed 345 sixth grade students on their perceptions of their own learning, thoughts, and behaviors. Participating students attended schools with various middle school age configurations, including K-8, K-12, 5-8, and 6-8. Schools represented public and charter public schools and were located in urban, suburban, and rural areas in Massachusetts. Based upon survey responses, I interviewed eight highly motivated students and eight low motivated students to further examine factors impacting their learning. These findings guided the development of a questionnaire to understand teachers' perceptions of their students' motivational and engagement levels and factors. Finally, I examined the relationship between cognitive neuroscience and early adolescent motivation. The results of the study show a number of factors impact motivation and engagement during the early adolescent years, specifically related to students' experiences, thoughts, and behaviors. The most influential of these dynamics included transitions, learning experiences, teacher relationships, parent relationships, and stress, anxiety, and coping skills. Brain development research shows a clear relationship between the factors impacting motivation and the biological changes occurring in early adolescents. These findings direct a critical discussion of how school leaders can create learning environments to proactively address motivational and engagement issues often faced by early adolescents.

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The importance of this study was to hear directly from students; those who are impacted by the decisions and actions adults take and make. We need to include them in the process of school improvement by understanding their perceptions and realities. Thank you to the students and their parents who contributed their thoughts, hopes, excitement, and frustrations to this study. Likewise, I greatly appreciate the principals and teachers who volunteered their time to my research. Professional educators who work daily with students must be heard in the discussion of creating learning conditions that engage their students. Thank you!

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identifying, solving, reflecting, and caring. His combination of intellect, compassion, and confidence made me a better leader and learner. Dr. Ralph, I miss your friendship.

My family has been my foundation throughout my professional career and doctoral study. We have suffered personal tragedies the past few years, and without their love, appreciation, support, laughter, and perspective, I would not have had the resilience to keep moving forward.

My incredibly loving and beautiful wife is my daily reminder that "life is great." Angela loves, listens, and encourages. Her unwavering support lifts me up while keeping me grounded. She is a selfless, caring, and amazing woman. Angela, I love you, SOBE.

I am also blessed with three sons: John, my high school senior, and Matthew and Jacob, my twin three-year olds. John has been my inspiration for years. His character, intellect, creativity, and love for others continue to astound me. He will never know how much I have looked to him for strength and guidance throughout the years. I love you, Buddy Boy!

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CHAPTER I

INTRODUCTION

Increasing Motivation in the Early Adolescent Learner

This doctoral thesis focuses on early adolescent motivation in school. It is an inquiry that seeks to understand the various factors that contribute to students' engagement in their learning through both student and teacher perceptions. In this inquiry, I examined significant research often cited as impacting motivation and engagement, including early adolescent development, middle school structures, transitions, student/teacher relationships, and parental involvement. Using this knowledge, I surveyed 345 sixth grade students on their perceptions of their own learning, thoughts, and behaviors. Participating students attended one of 11 different schools with various middle school age configurations, including K-8, K-12, 5-8, and 6-8. Schools represented both traditional public and charter public schools and were located in urban, suburban, and rural areas within the Commonwealth of Massachusetts. In subsequent chapters, I analyze and report findings on students' perceptions of their learning and on clearly identified factors impacting motivation and engagement. Quantitative data are further examined based on student enrollment within different middle school structures and experiences with transitional learning times.

The data were also used to create interview questions to seek additional and clarifying information from individual students. I interviewed eight highly motivated students and eight low motivated students – motivational levels were identified by the results of various survey measures – to further examine common and contrasting factors impacting motivation and engagement during their early adolescent learning experiences. Interview responses provided me with specific examples of positive and negative influences and important common factors encountered in their learning. Further, these findings aided the development of a questionnaire

designed to understand teachers' perceptions of their students' motivational and engagement levels and factors. In subsequent chapters, I provide further analysis of these detailed student and teacher responses, providing meaningful findings that directly relate to the study's guiding questions.

Finally, I examined the current research on early adolescent brain development and identified relationships between cognitive neuroscience and early adolescent motivation and engagement. These relationships and subsequent findings direct a critical discussion of how school leaders can create supportive learning environments to proactively address motivational and engagement issues often faced by early adolescents. In this chapter, I will outline the context to the study, including a brief review of the theoretical concepts traditionally used to discuss motivation and engagement in early adolescents, and the problem the study addresses.

Statement of the problem

Far too many early adolescent students are not motivated at school. Their disengagement negatively impacts their ability to learn and to be prepared for success. The research literature consistently reports that young adolescents struggle with motivational declines as they move from elementary to middle school (Alspaugh, 1998; Eccles et al., 1993). Reasons for these declines often seem unclear, however several factors should be considered: the timing of the school transition with the transition into adolescence (Blyth, Simmons, & Carlton-Ford, 1983; Simmons & Blythe, 1987); mismatches between the school environment and young adolescents' needs (Eccles et al., 1993); and the shifting nature of the relationships with middle school teachers (Davis, 2003). Several studies provide evidence that the transition to middle school is associated with a loss of academic achievement, elevated suspension rates, and reduced self-esteem (Alspaugh, 1998; Byrnes & Ruby, 2007; Weiss & Kipnes, 2006). Researchers have also focused on the motivational orientation in the middle school classrooms, and they suggest that

task-oriented classrooms (learning to finish the task) are linked to motivational and achievement declines in the middle school, while mastery-oriented classrooms (learning for the sake of learning) are associated with increases in motivation and academic achievement (Anderman & Midgley, 1997).

There is also a large body of work by educational researchers and developmental psychologists documenting changes in attitudes and motivation as children enter adolescence (Eccles et al., 1983), with instructional differences in middle schools contributing to these changes. During this time, many students do not achieve at the same levels as the previous year and can become further disenfranchised with their own learning. These struggles can continue through to their high school years, significantly contributing to dropping out of school (Balfanz, Herzog, & MacIver, 2007; Alspaugh, 1998; McDonald & Marsh, 2004). Understanding and supporting students during their early adolescent years is essential to preventing a nearly irreversible decline as they grow older.

Students' emotional engagement is also related to the decision to drop out. Several scholars suggest that alienation, a feeling of estrangement or social isolation, contributes to students dropping out of school (Elliot & Voss, 1974; Finn, 1989; Newmann, 1981). Other studies have compared students who drop out of school to those who remain in school; students who drop out are more likely to have social difficulties and negative attitudes towards school (Cairns, Cairns, & Nederman, 1989; Wehlage & Rutter, 1986).

The process of disengagement and alienation that ultimately leads students to leave school prematurely may start as early as first grade, but more often starts or is intensified during the middle school years (Balfanz, Herzog, & MacIver, 2007; Finn, 1989; Wehlage and Rutter, 1985). For example, Kaplan, Peck, and Kaplan (1997) documented that low grades in 7th grade predicted devaluing of grades by the 8th grade and that such attitudes directly increased the risk

of dropping out. Further, they found that, in addition to low grades, lack of motivation, relationships with negatively influential peers, and social alienation from school-based peer networks during these grades all independently contributed to the risk of dropping out. The issues faced by these students in their early adolescent experiences directly impacted their future learning and decisions (Kaplan, Peck, & Kaplan, 1997). It follows that researchers should explore learning experiences in the elementary and middle grades to determine the factors most closely aligned with future dropout rates.

In fact, some of the most credible data cites the importance of targeting intervention beginning in the sixth grade. Starting in 1996-97 school year, Balfanz (2007) and his research team performed an eight year longitudinal study on a cohort of nearly 13,000 Philadelphia sixth graders. Their research yielded four highly predictive warning flags. Sixth grade students were at least 75 percent less likely to graduate on time or within one year of their class if they experienced any of the following variables: attend school 80 percent or less of the time; fail math in sixth grade; fail English in sixth grade; or receive an unsatisfactory final behavior mark. The study also indicated that sixth graders who develop academic and behavioral problems do not self-correct, necessitating supportive or intensive measures to successfully address. The researchers also reported that these same behaviors developed by students after sixth grade were not as powerful in predicting eventual drop outs. Further, the Balfanz study was useful in identifying 60 percent of the eventual drop outs in high school. The study found that students with no flags graduated at a rate of 56 percent, students with one flag graduated at a rate of 21 percent, two flags graduated at a rate of 13 percent, and student with three flags graduated at a rate of 7 percent. Balfanz (2007) and others clearly indicate that academic success in key content areas, high absence rates, and misbehavior are tightly linked to the propensity to drop out (Balfanz, Herzog & MacIver, 2007).

Further research indicates that early adolescent students report a high level of anxiety on a variety of contributing factors to declining motivation and academic performance, such as transition times, increased academic expectations and quantity of homework, multiple teachers and personalities, and new buildings and peers. These and other issues directly impact students' emotions, stress, and fear, subsequently leading to declines in motivation and performance (Anderman, Maehr, & Midgley, 1999; Dweck, 1986; Finn, 1989; Midgley & Edelin, 1998). These experiences often continue to cement negative attitudes and beliefs of learning, so students fail to fulfill their full potential and become drop out candidates prior to entering high school. This is not a recent phenomenon; rather this trend has remained constant for decades.

Some schools have developed transitional programs to address these issues yet most plans focus on changes in classroom structure, experience with different teachers, and the use of lockers. While some plans have produced gains, many students continue to suffer declines in motivation. Further, these struggles do not only occur upon the transition to traditional middle schools, but also in schools with other grade level configurations, such as K-6 and K-8 buildings (George, 2005; Pardini, 2002; Rockoff & Lockwood, 2010; Weiss & Kipnes, 2006). The motivational issues clearly are closely related to the students' age of development. Most transitional supports often only superficially examine students' actual stressors and anxieties, rarely considering the biological and chemical factors of the developing adolescent brain to understand their direct link to emotion and motivation in learning during this critical time of change (Dweck, 2006; Eccles, Lord, & Midgley, 1991; Jensen, 2001).

Early adolescent learners face tremendous challenges at this juncture of their educational experience. External pressures, such as family participation, peer and teacher relationships, and an emphasis on high-stakes testing, combine with internal forces such as self-efficacy, self-confidence, and identity to create significant stressors (Epstein, 2001; Dweck, 2006; Goodenow,

1992; Lynch & Ciccetti, 1997). These factors, when matched with the biological and chemical changes in the developing adolescent brain, increase the opportunities for confusion, anxiety, and high emotion. Cognitive neuroscientists have identified that common emotional responses of adolescents – fear, outbursts, lack of motivation, and risky behavior – are not solely the result of surging hormones. Rather, the regions in the adolescent's brain which govern reasoning, planning, language, and impulse control are still developing (Giedd et al., 1999; LeDoux, 2000; Steinberg, 2009). Since educators are at the forefront of teaching, molding, and supporting children, these professionals must be equipped with the knowledge of how and why adolescents both learn and avoid learning. They must also be skilled in the strategies to effectively engage their students' emotional mindset (Feinstein, 2006; Jensen, 1998; Medina, 2008). With appropriate coping skills and supports, stressors faced by early adolescents can be managed effectively. However, without a thorough understanding of the conditions necessary to mitigate these factors, early adolescent students may suffer negative consequences which can last a lifetime (Olson, 2009).

Having a developmentally appropriate school climate is essential to meeting the needs of young adolescents and to facilitating a positive learning experience (Davis, 2003; NMSA, 2003). Developmentally appropriate middle schools are characterized by a relevant and rigorous curriculum, learning related to the lives of students, and acknowledgement of students' individual learning needs (Hester, Gable, & Manning, 2003; Jackson & Davis, 2000; Manning, 2000; NMSA, 2003). However, in the present educational context, influenced by an emphasis on high-stakes testing, schools instead offer heavy doses of drill and practice, fact memorization, test preparation, and teacher-centered instruction designed to "cover" content for standardized tests (Solley, 2007). The resulting contrasts between the needs of young adolescents and their middle school environments may lead to not only poor school transitions (Eccles et al., 1993),

but also a host of negative long-term outcomes, such as alcohol and drug abuse, delinquency, and dropping out of school (Anfara & Schmid, 2007; Davis, Davis, Smith, & Capa, 2003; Finn, 1989, 2006; Galbo, 1989; Midgley & Edelin, 1998; Murdock, 1999; Murdoch & Miller, 2003; Simmons & Blyth, 1987). Evidence strongly suggests that the magnitude of motivational and academic declines in the early adolescent years is a significant predictor of dropping out of secondary school. It is clear that school leaders must identify and mitigate the factors that contribute to early adolescent stressors and engage students to be motivated to learn.

Purpose of the study

The primary purpose of this study is to examine why early adolescents are motivated and engaged in their learning. The study examines the factors that impact early adolescent learning and how school leaders can create conditions to engage and support students. The study seeks to investigate, identify, analyze, and compare the common elements that impact student learning during early adolescent years, occurring at all schools, regardless of grade configuration and time of grade transition. The study also seeks to better understand the relationship between these factors, students' perceptions of their learning experiences, teachers' perceptions of student motivation and engagement in their learning, and the research on early adolescent brain development. Finally, the study will make recommendations for leaders to support students in their early adolescent education to increase student motivation and academic performance.

The following questions will be explored:

1. What factors contribute to motivation and engagement during early adolescent development?
    a. What are the common and contrasting factors among students who attend schools with different grade configurations during their middle years?

b. What is the relationship between these factors and early adolescent brain development in the middle years?

2. What do teachers of early adolescent students perceive to be the factors that contribute to student motivation and engagement?
3. What are the school conditions necessary to support high motivation and academic performance in the early adolescent years?

Definition of terms

The following terms will provide an important foundation for this study:

Academic/Educational Resilience – Students' ability to deal effectively with academic setbacks, stress, and study pressure (Martin, 2010).

Amygdala – Almond-shaped region in the center of the brain, part of the limbic system, and involved in the speedy and automatic processing of emotions, and in some cases, fear and distress (Blakemore & Frith, 2005).

"Anxiety" – Anxiety has two parts: feeling nervous and worrying. Feeling nervous is the uneasy or sick feeling students get when they think about their schoolwork, projects, or tests. Worrying is their fear about not doing very well in their schoolwork, projects, or tests (Martin, 2010, p.46); An unpleasant emotional state that is focused on potentially negative events. It exists along a continuum from mild concern to intense fear (Sylwester, 2005).

Cortisol – A hormone secreted by the adrenal gland into the bloodstream during stressful situation. Cortisol travels throughout the body and brain to activate various systems involved in fight/flight behaviors (Sylwester, 2005).

Declarative memory – Knowledge of events and facts to which we have conscious access (Sousa, 2006).

Disengagement – Students lose interest or feel like giving up in particular school subjects or school generally. Students high in disengagement tend to accept failure and believe there is little or nothing they can do to avoid failure or attain or repeat success (Martin, 2010).

Dopamine – A neurotransmitter released into the frontal lobe areas where it helps regulate emotional behaviors and conscious movements (Sylwester, 2005).

Early adolescence – The stage of development between ages ten and fourteen when the child begins to reach puberty (George & Alexander, 2003).

Early adolescent brain development – The activity of growth and maturation in the brain during the early adolescence stage of development (Sousa, 2006).

Emotion – An unconscious arousal system that alerts a person to potential dangers and opportunities (Sylwester, 2005).

Emotional memory in learning – The retention of the emotion components of an emotional experience (Sousa, 2006).

Endorphins – A chemical naturally released in the brain to reduce pain, and in large amounts can make a person feel relaxed and/or energetic (Blakemore & Frith, 2005).

Executive functions – High-level processes of the frontal lobes, such as the ability to inhibit inappropriate behavior, plan, select actions, hold information in mind, and do two things at once (Blakemore & Frith, 2005).

"Failure Avoidance" – Students have an avoidance focus when the main reason they do their schoolwork is to avoid doing poorly or to avoid being seen to do poorly. They tend to do their homework mainly to avoid getting bad marks, do their schoolwork mainly to avoid people thinking they cannot do it, and do their schoolwork mainly because they do not want to disappoint their parents or teachers (Martin, 2010, p.46).

fMRI – Functional magnetic resonance imaging. A brain imaging technique used for measuring blood oxygen in the living brain (Blakemore & Frith, 2005).

Frontal lobe – The large region at the front of the brain, just behind the forehead. This region is responsible for high-level cognitive processes including planning, integrating information, controlling emotions, and decision making (Blakemore & Frith, 2005).

Hippocampus – A seahorse-shaped structure deep in the brain's temporal lobe and part of the limbic system, involved in storage and retrieval of memories and spatial navigation (Blakemore & Frith, 2005).

Learning – How the brain acquires new information and skills that persist (Sylwester, 2005).

"Learning focus" – Being focused on learning, solving problems, and developing skills. The goal of a learning focus is to be the best student one can be. If students are learning focused they tend to work hard, want to learn more, enjoy learning new things, enjoy solving problems by working hard, and do a good job for its own satisfaction and not just for rewards (Martin, 2010, p.46).

Limbic system – A group of brain structures that are involved in various emotions such as aggression, fear, pleasure, and also in the formation of memory; the limbic system consists of several structures including the hippocampus, amygdala, cingulated gyrus, and hypothalamus (Blakemore & Frith, 2005).

Memory – How and where our brain stores learned information and skills that can be retrieved (Sylwester, 2005)

Middle grades/years – Any range of grades from five to eight (Juvonen, Le, Kaganoff, Augustine, & Constant, 2004).

Middle school – Middle school in this study refers to middle grades/years as defined above. Most middle schools begin with the 6th grade and end with the 8th grade, but some students in the "middle grades" are served in schools configured in other ways; for example in schools serving grades 5 through 7, grades 5 through 8, or even in grades kindergarten through 8 (Juvonen, Le, Kaganoff, August, & Constant, 2004).

Motivation – Students' energy and drive to learn, work effectively, and achieve to one's potential at school (Martin, 2010); The force that guides behavior from beginning to end (Miller & Desberg, 2009); the influence of needs and desire on behavior (Sousa, 2006).

"Motivation and Engagement Boosters" – The thoughts and behaviors that reflect enhanced motivation and engagement. They include self-confidence, thinking that school is important, being focused on learning, planning schoolwork, and trying hard (Martin, 2010, p.3).

"Motivation and Engagement Mufflers" – The thoughts and behaviors that reflect constrained or impeded motivation and engagement. They include anxiety, failure avoidance, and uncertain control (Martin, 2010, p.3).

"Motivation and Engagement Guzzlers" – The thoughts and behaviors that reflect reduced motivation and engagement. They are self-sabotage and disengagement (Martin, 2010, p.3).

Neuron – Brain cell; the human brain contains 100 billion neurons (Blakemore & Frith, 2005).

Neuroscience – The study of the structure and function of the brain, mind, and behavior (Blakemore & Frith, 2005).

Non-declarative memory – Knowledge of motor and cognitive skills to which we have no conscious access, such as riding a bicycle (Sousa, 2006).

Perception – The subjective interpretation of incoming sensory information (Sylwester, 2005).

"Persistence" – How much students keep trying to work out an answer or to understand a problem even when that problem is difficult or challenging. If students are persistent they tend to keep going over schoolwork until they understand it, spend time trying to understand things that do not make sense immediately, and keep working at a task even when it is difficult (Martin, 2010, p.46).

"Planning" – How much students plan their schoolwork, assignments, and study and how much they keep track of their progress as they are doing them (Martin, 2010, p.46).

Prefrontal cortex – Anterior part of the frontal cortex, involved in planning and selection of behavior and memory (Blakemore & Frith, 2005).

Resilience – The process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances (Howard & Johnson, 2000).

Self-belief – A student's belief and confidence in their ability to understand or to do well in their schoolwork, to meet challenges they face, and to perform to the best of their ability (Martin, 2010, p.45).

Self-concept – The composite of ideas, feelings, and attributes that a person has about his/her own identity, worth, capabilities, and limitations (http://answers.com).

Self-efficacy – A confidence measure related to an individual's assessment of his/her skill and whether he/she believes he/she can apply those skills to particular situations. It has little to do with reality and everything to do with belief (Miller & Desberg, 2009).

"Self-sabotage" – Students self-sabotage when they do things that reduce their chances of success at school. Examples are putting off doing a project or wasting time while they are meant to be doing their schoolwork or studying for a test. They do not try hard at projects or

difficult schoolwork, do not study hard before tests, and do other things when they should be doing homework (Martin, 2010, p.47).

Sequential explanatory design – This is a two-phase mixed methods approach to a study. The first phase is the collection and analysis of quantitative data. The second phase is the collection and analysis of qualitative data based upon the results of the first phase. The two phases are then used together during the interpretation phase (Plano Clark & Creswell, 2007).

Social brain – The network of brain areas that are involved in understanding others and in social communication (Blakemore & Frith, 2005).

Stress – A condition in which a looming real or imagined challenge physically or psychologically overwhelms a person. A stress response is the sequence of biological events that are triggered by the stressor (Sylwester, 2005).

Student engagement – The behavior that reflects the energy and drive to learn, work effectively, and achieve to one's potential at school (Martin, 2010); The situation that occurs when children show sustained behavioral involvement in learning activities accompanied by a positive emotional tone. They select tasks at the border of their competencies, initiate action when given the opportunity, and exert intense effort and concentration in the implementation of learning tasks; they show generally positive emotions during ongoing action including enthusiasm, optimism, curiosity, and interest (Skinner and Belmont, 1993).

Synapse – Connection or specialized junctions that allow information to be passed between neurons (Blakemore & Frith, 2005).

Synaptic pruning – The process by which infrequently used synapses are eliminated (Blakemore & Frith, 2005).

"Task (study) management" – Refers to the way students use their homework time, organize their homework timetable, and choose and arrange where they do their schoolwork and homework (Martin, 2010).

Temporal lobe – The region of cortex on both sides of the brain, where visual recognition and language comprehension occurs (Blakemore & Frith, 2005).

Transition – A period of moving from one phase to another (Eccles et al., 1993).

"Uncertain Control" – Students are unsure about how to do well or how to avoid doing poorly. They can be at risk of helpless or disengagement at school (Martin, 2010, p.47).

"Valuing" – Valuing at school is how much students believe what they learn at school is useful, important, and relevant to them or to the world in general. If students value school they tend to believe that what they learn can be used in other parts of their life, believe that it is important to learn at school, and feel that what they learn at school is relevant to current events in the world (Martin, 2010, p.45).

Significance of the study

The nation's graduation rate of 70% and dropout rate of 8% are alarming (Cataldi, Laird, & KewalRamani, 2009). Worse, statistics indicate that this trend will continue unless we radically shift our approach to teaching and supporting our children. One of the central factors contributing to these statistics is the declining motivation and engagement of students at the middle and high school levels. Motivation and engagement play a large part in students' interest in and enjoyment of school and study. Motivation and engagement also reinforce student achievement (Martin, 2001; Martin & Debus, 1998; Meece, Wigfield, & Eccles, 1990; Pintrich & DeGroot, 1990). Students with varying degrees of academic performance can benefit from increased motivation and engagement. Those who underachieve have greater chances for success. Students who achieve to their potential benefit by building upon their strengths.

Educators benefit through enhanced opportunities for learning and development in the classroom. Motivation and engagement are, therefore, relevant to all students and educators (Martin, 2010). However, if school leaders continue to use dated strategies to address large-scale efforts to re-engage disengaged students, success may be in vain. As Albert Einstein is thought to have said: we cannot solve the problems of today by applying the same kind of thinking we did when we created them (thinkexist.com, 2010).

Comprehensive research has explored the significance of the factors that negatively impact student learning during the transition from elementary school to middle school (Alexander & Williams, 1965; Eccles, Lord, & Midgley, 1991; Eichorn, 1966; Rockoff & Longwood, 2010). A few studies have explored the impact of middle school transition programs that support students who struggle both socially and academically and suffer a decline in motivation (Brough, 1995; George & Alexander, 2003). Other studies have resulted in transforming separate elementary and middle schools into schools with larger grade configurations, such as K-6, K-8, and K-12 (Jackson & Davis, 2000; Mertens, Flowers, and Mulhall, 1998). Proponents suggest that eliminating or reducing the number of environmental transitions will result in greater student engagement and achievement.

Few researchers have sought to compare the developmental, environmental, emotional, and social factors which occur during early adolescence at various building and grade configuration environments and to identify the common elements that impact motivation and engagement regardless of this transition difference. Further, few researchers have sought to determine if there is a relationship between these common factors and cognitive and social neuroscience research on early adolescent brain development.

This study will seek to identify the developmental, environmental, emotional, and social factors that directly and dramatically impact motivation and engagement of early adolescents at a

time in their education when they experience significant external and internal pressures and challenges. Additionally, this study will examine how these factors may correlate with the growth and changes in the early adolescent brain. As a result, school leaders may be informed to create more effective, research-based learning environments to reduce the number of students who experience a sustained decline in motivation and performance. Further implications of the findings may support the strengthening of upper elementary and middle school-age transition programs, the creation of interconnected student support networks, and the integration of brain-based learning instruction, interventions, and structures.

Summary of review of the literature

Significant research has shown a decline in motivation and performance for many children as they move from elementary school into middle school. As student motivation is a critical influence on individual learning, this study reviews the literature on student motivation and engagement in school. Theories associated with motivation and engagement are examined. The study also reviews the literature on several major contributors to early adolescent student motivation and engagement in school settings including early adolescent development and its relationship with school learning, the structure of the middle school model, transitions in schooling, student-teacher relatedness, and parental involvement. Finally, the study examines the literature on neuroscience and early adolescent brain development.

This study examines various theories associated with motivation and engagement, including goal orientation (Ames, 1992; Anderman & Midgley, 1998), attribution (Ames, 1984; Anderman & Anderman, 2006; Weiner, 1985, 1994), need achievement and self-worth (Atkinson, 1957; Covington, 1992; McClelland, 1965), and self-determination (Deci & Ryan, 1985). Recent multidimensional constructs, utilizing a combination of the described theories are analyzed (Martin, 2010). While most researchers and educators agree that motivating all

students cannot be accomplished in a simple and singular approach, research suggests that general patterns can be seen across a wide range of students. These motivation and engagement theories are particularly relevant for early adolescent students and their teachers (Anderman & Midgley, 1998).

This study also reviews the literature on several major contributors to early adolescent student motivation and engagement in school settings including early adolescent development and its relationship with school learning (Eccles & Midgley, 1989; Eccles et al., 1993; Erickson, 1968; Simmons & Blyth, 1987), the structure of the middle school model, transitions in schooling, student-teacher relatedness, and parental involvement.

Middle schools were created to bring focus to the teaching and learning of early adolescent students, bridging the different administration of elementary and secondary schools (Alexander, 1984; Alexander & Williams, 1965; Eichorn, 1966, 1987; George & Alexander, 2003; Lounsbury, 1992). Over the past 15 years, there has been significant research dedicated to reducing the number of transitions students experience in their K-12 education, resulting in the creation of K-6, K-8, K-12, and 7-12 schools (Eccles, Wigfield, & Schiefele, 1998; Felner et al., 1997; Jackson & Davis, 2000). Understanding the evolution of educational approaches during the middle years is important to understand the various factors which contribute to declining motivation and performance during and after transitions.

There is a body of research that focuses on the academic, emotional, and social aspects of grade-level and building transitions. These factors relate to various transitions, including early elementary, middle school, and high school settings (Alspaugh, 1998; Eccles et al., 1993; Felner et al., 1997; Mizelle, 2000; Weldy, 1991). Change occurs naturally during a transition from one phase to another, yet is amplified during the emotionally-charged time of adolescence. For a number of students, these transitions can be difficult to negotiate. One important transition

involves the move from elementary school to middle school. This is a major transition for children and can occur around the same time early adolescents begin puberty, creating a period when individuals are experiencing both a developmental and a systemic transition (Nottelman et al., 1987). The middle school transition has been found to be associated with a variety of negative effects on adolescents including declines in achievement (Alspaugh, 1998), decreased motivation (Anderman, Maehr, & Midgley, 1999), and lowered self-esteem (Eccles et al., 1993; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991).

Positive, supportive relationships are critical to student achievement. The perceptions of students that they have a caring, understanding, and knowledgeable teacher can play a significant role in motivation, student belonging, and commitment to school. Research suggests that students' decisions to remain in school are influenced by caring teachers and highly regarded relationships (Knesting, 2008; McMillan & Reed, 1994; Wilson, 2007). A significant body of research identifies caring as a factor in fostering relationships with students (Baker, 1999; Ladson-Billings, 1994; Scales & Taccogna, 2000; Stanton-Salazar, Vasquez, & Mehan, 2000) listening to students (Nelson & Bauch, 1997; Nelson, Lott, & Glenn, 1997; Noddings, 2005; Wentzel, 1997) or addressing student needs in a culturally responsive manner (Gay, 2000). A caring demeanor is critical, especially for culturally diverse students who may be at risk of failing or who may be disengaged from schooling (Perez, 2000).

Further, students tend to perform better in school when their parents are positively and proactively involved in their education. Research has linked parental involvement to a variety of positive educational outcomes in children, including improved grades and test scores (Shumow & Miller, 2001; Steinberg, Lamborn, Dornbusch, & Darling 1992; Stevenson & Baker 1987), reductions in behavioral problems (Amato & Rivera, 1999), and increases in overall well-being (Simons-Morton & Crump, 2003; Wenk, Hardesty, Morgan, & Blair, 1994). As a result, many

researchers and educators have focused on parental involvement to improve student achievement, behavior, and self-esteem. However, even with research indicating strong benefits to parental involvement, the importance placed upon this educational partnership through policy initiatives, such as the federal law, No Child Left Behind, and state-led programs (Massachusetts Department of Education, 2005), and individual school family outreach plans (Caspe & Lopez, 2006; Epstein, 2001; Epstein et al., 2002; Sheldon, 2003, 2005), educators continue to witness impactful disconnects between school and home. Further, as students become more engaged in activities and relationships outside of the home, studies indicate parents often become less involved in classroom instruction and school activities. Absent engaged parents, educators often become the role model for the early adolescent.

In addition, this study will review literature on neuroscience and early adolescent brain development. The past decade has seen a tremendous increase in the exploration and understanding of cognitive and social neuroscience in school settings. Brain-based instructional strategies, classroom structures, and support programs have been created as a result of this knowledge. Cognitive neuroscientists have identified that the emotional responses of adolescents – fear, outbursts, risky behavior, and the resulting lack of motivation and engagement in school – are not solely the result of surging hormones. Rather, the regions in the adolescent's brain which govern reasoning, planning, language, and impulse control are still developing (Giedd et al., 1999; LeDoux, 2000; Steinberg, 2009). Since educators are at the forefront of teaching, molding, and supporting children, these professionals must be equipped with the knowledge of how and why adolescents both learn and avoid learning. They must also be skilled in the strategies to effectively engage their students' emotional mindset (Feinstein, 2006; Jensen, 1998; Medina, 2008).

Design of the study

This study uses a sequential explanatory mixed methods design. This design is characterized by the collection and analysis of quantitative data followed by the collection and analysis of qualitative data. The results and analysis of the quantitative data were used to inform the qualitative phase of the study. The two methods were integrated during the interpretation phase of the study. This design enabled the researcher to use the qualitative results to assist in explaining and interpreting the findings of the quantitative study as well as to further explore quantitative findings. This design enabled the researcher to report in two distinct phases (quantitative and qualitative) with a final discussion that brings the results together (Plano Clark & Creswell, 2007).

The quantitative data was collected through the *Motivation and Engagement Scale – Junior School* (Martin, 2010). This instrument (see Appendix A) measures elementary and middle school students' (ages 9-13) motivation and engagement. It is hypothesized to assess motivation and engagement through three adaptive cognitive dimensions, three adaptive behavioral dimensions, three impeding/maladaptive cognitive dimensions and two maladaptive behavioral dimensions of motivation and engagement. Each of the 11 factors comprises four items – hence it is a 44-item Likert scale type instrument. To each item, students rate themselves on a scale of 1 ('strongly disagree') to 5 ('strongly agree'). The four primary categories of scores center on: 1) self-belief, valuing, and learning focus (*Booster Thoughts*); 2) planning, task management, and persistence (*Booster Behaviors*); 3) anxiety, failure avoidance, and uncertain control (*Mufflers*); and 4) self-sabotage and disengagement (*Guzzlers*) (Martin, 2010).

In this study, the *Motivation and Engagement Scale* (Martin, 2010) survey was administered to 345 early adolescent students in sixth grade, ages 11 – 12, on a voluntary basis and with the permission of their parents. Students were recruited through an online introduction

and invitation (see Appendix B) to Massachusetts public school principals who educate early adolescent children. All respondents were required to complete the Informed Consent Form (see Appendix C) and obtain parental permission. This survey was used to examine the factors that impact early adolescent learning and how school leaders can create conditions to re-engage and support students. The survey sought to investigate, identify, analyze, and compare the factors that impact student learning during early adolescent years, occurring at all schools, regardless of grade configuration and time of grade transition. Comparing individual and cohort scores on *Booster*, *Muffler*, and *Guzzler* cognitive and behavioral dimensions provided the author specific data on motivation and engagement measurements. This analysis led to the selection of interview candidates who shared common factors in motivation and engagement represented each school configuration.

Upon analysis of the student survey phase of the study, student interview questions (see Appendix D) were developed to more narrowly focus the results. Qualitative questions were designed to specifically address the statement of the problem and the questions that guided the study. Questions were developed from the common factors that contribute to motivation and engagement across all students regardless of school and grade configuration. Questions focused on both positive and negative school and home experiences, directly related to their learning, engagement, and perceptions of teachers and parents. Questions were also designed in concert with the research of Dr. Sheryl Feinstein and Dr. David Sousa, two noted researchers and authors on adolescent learning, motivation and engagement in learning, and neuroscience. Dr. Feinstein specifically reviewed and collaborated on the interview questions.

Sixteen student interview subjects were chosen from a representative group of schools with different grade configurations. Interview subjects were chosen from the number of respondents who demonstrated high and low motivation and engagement in the survey from each

group of schools. Eight students each were interviewed from the high and low motivation subject groups. All subjects voluntarily participated in this phase of the study on the Informed Letter of Consent. Phone interviews were conducted with each participant and lasted approximately thirty minutes each. Only one phone interview for each student participant was required. The lead researcher conducted all interviews by phone.

Upon analysis of the student quantitative survey and the student qualitative interviews, questions (see Appendix E) were developed to examine teachers' perceptions of the factors that contribute to motivation and engagement in their early adolescent students. Qualitative questions were designed to specifically address the statement of the problem and the questions that guided the study. Questions were developed from the factors that contribute to motivation and engagement across all students regardless of school and grade configuration and the specific results of the student interviews. Questions focused on students' positive and negative school and home experiences, directly related to their learning, engagement, and the behaviors. Questions were also designed in concert with the research of Dr. Sheryl Feinstein and Dr. David Sousa, two noted researchers and authors on adolescent learning, motivation and engagement in learning, and neuroscience. Dr. Feinstein specifically reviewed and collaborated on the interview questions.

Eleven teacher interview subjects were chosen from a representative group of schools with different grade configurations. Interviews were conducted through an open-ended survey questionnaire administered online, completed in thirty minutes on average per each teacher participant.

Chapter outline

The dissertation consists of five chapters.

Chapter one serves as the introduction. It provides a statement of the problem, the author's purpose of the study, a list of questions that guide the study, the significance to the field, and the definition of terms critical to the clear understanding of the paper. It also provides a summary of the research related to the issue of motivation and engagement during the early adolescent years. Chapter one briefly examines how the author examines the research questions and methodology as well as outlines the strategy of how ideas are presented throughout the dissertation.

Chapter two provides a review of the relevant literature. An introduction includes the purpose of review and the specific fields of literature. The review synthesizes the literature, provides the author's insights, and critiques as they relate to the topic. This chapter is sectioned by field of study with each area representing current thinking and major theories related to the topic. The literature review connects to the problem and the questions that guide that study.

Chapter three consists of the research methods, procedures, and design of the study. It provides a thorough description of the research methods used, provides information as to why the methods were chosen, identifies validity and reliability, and connects the research to the problem and questions that guide the study. Chapter three also consists of tables to illustrate participant characteristics.

Chapter four consists of the data analysis and results. It presents the data in an organized and concise manner that directly connects to the author's presentation in the statement of the problem. The presentation of data aligns with the questions that guide the study and represent a clear, relevant, and insightful interpretation of the author's findings. Chapter four consists of tables to represent the findings.

Chapter five consists of a discussion and conclusion. It summarizes what occurred during the study. It states the major points and findings, while linking all preceding chapters together. It places the study in a larger context to specify its significance, implication of findings, limitations, and makes recommendations for further study. It also provides a concluding section.

CHAPTER II

REVIEW OF LITERATURE

This chapter reviews the literature on student motivation and engagement in school. Theories associated with motivation and engagement are examined. This chapter also reviews the literature on several major contributors to early adolescent student motivation and engagement in school settings including early adolescent development and its relationship with school learning, the structure of the middle school model, transitions in schooling, student-teacher relatedness, and parental involvement. Finally, this chapter examines the literature on neuroscience and early adolescent brain development.

Student motivation and engagement

Students who are motivated and engaged in school are more successful as defined by a variety of measures and factors. Students typically earn better grades and are more proficient on standardized tests when they attend school regularly, focus on learning, abide by school rules, and avoid disruptive behaviors (Bandura, Barbaranelli, Caprar, & Pastorelli, 1996; Caraway, Tucker, Reinke, & Hall, 2003; Finn & Rock, 1997; Wang & Holcombe, 2010). In contrast, students who are disengaged and unmotivated in their learning are more likely to perform poorly and display problematic behaviors such as dropping out of school (Finn & Rock, 1997; Wang & Holcombe, 2010). While dropping out typically takes place during high school, the process of disengagement that ultimately leads students to leave school early may start as early as first grade, but more often starts or is intensified during the middle school years (Balfanz, Herzog, & MacIver, 2007; Finn, 1989; Wehlage and Rutter, 1985; Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006).

Motivation and engagement theoretical frameworks

Considerable research has shown a decline in motivation and performance for many children as they move from elementary school into middle school (Eccles & Midgley, 1989; Finn & Rock, 1997). While most researchers and educators agree that motivating all students cannot be accomplished in a simple and singular approach, research suggests that general patterns can be seen across a wide range of students. Several motivation and engagement theories are particularly relevant for early adolescent students and their teachers (Anderman & Midgley, 1998).

Goal orientation theory. Goal orientation theory focuses on the reasons or purposes students perceive for achieving (Ames, 1992). These perceptions for both success and failure follow along two domains: mastery and performance. Students who focus on mastery of their task (mastery/task orientation) believe the purpose of achieving is for personal improvement and understanding. These students focus on their own progress in mastering skills and increasing knowledge. Students who focus on how they are performing on a task (performance/ability orientation) believe that the purpose of achieving is demonstrating ability or concealing a lack of ability. These students focus on appearing skilled or proficient, often in comparison to others (Anderman & Midgely, 1998). Studies of students' goal orientation generally find that the adoption of mastery/task goals is associated with more adaptive patterns of learning than is the adoption of performance/ability goals. This includes the use of more effective cognitive strategies, a willingness to seek help when it is needed, a greater tendency to engage in challenging tasks, and more positive feelings about school and oneself as a learner (Anderman, Maehr, & Midgley, 1999).

Mastery/task orientation is closely aligned with intrinsic motivation, whereas performance orientation is more aligned with extrinsic aspects of tasks. Intrinsic motivation has

been linked with greater curiosity, interest, independence and desire for challenge amongst students (La Guardia & Ryan, 2002). Mastery orientation is deemed directly relevant to a framework articulating motivation and engagement and more so than performance orientation (Harackiewicz, Barron, Pintrich, Elliott, & Thrash, 2002) indicating that it is a critical element of student motivation.

Finally, a mastery/task orientation is established in students' lives through students' self-regulatory behavior (Miller, Greene, Montalvo, Ravindran, & Nichols, 1996; Miserandino, 1996; Zimmerman, 2002) such as planning, study management and persistence. In studies of student motivation, these constructs have been found to be predictive of achievement in academic tasks (Martin, 2001, 2003).

Attribution theory. According to attribution theory, (Weiner, as cited in Martin, 2010) promotes the reasons individuals attribute to events can determine how they behave in the future. Students' perceptions of their educational experiences generally influence their motivation more than the actual, objective reality of those experiences. In the classroom, the attributions students make influence their optimism, performance and affect (Ames, 1984; Craven, Marsh, & Debus, 1991; Weiner, 1985, 1994). For example, a history of success in a given subject area is generally assumed to lead to persistence in that area (Anderman & Midgely, 1998). Weiner (1985), however, pointed out that students' beliefs about the reasons for their success will determine whether this assumption is true. Students' attributions for failure are likewise critical influences on motivation and future decisions (Martin, 2010).

Weiner's theory (as cited in Anderman & Anderman, 2006) focuses on three causal dimensions: locus, stability, and controllability. These dimensions affect learners' subsequent motivation toward the task or activity:

> The locus dimension refers to whether the cause of the event is perceived as internal to the individual or external. If a learner believes that she failed an exam because she lacks ability, she is choosing an internal cause because ability is internal to the learner. In contrast, if a learner believes that he failed an exam because the teacher is incompetent, he is choosing an external cause because teacher incompetence is external to the student. The stability dimension refers to whether the cause is stable or unstable across time and situations. If a learner believes that he failed a science exam because he lacks ability in science, then his cause is stable, particularly if he believes that his lack of ability in science is a permanent quality. In contrast, if a learner believes that he failed the exam because he was ill at the time of the exam, then the cause is unstable in cases in which the illness is a temporary factor. When a student experiences success, attributions to stable causes lead to positive expectations for success in the future. In the face of failure, however, attributions to stable causes can result in low expectations for the future. The controllability dimension refers to whether the cause of the event is perceived as being under the control of the individual. If a student believes that he failed a test because he did not study hard enough, the cause is controllable because he could have decided to spend more time studying; in contrast, if he feels that he failed simply because he lacks the ability in the subject, then the cause is uncontrollable. By definition, only internal attributions can be considered controllable. (Anderman & Anderman, 2006, p. 56)

In addition to the effect of individuals' motivation and expectations on future success, Weiner's model also indicates that certain emotional responses are associated with various causal dimensions (Weiner 1985, 2006). Weiner and others have demonstrated that the locus

dimension is related to feelings of pride and self-esteem, the stability dimension is related to feelings of hopefulness or hopelessness, and the controllability dimension is related to such feelings as shame, guilt, anger, gratitude, and pity. Emotional consequences of attributions ultimately affect individuals' subsequent motivation to engage in a particular behavior (Anderman & Anderman, 2006).

Need achievement and self-worth motivation theory. Based on need achievement and self-worth models of motivation, students can be characterized in terms of three typologies: the success-oriented student, the failure avoidant student and the failure-accepting student (Atkinson; Covington; McClelland, as cited in Martin, 2010). Success-oriented students tend to be optimistic, adopt a proactive and positive orientation to their studies and are not debilitated by setback but rather respond to it with optimism and energy (Martin, Marsh, & Debus, 2001). Failure-avoidant students tend to be anxious (Alpert & Haber, 1960) and motivated by a fear of failure and may even actively handicap their chances of success (e.g. procrastinate, leave study until the last minute or not study at all) so that they have an excuse if they do not do so well (Martin & Marsh, 2003). Failure-accepting students have given up to the point of not even trying to avoid failure. These students are generally disengaged from their studies and display a helpless pattern of motivation (Abramson, Seligman, & Teasdale, 1978). The success-oriented student demonstrates evidence of high self-efficacy and control, while the fearful student demonstrates evidence of anxiety and failure avoidance. In terms of both the failure-avoidant and failure-accepting students, there is evidence of self-handicapping and disengagement (Martin, 2010).

Self-determination theory. Self-determination addresses how teachers and parents can help motivate students. The theory distinguishes between two types of motivation, autonomous

motivation and controlled motivation, and their related characteristics and consequences (Deci, Koestner, & Ryan, 1999).

Self-determination theory describes students as having three categories of needs: sense of competence, relatedness to others, and autonomy (Deci & Ryan, 1985). Competence involves understanding how to, and believing that one can, achieve various outcomes. Relatedness involves developing satisfactory connections to others in one's social group. Autonomy involves initiating and regulating one's own actions. Most of the research in self-determination theory focuses on the last of these three needs (Grolnick & Ryan, 1987). For early adolescent students, with their increased cognitive abilities and developing sense of identity, a sense of autonomy may be particularly important. Students at this stage of development indicate that they want to be included in decision making and to have some sense of control over their activities. Within the classroom, autonomy needs may be addressed by allowing student choice and input on classroom decision making. Unfortunately, research suggests that students in middle schools actually experience fewer opportunities for self-determination than they did in elementary school (Reeve & Jang, 2006; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004).

Deci, Vallerand, Pelletier, and Ryan (1991) summarized contextual factors that support student autonomy. Student choice over activities in which to engage is a primary association with students' feelings of self-determination. In contrast, the use of extrinsic rewards, the imposition of deadlines, and an emphasis on evaluations detract from a feeling of self-determination and often lead to a decrease in intrinsic motivation (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). However, supporting student autonomy does not require major change in the classroom. Small opportunities for choice, such as whether to work with a partner or independently, or whether to present a book review as a paper, poster, or class presentation, can increase students' sense of self-determination (Reeve & Jang, 2006). Teachers can help their

students by providing limited choices between acceptable options, by assisting with breaking large tasks into manageable pieces, and by providing guidelines for students to use in monitoring their own progress (Deci, Koestner, and Ryan, 1999; Koestner, Ryan, Bernieri, & Holt, 1984).

Contributing factors to motivation and engagement

Educational researchers and developmental psychologists have documented changes in attitudes and motivation as children enter adolescence (Eccles, 1983), and some have hypothesized that instructional differences in middle schools contribute to these changes (Anderman, Maehr, & Midgley, 1999; Eccles et al., 1993; Midgley & Edelin, 1998). The research consistently reports early adolescents struggle with motivational declines as they move from elementary to middle school (Alspaugh, 1998; Eccles et al., 1993). Several studies provide evidence the transition to middle school is associated with a loss of academic achievement, elevated suspension rates, and reduced self-esteem (Alspaugh, 1998; Byrnes & Ruby, 2007; Weiss & Kipnes, 2006).

During this time, many students do not achieve at the same academic and engagement levels as the previous year and can become further disenfranchised with their own learning. These struggles can continue through to their high school years, significantly contributing to dropping out of school (Balfanz, Herzog, & MacIver, 2007; Alspaugh, 1998; McDonald & Marsh, 2004). Further research indicates that early adolescent students report a high level of anxiety on a variety of contributing factors to declining motivation and academic performance, such as transition times (Blyth, Simmons, & Carlton-Ford, 1983; Simmons & Blythe, 1987); increased academic expectations and quantity of homework, mismatches between the school environment and young adolescents' needs (Eccles et al., 1993); and new buildings, peers, and the shifting nature of the relationships with middle school teachers (Davis, 2003). These and other issues directly impact students' emotions, stress, and fear, subsequently leading to declines

in motivation and performance (Anderman, Maehr, & Midgley, 1999; Dweck, 1986; Finn, 1989; Midgley & Edelin, 1998). These experiences often continue to cement negative attitudes and beliefs of learning, so they fail to fulfill their full potential and become drop out candidates prior to entering high school. This is not a recent phenomenon; rather this trend has remained constant for decades. Understanding and supporting students during their early adolescent years is essential to preventing a nearly irreversible decline as they grow older.

Early adolescent development. Evidence suggests that early adolescent development is characterized by increases in desire for autonomy and self-determination, peer orientation, self-focus, self-identity, and self-consciousness, concern over sexuality, and capacity for abstract cognitive activity (Simmons & Blyth, 1987). Children's bodies and minds transform as biological and cognitive changes occur. Social relationships and roles change dramatically as children enter school, join programs, and become involved with peers and adults outside their families. During these years, children make strides toward adulthood by becoming competent, independent, self-aware, and involved in the world beyond their families (Eccles, 2008).

For some children, the early adolescent years begin a trend downward toward academic failure and school dropout. Some early adolescents see their school grades significantly decline when they enter middle or junior high school, in addition to their interest in school, intrinsic motivation, and confidence in their intellectual abilities (Simmons & Blyth, 1987). Negative emotional responses to school increase as well, as young adolescents can become anxious, feel unsupported and helpless, and entirely self-conscious, negatively impacting their learning. Although these changes may not be extreme for most early adolescents, there is sufficient evidence of decline in motivation, academic performance, behavior, and self-perception for serious concern (Eccles, Wigfield, & Schiefele, 1998).

Negative motivational and behavioral changes might result from the psychological changes often associated with early adolescent development (Blos, 1979) or from the simultaneous occurrence of multiple life changes (Simmons & Blyth, 1987). Another factor is the failure of some families and schools to provide flexible environments that respond to the emerging maturity and independence of early adolescents. The proper relationship between the features of the social environment and an individual's characteristics can influence behavior, motivation, and mental health (Eccles & Midgley, 1989). Individuals are not likely to do well, or to be motivated, if they are in social environments that do not fit their psychological needs.

A central task of adolescence is to develop a sense of oneself as an autonomous individual. The drive for such autonomy comes from the internal, biological processes marking the transition to a more adult role (puberty and increasing cognitive maturity) and from the shifts in social roles and expectations that accompany these underlying physiological and cognitive changes (Eccles, Midgely, & Wigfield, 1993). Compared to children under age 10, adolescents are given new opportunities to experience independence outside the home. They spend more unsupervised time with peers which compared to adult-child relationships are relatively equal in terms of interpersonal power and authority (Eccles et al., 1993; Higgins & Parsons, 1983). At the same time, however, they continue to rely on the support and guidance offered by adults.

The importance of middle childhood, as a developmental period, was not always recognized by scholars. Piaget, for example, saw middle childhood as a plateau in development, a time when children combined the gains they made during the rapid growth of the preschool period, and when they prepared for the dramatic changes of adolescence. Piaget viewed the ages of 7 to 11 as the *concrete operational* stage, when children could think logically of objects and events. Once children transitioned to early adolescents, 11 years and older, Piaget considered early adolescents, teenagers, and older in the *formal operational* stage, when individuals think

logically about abstract propositions and test hypotheses systematically. They begin to be concerned with the hypothetical, the future, and ideological problems (Damon, 1998).

Erikson (1968) proposed the *eight stages of man* and stressed the importance of middle childhood as a time when children move from home into wider social contexts that strongly influence their development. Erikson (as summarized in Eccles, 1999) viewed the years between 7 and 11 as the time when children should develop what he called *sense of industry* and learn to cooperate with their peers and adults. It is a critical time in their development when they positively establish their identity or alternatively, can become confused about who they are and who they can be. The involvement in formal schooling and organized activities that begins during these years introduces children to new social roles in which they earn social status by their competence and performance (Higgins & Parsons, 1983). Children who do not master the skills required in these new settings are likely to develop what Erikson called a *sense of inferiority*, which can lead, in turn, to long-lasting intellectual, emotional, and interpersonal consequences (Eccles, 1999).

Researchers have corroborated Erikson's notion that feelings of competence and personal esteem are of central importance for a child's well-being (Eccles, Wigfield, and Schiefele, 1998). For instance, Cole (as cited in Eccles, 1999) reports children who do not see themselves as competent in academic, social, or other domains, such as athletics, music, drama, or scouting, during their elementary school years report depression and social isolation more often than their peers (Eccles, 1999). Compared to children who feel competent, those who experience early learning difficulties in school are at increased risk for short-term and long-term behavioral, academic, and psychiatric difficulties. They are likely to be retained in grade and to drop out before completing high school (Alexander, Entwisle, & Horsey, 1997; Cairns, Cairns, & Neckerman, 1989; Offord & Fleming, 1995).

Early adolescence gives children the opportunity to develop competencies and interests in a wide array of domains. For most children this is a positive period of growth. With the right kinds of experiences and supports, they develop a healthy sense of industry and a confidence that they can master and be engaged in their learning (Erikson, as cited in Eccles, 1999). Successful experiences in school can help to give a child a positive view of his or her competence and a positive attitude toward learning and engagement in various activities and challenges. Understanding this importance may help educators improve the learning experience for all students (Eccles, Wigfield, & Schiefele, 1998; Eccles, 1999).

Structure of the middle school. Public schools in the United States have placed students of similar ages into grade levels since the mid-1800s, but grade configurations have varied considerably over time. At the start of the 20th century, most primary schools in the United States included students from kindergarten through grade 8, while the early 1900s saw the rise of the junior high school, typically spanning grades 7–8 or 7–9 (Juvonen, Le, Kaganoff, Augustine, & Constant, 2004). These schools were originally established to place more of an academic and college-preparatory focus on younger students. In the 1950s and 1960s, significant debate escalated about a middle school model, as many educators sought a more developmentally responsive program and a more appropriate transitional environment for early adolescents. As a result, middle schools were formed with typical configurations of grades 6–8 or 5–8 (Rockoff & Longwood, 2010). During this same time, advocates of middle school pressed their cause, creating national associations, conducting further developmental and instructional research studies, and writing articles and books outlining the benefits of middle school education. Alexander and Williams (1965) recommended the creation of 5-8 middle schools featuring interdisciplinary teaming, small learning communities, a teacher advisory program, and special learning centers for remedial and enrichment. Eichorn (1966, 1987)

promoted the expansion of 6-8 middle schools, attempting to apply early adolescent development theories in designing a suitable educational program. For example, Eichorn (1966) proposed that middle schools offer frequent opportunities for active learning and interaction with peers. The author suggested eliminating activities that might embarrass students or place them at a competitive disadvantage. Eichorn further sought to welcome and affirm all students regardless of their current level of physical or cognitive development and to focus on the development of the early adolescent. Through Alexander, Wiliams, Eichorn, and others, as well as the formal establishment of the National Middle School Association in 1970, there was widespread agreement on middle school practices such as interdisciplinary team teaching, discovery and inquiry methods, teacher-adviser plans, flexible scheduling, exploratory courses, and ungraded assignments (Brough, 1995).

Although the number of middle schools grew quickly during the 1960s and 1970s, most of these new schools displayed limited progress toward the objectives and desired outcomes of the middle school movement (Alexander, 1984). In fact, one report noted that the first comparative studies of the new middle schools and the old junior high schools revealed little difference in practice (Lounsbury, 1992). Reasons for a perceived lack of progress and distinction between the two school structures were many, including that the new grade arrangements only helped some districts reduce overcrowding in elementary schools or the change was intentionally used for racial segregation (Compton, 1976); there lacked scientific evidence to persuade educators to change their programs and practices; research indicated that the transition to middle-grades schools was associated with declines in academic motivation and performance (George & Alexander, 2003); and students perceived that their middle-grades teachers cared less about them or did not know them as well as their elementary teachers (Brough, 1995; George & Alexander, 2003).

By the end of the 1980s, practitioners, researchers, and scholars began focusing attention to the developmental needs of students in the middle school years. According to the report *A Nation at Risk* (National Commission on Excellence in Education, 1983), many districts were struggling with implementing reforms to make effective change in student learning. Programs designed at early childhood education competed for attention and resources with the growing needs of high school students. States and foundations began to recognize that the middle grades might be central to helping more students succeed and stay in school. In its report *Caught in the Middle*, the California State Department of Education (1987) highlighted the need to focus on the developmentally-appropriate needs of middle school learners as the key link in students' educational experience. Other states issued similar reports, while several foundations such as the Carnegie Corporation of New York, the Edna McConnell Clark Foundation, and the W. K. Kellogg Foundation began advocating and funding middle-grades reform initiatives (Eccles, Wigfield, & Schiefele, 1998).

In its 1989 report *Turning Points,* the Carnegie Foundation called for the reform of education for early adolescents based upon the specific needs of students at this developmental time in their lives. The authors suggested that the middle grades should have the following characteristics (as summarized by Eccles et al., 1998):

- Create small learning communities that will allow close relationships to emerge between teachers and students;
- Teach a core academic program to everyone that includes opportunities for service;
- Ensure success by eliminating tracking, using cooperative learning, and providing flexible scheduling and adequate resources to meet the needs of all students;
- Empower teachers and administrators to take control of and responsibility for their schools;

- Staff schools with teachers who are trained to teach early adolescents;
- Foster health and fitness;
- Re-engage families; and
- Connect schools with communities.

Similar recommendations were offered by other scholars (Connell, 2003; Juvonen, Le, Kaganoff, Augstine, & Constant, 2004), as well as professionals focused in middle school education (Felner et al., 1997; Jackson & Davis, 2000). As a result, school districts sought to affect change in their approach to middle school education within the existing middle school structure (Eccles, 1998).

Over the past decade, studies have analyzed the impact of many of these middle model initiatives. Jackson and Davis (2000) found that structural changes in middle-grades education – how students and teachers are organized for learning – have been fairly widespread and have produced good results. For example, Felner and others (1997) examined a group of thirty-one Illinois middle schools that had made both structural and instructional changes consistent with *Turning Points* recommendations. These schools achieved substantially better and displayed larger achievement gains over a two-year period than did similar schools that had implemented at least some of the key structural changes outlined in *Turning Points*, but not changes in curriculum and instruction. Mertens, Flowers, and Mulhall (1998) conducted another study suggesting the critical importance of going beyond just structural changes in improving achievement and involved 155 middle-grades schools in Michigan. When these researchers analyzed outcomes in schools that had one of the key structural changes in place (interdisciplinary teams that were given high levels of common planning time), they found that achievement gains were much higher among the subset of these schools that had a received a grant from the Kellogg Foundation that made it possible for their teachers to engage more

regularly in staff development activities focused on curriculum and instruction. The authors found that, unfortunately, high-performing middle schools are still rare, because relatively little has changed at the core of most students' school experience: curriculum, assessment, and instruction (Jackson & Davis, 2000).

Many researchers and practitioners believe that middle school successes have not greatly impacted student learning (Juvonen, Le, Kaganoff, Augustine, & Constant, 2004; Simmons & Blyth, 1987). An increasing number of scholars and student advocates have argued for a return to the K-8 format because it seems to create more developmentally suitable environments for the early adolescent years. They state that K-8 structures might be more successful at implementing the types of classroom characteristics and building level opportunities most supportive of continued academic engagement and positive early adolescent development. These structures and learning environments are consistent with both the developmental needs of early adolescence and what educators believe about high quality instruction (Juvonen et al., 2004; Simmons & Blyth, 1987).

Transitions. School transitions have been a frequent topic in both the research and practice literature in recent years (Alspaugh; Eccles et al.; Felner et al.; Mizelle, 2000; Weldy, as cited in Akos & Galassi, 2004). For a number of students, these transitions can be difficult to negotiate. One important transition involves the move from elementary school to middle school (Akos & Galassi, 2004). This is a major transition for children and can occur around the same time early adolescents begin puberty, creating a period when individuals are experiencing both a developmental and a systemic transition (Nottelman, 1987). Further, Akos and Galassi (2004) contend, “The middle school transition has been found to be associated with a variety of negative effects on adolescents including declines in achievement (Alspaugh, 1998), decreased motivation

(Anderman & Midgley, 1997), and lowered self-esteem (Eccles et al., 1993; Wigfield, Eccles, MacIver, Reuman, & Midgley, 1991)" (p.212).

Student motivation and attitudes toward school tend to decline during the transition to middle school, as students begin dealing with the rapid physical, cognitive, and social transformations associated with early adolescence (Urdan & Klein, 1998). Self-esteem and self-perception of academic competence also may decline when students transition to middle school, especially for girls. One study found that girls who remained in a K-8 setting rather than transitioning to a middle school had higher self-esteem ratings than girls who had made a school transition (Crockett, Peterson, Graber, Schulenberg, & Ebata, 1989). Yet, regardless of gender, evidence clearly indicates that transitions are linked with motivational decline. Further, studies consistently indicate that students tend to experience a decline in grades and overall academic performance between their last year in elementary school and their first year in middle school. Herszenhorn (2006) reports that in 2005–2006 the percentage of students in New York State who were reading and writing at grade level dropped sharply between the fifth and sixth grades, according to results from a new state testing system for tracking year-to-year progress.

Additionally, parents are less likely to be involved in middle schools than they were in earlier grades (Eccles et al., 1993; Epstein & Lee, 1995; Epstein, Simon, & Salinas, 1997). Students in middle school usually have multiple teachers, which makes it harder for parents to make connections with each teacher and get involved in classrooms. Students often indicate they do not want their parents to participate in school activities, leaving parents to conclude that they should stay away at a time when their child may actually need additional parental support (Newman, 1997).

Further, there is research on student perceptions of transitions, including the causes and most influential issues to students (Arowosafe & Irvin, 1992; Mitman & Packer, 1982; U.S. Department of Education, 2008). For example, as reported in Akos and Galassi (2004),

> academic concerns (Mitman & Packer, 1982) and social concerns (Diemert, 1992) have both been identified as the primary concern in transition studies. Getting lost, older students and bullies, too much homework, school rules, making friends, and lockers have all been commonly cited student concerns in the transition to middle school (Akos, 2002; Diemert, 1992; Mitman & Packer; Odegaard & Heath, 1992). (p. 212)

In addition to concerns, two studies (Akos, 2002; Odegaard & Heath, 1992) found that there are aspects of the middle school transition that are appealing to students. Akos and Galassi (2004) report,

> these features include meeting new peers and increased freedom as well as having their own lockers (although one third of the students worried about that), having different teachers for several subjects, moving to different rooms for various classes, eating in the cafeteria, participating in sports programs, and the opportunity to make new friends. (p. 212)

Finally, studies have found that significant others can both assist and impede the middle/junior high school transition. Arowosafe and Irvin (as cited in Akos & Galassi, 2004) reported that “parents, siblings, and peers often communicated warnings of unpleasant experiences or culture concerns, such as fighting or violence, about middle school, causing anxiety for the student even before the transition has occurred” (p. 212).

Findings reported by Simmons and Blyth (1987) suggest that academic and motivational declines are much less likely to occur in K-8 school structures where transitional issues are

minimized. In the study, adolescents in the middle grades in a K-8 school showed neither the declines in self-esteem and academic engagement and achievement commonly reported for this age group, nor similar declines when they transitioned to a high school. In contrast, students who made a transition during these years showed further declines in well-being and academic engagement when they made a second transition into high school. These results suggest that a transition into a developmentally inappropriate middle grade situation puts one at risk for further problems during the high school years.

According to a further study, Alspaugh (1998) reports that students in the K-8 schools were found to have had less of an achievement drop than those making multiple transitions. The author reports a correlation between the number of transitions a student makes and the likelihood that he or she will drop out of school. The lowest dropout rates were found in districts which were organized into K-6 and 7-12 schools, with only one transition at seventh grade. The structure made only one transition necessary, thereby reducing the stresses related to making changes at an already difficult period of development (Eccles, Lord & Midgley, 1999; Alspaugh, 1998).

Student-teacher relatedness. Research suggests that students are engaged in their learning, perform at high levels, and remain in school directly as a result of caring teachers and highly regarded relationships (Knesting, 2008; McMillan & Reed, 1994; Wilson, 2007). As reported in Garza, Ryser, & Lee (2010), a significant body of research identifies caring as a factor in fostering relationships with students (Baker, 1999; Ladson-Billings, 1994; Scales & Taccogna, 2000; Stanton-Salazar, Vasquez, & Mehan, 2000) listening to students (Nelson & Bauch, 1997; Nelson, Lott, & Glenn, 1997; Noddings, 2005; Wentzel, 1997) or addressing student needs in a culturally responsive manner (Gay, 2000). “A caring demeanor is critical, especially for culturally diverse students who may be at risk of failing or who may be disengaged

from schooling" (Perez, Garza et al., p.1). In contrast, the inability of teachers to connect with students and students' perceptions that teachers are uncaring significantly contribute to students' negative disposition towards learning (Garza et al., 2010). Relationships with teachers are particularly important to early adolescents, who are often experiencing changes in their sense of self and are struggling with their evolving relationships with parents and peers. Since teachers can be external to these influences, they can provide support and guidance with adult values, advice, and perspectives (Rhodes, Grossman, & Resch, 2000).

The benefits of warm and accepting teacher relationships have been widely documented (Lynch & Cicchetti, 1997; Roeser & Eccles, 1998). Goodenow (as cited in Reddy, Rhodes, & Mudhall, 2003) found that students were engaged in class when they perceived strong support from their teachers. "Among sixth- to eighth-graders, teacher support was also the strongest predictor of academic expectancy and highlighted the interest, importance, and value that students placed on their academic work" (p. 120). Further findings center on consistent associations between perceptions of teacher-student relationships and increases in motivation, academic competence and achievement, school engagement, school value, and behavioral adjustment (Goodenow, 1992; Hamre & Pianta, 2001; Midgely, Feldlaufer, & Eccles, 1989; Roeser & Eccles, 1998; Ryan & Grolnik, 1986). Reddy, Rhodes, and Mulhall (2003) further reported four supporting studies in their research supporting strong teacher-student relations and motivation in the classroom:

> Murray and Greenberg (2000) found that elementary school students who reported more positive bonds with their teachers also evidenced higher scores on self- and teacher-reported socio-emotional adjustment outcomes. For example, Midgley and Edelin (1998) found that students who attended middle schools that deliberately sought to enhance teacher-student relationships tended to have fewer

> adjustment difficulties during the transition. Similarly, Roeser and Eccles (1998) found that perceptions of positive teacher regard were related to positive changes in feelings of self-esteem and declines in anger and depressive symptoms from the seventh to the eighth grades. Finally, Ryan and Stiller (1991) noted that the quality of students' relatedness with their teachers was associated with greater self-confidence and adoption of positive values. These findings suggest that teacher support can help to buffer some of the stress associated with middle school, offsetting the risk of adjustment difficulties (Pianta, 1999). (Reddy et al., 2003, p. 121)

Parental involvement. Students tend to perform better in school when their parents are positively and proactively involved in their education. Research has linked parental involvement to a variety of positive educational outcomes in children, including improved grades and test scores (Shumow & Miller, 2001; Steinberg, Lamborn, Dornbusch, & Darling, 1992; Stevenson & Baker 1987), reductions in behavioral problems (Amato & Rivera, 1999), and increases in overall well-being (Simons-Morton & Crump, 2003; Wenk, Hardesty, Morgan, & Blair, 1994). As a result, many researchers and educators have focused on parental involvement to improve student achievement, behavior, and self-esteem. However, even with research indicating strong benefits to parental involvement, the importance placed upon this educational partnership through policy initiatives, such as the federal law, No Child Left Behind, and state-led programs (Massachusetts Department of Education, 2005), and individual school family outreach plans (Caspe & Lopez, 2006; Epstein, 2001; Epstein et al., 2002; Sheldon, 2003, 2005), educators continue to witness impactful disconnects between school and home.

Epstein (1995, 2001) presents that parental beliefs and perceptions are shown to be strong indicators of parental involvement. Parents' educational aspirations and level of comfort with

the school and staff have been shown to predict levels of involvement. In addition, parents' beliefs about their responsibilities as a parent, their ability to affect their children's education, and their perceptions of their children's interests in school subjects have been shown to predict their involvement at home and at school (Grolnisk and Slowiaczek, 1994).

The research also shows that aspects of effective family involvement practices change in response to children's evolving developmental needs (Caspe, Lopez, & Wolos, 2007; Epstein & Dauber, 1991; Grolnick & Slowiaczek, 1994; Weiss, Caspe, & Lopez, 2006). As children get older, parents and caregivers tend to become less involved in active support and supervision, while becoming more involved in ways that promote autonomy and help launch children into the next stages of life (Eccles & Harold, 1993; Grolnick, Kurowski, Dunlap, & Hevey 2000; Simon, 2004).

Further, researchers and educators witness varying levels of support and involvement of parents and families in their children's education and the link, regardless of gender, race, ethnicity, and income level with achievement (Caspe, Lopez, & Wolos, 2007; Gonzalez-DeHass & Willems, 2006; Turney & Kao 2009). Across and within racial, socioeconomic, geographic, and other demographic categories, there are often different parental expectations of a school's purpose, academic and social responsibilities, and role in child development. Similarly, there are just as many different beliefs by parents of their level of responsibility in their child's education, particularly among families of immigrant status (Denessen, Bakker, & Gierveld, 2007). Many of these beliefs do not include an active participation in their child's education for reasons such as: inconvenient meeting times; no child care; problems with safety at school; not feeling welcomed by the school; problems with transportation; non bilingual meetings; family members not getting time off of work; lack of knowledge of the relevant academic material to support their children; intimidation and/or social issues of working with other adults in an educational setting; poor or

negative experiences with their child's education, teachers, or school in the past; poor or negative experiences with their own education, teachers, or school; they view school solely as a safe haven and care and custody environment, rather than a learning environment; failure to understand the opportunities presented by a good education and school; and language or cultural barriers (Caspe & Lopez, 2006; Epstein, 2001; Epstein et al., 2002; Sheldon, 2003, 2005).

Student motivation has also been shown to be directly related to their parents' attitudes of education in general, and their child's school in particular. The perceptions of and impact on parents' view of effective communication between school and home, for example, has shown to be an indicator to increasing parent participation (Center on Families, Communities, Schools, and Children's Learning, 2005). In collaboration with the University of Illinois, Epstein and others (2005) conducted a study, specifically related to the role of parent perceptions and beliefs regarding school-to-home communications, parent involvement, student engagement, and student achievement. The study found that parents' overall evaluation of the teacher, their sense of comfort with the school, and their reported level of involvement was higher when they received frequent and effective communications. Children's motivation, attitudes toward parent involvement, and perceptions of their parents' level of involvement were more positive when their parents received frequent communications from the teacher (Epstein et al., 2005).

Further, recent research indicates the definition and understanding of effective parental involvement requires a closer look. Jeynes (2010) examined the conventional concept of engaged parents, as those who help their children with their homework, frequently attend school functions, and maintain household rules (Domina, 2005; Epstein, 2001; Henderson & Mapp, 2002) with less overt and deliberate actions of parental engagement, such as maintaining high expectations of one's children, communicating with children, and parental style (Jeynes, 2005b, 2007b). As Jeynes contends, "parents, more often than not, influence the behavior of the

children and display their care in subtle ways" (Jeynes, 2010, p.749). This is a critical assertion of social learning theory.

As reported in Jeynes (2010), Bandura and Walters promote the importance of social learning theory and identified that subtle social variables within the home significantly contribute to the personality development of children. The authors claim that one subtle aspect of parental engagement, parental expectations, is likely based more on what parents do in their own lives and in caring for their children than on what they say. Consequently, "children are often cognizant of their parents' expectations even though they are often unstated" (Jeynes, 2010, p.249). Supporting this notion, other researchers (as reported in Jeynes, 2010) indicate,

> the expectations that have the greatest impact are those that are subtle but understood by the child (Davis-Kean, 2005; Lancaster, 2004), such as parental sacrifice to save for the child's college, low-stress communication, and a general agreement between the child and the parents on the value of a college education (Gill & Reynolds, 1999; Kaplan, Liu, & Kaplan, 2001; Lareau, 1989). Meta-analytical research indicates that parental expectations may be the most crucial component of involvement (Jeynes, 2005b, 2007b). (p. 751)

Bandura and Walters (as cited in Jeynes, 2010) expound upon their theory that effective parental engagement includes connected relationships based upon love and acceptance, resulting in open and caring communication. This is critical concerning communication about school between parents and children (Afifi & Olson, 2005; Davalos, Chavez, & Guardiola, 2005; Jeynes, 2005c). However, barriers often negatively impact meaningful communication in the home. As reported in Jeynes (2010),

> Afifi and Olson (2005) submit that communication skills are not easy to teach parents, while other researchers contend that a spirit of communication in families

> either exists between parents and their children, or it does not. Family communication typically takes years to develop, and its absence is one of the most common causes of family tension (Jones, Wynne, & Al-Khayyal, 1984; Rimm-Kaufman & Pianta, 2005). Communication, alone, does not support children's engagement and achievement needs. Caring, loving, and open communication is required to foster the appropriate atmosphere for learning (Jeynes, 2010; Rimm-Kaufmann & Pianta, 2005). (p. 752)

Similarly, Jeynes (2010) analyzed school efforts and their respective successes in engaging parents based upon this body of research. Mapp, Johnson, Strickland, and Meza (2010) and Sheldon (2005) promote "whether teachers, principals, and school staff are loving, encouraging, and supportive to parents may be more important than the specific guidelines and tutelage they offer to parents" (Jeynes, 2010, p.748). Educators must take a proactive approach to understanding the difference between the traditional thinking of parental involvement and seek to promote the importance of subtle social variables both within the home and school environments. The implications for schools is to support teachers and create parental involvement programs that focus on positive, caring, and welcoming interactions, serving as a model for engagement throughout the school community.

Neuroscience and early adolescent brain development. While risk factors such as middle school transitions, peer and teacher relationships, and family support contribute to student disengagement at school, evolving research indicates that early adolescent brain development has common and central relationships with all of these factors and declining motivation. Early adolescent students suffer declines in motivation and academic performance regardless of their school configuration, time of grade transition, relationships with others, and level and quality of parental involvement. Further, these declines occur across all socioeconomic, racial, and cultural

groups. One constant recognized by researchers and educators alike is the timing of the patterns of decline, as students transition from childhood to adolescence. This coincides with the significant biological changes in all early adolescents, a time of tremendous brain development, second only to birth in an individual's lifetime.

Early Adolescent Behavior. Cognitive neuroscientists have identified the emotional responses of adolescents – fear, outbursts, risky behavior, and the resulting lack of motivation and engagement in school – are not solely the result of increased production of hormones such as adrenaline or dehydroepiandrosterone (DHEA), which is geared toward sexual development (Ackerman, 2007). Rather, the regions in the early adolescent's brain which govern reasoning, planning, language, and impulse control are still developing (Giedd et al., 1999; LeDoux, 2000; Steinberg, 2009). Since educators are at the forefront of teaching, molding, and supporting children, these professionals must be equipped with the knowledge of how and why adolescents both learn and avoid learning. They must also be skilled in the strategies to effectively engage their students' emotional mindset (Feinstein, 2006; Jensen, 1998; Medina, 2008).

Adolescents between the ages of 13 and 19 tend to act impulsively and irrationally. Testing limits, experimenting, and acting without considering future consequences are all part of adolescent behavior. Self-regulation of impulsive behavior does not appear to mature until later in adolescence (LeDoux, 2000; Steinberg, 2009). Adults often become frustrated, confused, and angered when dealing with adolescents. Many teachers in particular, those who work with these same emotional students for hours each day, face significant challenges engaging groups of adolescents with the goal of increasing their learning (Giedd et al., 1999; Medina, 2008).

The perceived rebellious actions of adolescents that were once dismissed as the increased production of adrenaline, DHEA, and other hormones corresponding with the beginning of puberty may actually be due to functional differences in adolescent brains. The behavioral

differences between adults and adolescents become recognizable due to the increased freedom and decision making that adolescents require. Studying the variations in the brains of adolescents and adults provides evidence for the argument that the actions of the nervous system are responsible for observed behaviors (LeDoux, 2000; Steinberg, 2009). However, many teachers lack the understanding of the role that emotion plays in student learning. Many also fail to understand that what appear to be hormonal responses is actually the work of an underdeveloped brain (Giedd et al., 2009; Sylwester, 2007).

Early adolescent brain development. Brain development takes place in stages and is not fully complete in adolescence. The frontal lobe, especially the prefrontal cortex, is one of the last parts of the brain to fully mature, and undergoes dramatic development during the teen years. It is this *executive* part of the brain that regulates decision making, planning, judgment, expression of emotions, and impulse control. This region of the brain may not be fully mature until the mid-20s (Fischer & Immordino-Yang, 2008; Giedd et al.,1999; Meltzer, 2007). Many educators and parents often expect adolescents to be mirror images of them as they encounter decisions. These expectations are fraught with inaccuracies as the adolescent brain has not yet reached the capacity to achieve appropriate and well-developed thoughts, including an understanding of consequences. When adolescents make choices involving risk, they do not engage the higher-thinking, decision-and-reward areas of the brain as much as adults. This can lead adolescents to actually overstate rewards without fully evaluating the long-term consequences or risks involved in a situation (Giedd et al., 1999).

During early adolescence, the brain undergoes significant change. According to Sowell, Toga, and Thompson (2006),

> gray matter in the brain begins to thin as synapses (links between neurons that transmit and receive information) undergo a process of pruning. Unused synapses

> are pruned away, while those that are used frequently become stronger. Additionally, neurons are strengthened through myelination, which improves the connectivity between neurons and thereby speeds up communication between cells. This process has been termed *use it or lose it* and occurs at a critical time of brain development when early adolescents are learning and growing through the exposure to additional environmental factors. Pruning and myelination demonstrate that changes to the early adolescent brain can have long-term consequences: parts of the brain that are used frequently will be strengthened, while other parts that are used less frequently will weaken and die off. (p. 148)

The various regions of the brain develop at different rates in different people (Medina, 2008). Further, studies show "intellectual capacity relative to their peers can decrease or increase in the teenage years" (Ramsden et al., 2011, p.1). Opportunities to embed important decision-making, problem-solving, and coping skills are present at this time representing both enormous potential and risk (Byrnes, 2001). Increased participation in activities such as sports, music, and more advanced academic content helps to hard-wire the brain in the skills, knowledge, and attitudes developed. On the other hand, if adolescents are exposed to less strenuous or sedate activities, such as watching television or lying on the couch, the connections made by these activities survive during the pruning process (Jensen, 1998; Medina, 2008). Likewise, negative behaviors and experimentation with alcohol and drugs can hard-wire adolescents' brains, resulting in long-term effects for learning (Giedd et al., 2009; Sousa, 2006). Understanding the importance of learning during this time "would be encouraging to those whose intellectual potential may improve, and would be a warning that early achievers may not maintain their potential" (Ramsden et al., 2011, p.1).

If the connections in the frontal lobes of early adolescents are not as developed as in the brains of adults, neuroscientists must study other parts of the brain in order to identify how adolescents process information. Yurelon-Todd (as cited in Steinberg, 2009) conducted a study in which brain activity was scanned using functional magnetic resonance imaging (*f*MRI). Both adults and adolescents from ages 11 to 17, who had no diagnosed psychological disorders or brain injuries, were asked to identify the emotion on pictures of faces on a computer screen. The expression of the picture shown to the participants was one of fear. The adolescents typically activated the amygdala while the adults activated the frontal lobes to perform the same task of identifying the expression. Because adolescents and adults activate different portions of their brains to perform the same task, studying the function of the amygadala may provide an explanation for observed behavioral differences in adolescents and adults (Giedd et al., 1999; Steinberg, 2009).

Emotional learning. The amygdala is part of the limbic system and is responsible for emotional reactions (Sousa, 2006). By using the area of the brain that identifies situations with emotions, adolescents react in an impulsive manner more than a reasoned one. The increased activity of the amygdala in teens may be because the frontal lobes have not yet developed a regulatory role in the nervous system (Fellous, Armony, & LeDoux, 2000). Davidson (2000) found that in 500 individuals who had decreased activity in their frontal lobes, they also had decreased ability to regulate emotion. Davidson concludes that there may be some interaction between the amygdala and the frontal lobes. Like the individuals Davidson studied, adolescents may not have the ability to sufficiently regulate emotional processes because their frontal lobes have not matured. The impulsive behavior of adolescents is due to the increased reliance on the instinctual part of the brain while the area for rational thought, the frontal lobes, develops (Davidson, Larson, & Putnam, 2000).

Traditionally, emotion has been ascribed to the brain's limbic system, which is presumed to be an evolutionary old part of the brain involved in the survival of the individual and species (LeDoux, 2000). The limbic system of the brain, which helps to process and manage emotion, is also developing during adolescence. Despite the fact that the limbic system is not yet fully mature, it stands in for the underdeveloped frontal lobe to process emotions. This causes adolescents to experience more mood swings and impulsive behavior than adults (McNamee, 2006). The limbic system includes the hypothalamus (regulates hunger, thirst, response to pain, levels of pleasure, sexual satisfaction, anger, and aggressive behavior, among others), the hippocampus (converts momentary thoughts and short-term memories into long-term memories), the amygdala (relates to stimuli, emotion, memory, and learning), and several other connecting areas such as the cingulated gyrus (associates memories to smells and to pain), ventral tegmental area of the brain stem (consists of dopamine pathways responsible for pleasure), basal ganglia (monitors repetitive behaviors, reward experiences, and focusing attention), and prefrontal cortex (drives decision-making, planning, and problem-solving, while also playing a role in pleasure and addiction) (Boeree, 2009).

However, as more research has been completed, emotion is now being tied more directly to the amygdala specifically than to the limbic system (Fellous, Armony, & LeDoux, 2000). Given this research, it is critical that further study of the amygdala and its direct relation to emotional learning be linked to the implications for adolescent behavior and learning. Understanding this role and contributing findings can promote effective learning conditions in the school setting (Feinstein, 2004; Medina, 2008).

The contribution of the amygdala to emotion results in large part from its anatomical connectivity (LeDoux, 2000). The amgydala receives inputs from each of the major sensory systems and from higher-order association areas of the cortex. At the same time, the amygdala

sends output projections to a variety of brainstem systems involved in controlling emotional responses, including behavior, autonomic nervous system, and endocrine responses (Fellous, Armony, & LeDoux, 2000; Medina, 2008). Until the frontal lobes, responsible for language and reason, are completely formed, adolescents rely on their amygdala, responsible for emotion. Wild emotions get first say about what teens will do next, and they often are unable to negotiate their way out of a tense moment by using carefully chosen, diplomatic language. This helps to explain poor decisions adolescents can make such as shopping instead of doing homework, having unprotected sex, and their highly emotional responses to ordinary requests (Feinstein, 2004).

Studies of negative emotion suggest that distress is related to activity in the amygdala (Posner & Rothbart, 2007). Classrooms can be filled with distress for students that teachers may significantly underestimate. The fear of being called on and not knowing the answer, quizzes, homework, the reaction of other students, and even the expression on a teacher's or student's face may all make learning impossible or promote a negative experience that may damage a student permanently (Posner & Rothbart, 2007).

Emotions, therefore, can positively or negatively affect the acquisition of new learning. A number of scientists have suggested that adolescents may not see the world as we see it and may respond with different areas of their brain (Feinstein, 2009). In particular, in stressful situations, they may respond more quickly with their more primal, emotional part of their brain because the frontal cortex, the more rational part, is not yet fully wired. Adolescents take unnecessary risks, but if parents, teachers, and other adults expect it, they may be able to help (Spear, 2009; Strauch, 2003).

Further, emotion can be considered in terms of the school climate. Emotional climate is directly related to classroom climate and classroom climate is regulated by the teacher who could

approach mistakes as opportunities to identify learning gaps and develop understanding (Stigler & Stevenson, 1991). This can often result in negative, destructive behavior or the development of a passive, disconnected student, both of which contribute to the cycle of ineffective learning conditions. Because the brain is still changing so dramatically in young people, new research shows that heavy drinking and drug taking may damage memory functions in the brain (McNamee et al., 2008). In addition, negative experiences such as bullying or abuse can permanently reshape the pathways of the brain (Strauch, 2003).

Emotion, memory, and learning. As we connect emotion and learning, especially in adolescents, it is critical to understand the two primary forms of memory: declarative and emotional. According to Fellous, Armony, and LeDoux (2000),

> declarative memory, the ability to consciously recall experiences from the past requires the hippocampus and related areas of the cortex. The hippocampus evaluates sensory input for potential storage, associates with short-term memory, and connects with the cortex to constantly communicate short- and long-term memories. Yet to bring a sense of emotion to the memory, it is believed that the emotional memory system of the amygdala is activated and works in cooperation with the hippocampus to give ongoing declarative memories their emotional coloration. (p. 2)

School lessons, the teaching of curricular content, the use of common, formative assessment to measure student understanding, and the requirements of clearly stated expectations all involve tasks and skills associated with memory. Understanding the role of the amygdala, its emotional memory, and its impact on the ability to recall information, provides educators an opportunity to positively engage emotion to increase memory and learning (Dweck, 2006; Medina, 2008).

Much of the research in emotional memory and learning has resulted with various studies associated with fear conditioning, a procedure whereby an emotionally neutral stimulus, such as a tone or light, is associated with an aversive event, such as a mild foot shock (Fendt & Fanselow, 1999; LeDoux, 2000). After such pairings, the tone or light comes to elicit emotional reactions that are characteristically expressed when members of the species in question are threatened. Adolescent students have years of experiences, many of which are rooted in fear or negative perception. It is essential for teachers to understand the role of emotional memory, the link to classroom instruction, and the corresponding emotional response by the adolescent in a seemingly benign situation. The tone, volume, and timeliness of a message can invoke an unanticipated response without clear reasoning. Educators must identify such instances and understand that emotional responses are forms of memory being resurrected through certain stimuli (Medina, 2008).

Chemicals in the brain and emotional learning. Chemicals in the brain, known as neurotransmitters, are released by brain cells and play a role in the emotional feelings and responses by adolescents. These brain cells, called neurons, are responsible for the intake and processing of information. Neurons receive information as chemicals through receptors at the end of the dendrites. As dendrites receive the information, the message becomes electrical. The electrical message flows through the cell body and along its axon which is coated with a white fatty substance called myelin. Among its many functions, myelin helps messages travel safely and quickly. At end of axon are vesicles containing the neurotransmitters i.e. acetylcholine (helps form long-term memories), serotonin (regulates mood), melatonin (regulates drowsiness and sleep), endorphins (regulates well-being, helps to focus), dopamine (calming chemical, reward system, feelings of pleasure, focus, decision-making), cortisol (fight, flight, or freeze). The electrical impulse causes the vesicles to open, forcing the neurotransmitter out through the

end of the axon and across the synapse to another neuron. This communication process continues using the brain's network of neurons (Sousa, 2006; Sprenger, 2010).

The release of these chemicals plays a vital role in the thoughts, behaviors, and decisions of individuals, as well as the subsequent regulation of actions. Dopamine, for example, is a chemical produced by the brain that helps link actions to sensation of pleasure. Levels of dopamine production shift during adolescence. Activities once exciting during a child's early years may not bring the same level of excitement entering adolescence. As a result, adolescents may seek excitement through increasingly risky behavior (Spear, 2003).

When students feel positive about their learning environment, endorphins are released to the brain stimulating the frontal lobe and producing a feeling of euphoria (Spear, 2003). The positive learning is actually a chemically pleasurable experience. In contrast, when students feel negative about their learning environment, the hormone cortisol is released and travels throughout the brain and the body and activates the defensive behavior of fight, flight, or freeze. The frontal lobe of the brain is then consumed dealing with the source of the stress making focusing on the learning task virtually impossible (Sousa, 2003). Chronic stress, such as hostility at home or intense, repeated perceptions of safety issues at school, dangerously deregulates the body's defense system. Under chronic stress, adrenaline creates scars in the blood vessels that can cause heart problems and the release of cortisol damages the cells of the hippocampus, crippling a student's ability to learn and remember (Medina, 2008).

Conclusion

While some experts acknowledge that risk factors such as middle school transitions (Alspaugh, 1998; Anderman, Maehr, & Midgley, 1999; Eccles et al., 1993), peer and teacher relationships (Goodenow, 1993; Lynch & Cicchetti, 1997; Midgley & Edelin, 1998; Roeser & Eccles, 1998), and family support (Caspe & Lopez, 2006; Epstein, 1993, 2001; Jeynes, 2010;

Sheldon, 2003) contribute to student disengagement at school, evolving research indicates that early adolescent brain development has common and central relationships with all of these factors and declining motivation (Feinstein, 2006, 2009; Jensen, 1998, 2001, 2009; Giedd et al., 1999; Medina, 2008; Sousa, 2003; Sylwester, 2007). Early adolescent students suffer declines in motivation and academic performance regardless of their school configuration, time of grade transition, relationships with others, and level and quality of parental involvement. Further, these declines occur across all socioeconomic, racial, and cultural groups. One constant recognized by researchers and educators alike is the timing of the patterns of decline, as students transition from childhood to adolescence. This coincides with the significant biological changes in all early adolescents, a time of tremendous brain development, second only to birth in an individual's lifetime (Dweck, 2006; LeDoux, 2000; Medina, 2008; Spear, 2003).

During such a critical time in cognitive and social development, early adolescents are presented with numerous opportunities to successfully navigate their evolving life at school and home. However, this time also provides a variety of potentially negative experiences that can have dramatic consequences, impacting both short and long-term success (Posner & Rothbart, 2007; Spear, 2009; Stauch, 2003). As these students transition from childhood to adolescence, the biological changes occurring in their brains directly drive their ability to appropriately react, respond, behave, and understand their world around them. These emotional reactions, both internal and external, often cement their attitudes and beliefs, directly contributing to their level of motivation and engagement in their learning (Fellous, Armony, & LeDoux, 2000). The time of early adolescent brain development, then, has a strong relationship with the individual factors often attributed to declining motivation, academic performance, and behavior, such as school transitions, teacher and parent supports, and the school environment (Feinstein, 2006; Jensen, 1998; Giedd et al., 1999; Medina, 2008; Sousa, 2003; Sylwester, 2007).

A review of the literature clearly provides evidence of theoretical and practical factors contributing to motivation and academic performance during the early adolescent years. This study seeks to examine student motivation by investigating the relationships of these factors through the perceptions of both students and teachers. Researchers, educators, parents, policy makers, public officials, and business leaders must consider how the relationships among neuroscience and school environments, instructional practices, and support programs are interconnected and directly impact student motivation and performance. Aligning students' educational experiences with research on brain development will improve their engagement in learning, positively impact the dropout rate, reduce the reactive and intensive financial investment in high school prevention programs, and better prepare students for success in college, career, and life. The following chapter provides a description of the research methods, procedures, and design of the study, including a summary of the mixed-methods approach to collect quantitative and qualitative data, to analyze the data, and to apply the results to the research questions.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

The primary purpose of this study is to examine why early adolescents are motivated and engaged in their learning. The study examines the factors that impact early adolescent learning and how school leaders can create conditions to engage and support students. The study seeks to investigate, identify, analyze, and compare the common elements that impact student learning during early adolescent years, occurring at all schools, regardless of grade configuration and time of grade transition. Many argue that factors related to school transitions, the middle school model, and the impact of different school structures dramatically contribute to disengagement and declining motivation in early adolescent students. While research supports that these factors negatively impact some students and many districts have reconfigured their school districts accordingly, this study sought to identify motivation and engagement levels regardless of school configuration. The study also seeks to better understand the relationship between these factors, students' perceptions of their learning experiences, teachers' perceptions of student motivation and engagement in their learning, and the research on early adolescent brain development. Finally, the study will make recommendations for leaders to support students in their early adolescent education to increase student motivation and academic performance.

This chapter consists of the research methods, procedures, and design of the study. It provides a summary of the methodology, a thorough description of the research methods used, provides information as to why the methods were chosen, describes the research sites and participants, defines evaluation instruments, data collection, and the data analysis procedures, addresses the standards of validity and reliability, and connects the research to the problem and questions that guide the study.

Methodology summary

An explanatory mixed-methods design will be used to examine the levels of motivation and engagement in learning by early adolescents within schools of different transitions for sixth grade students, to identify the primary factors that contribute to motivation and engagement, and to understand the perceptions of both students and teachers for early adolescent motivation and engagement in school. The data will be collected from student surveys, student interviews, and teacher questionnaires. The purpose of this mixed-methods design will be to collect both quantitative and qualitative data, to analyze the data, and to apply the results to the research questions.

Surveys (see Appendix A) will be distributed to sixth grade students in differing middle school environments, consisting of four primary grade configurations (grades 5-8, grades 6-8, grades K-8, and grades K-12). Student interviews (see Appendix D) will be conducted and teacher questionnaires (see Appendix E) will be administered as well, representing different grade configurations, to address follow up questions. Interviews will allow for clarification of survey responses and provide triangulation in obtaining additional quantitative and qualitative information as to factors of motivation and engagement from students' and teachers' perspectives.

The results of the study will be used to inform best practices for early adolescent instructional and support plans, including understanding the relationship between significant biological changes in early adolescents and other factors that contribute to motivation and engagement in student learning. The results will also contribute to the body of knowledge by increasing awareness of how to meet the academic, procedural, and social challenges early adolescents face during their middle school years and during various transitions in their lives.

Researcher's role

The researcher will define the parameters of the study, research and select the survey instrument, conduct the survey, research and create the student and teacher interview questions, facilitate the student interviews and teacher questionnaires, collect and analyze the data, and synthesize the results in accordance with best practices in research. The researcher has a Master of Business Administration degree and has been working with early adolescents as a teacher, coach, mentor, principal, and superintendent for nearly 20 years. The researcher will gain access to the sample school sites where the surveys and interviews will occur.

Research questions

The literature review clearly supports the need for further understanding how early adolescent brain development and factors such as teacher relationships, parental support and participation, middle school models of instruction and support, and transitional issues support or impede student motivation and engagement in school. Educators who better understand these factors are better prepared to create learning environments to help all children succeed academically, socially, and behaviorally. Therefore, this study addresses the following research questions:

1. What factors contribute to motivation and engagement during early adolescent development?
    a. What are the common and contrasting factors among students who attend schools with different grade configurations during their middle years?
    b. What is the relationship between these factors and early adolescent brain development in the middle years?
2. What do teachers of early adolescent students perceive to be the factors that contribute to student motivation and engagement?

3. What are the school conditions necessary to support high motivation and academic performance in the early adolescent years?

Description of research sites

Sixth grade students from eleven Massachusetts schools with differing grade configurations were chosen as samples for the study. Three schools were configured with grades 5-8; two schools were configured with grades 6-8; five schools were configured with grades K-8; and one school was configured with grades K-12. Of the eleven schools participating, three were located in an urban setting, five were located in a suburban setting, and three were located in a rural setting. Eight of the 11 schools were traditional public schools, while three were charter public schools. In total, all schools enroll 1,084 sixth grade students. A total of 345 students returned surveys, representing a 32% response rate. Fifteen of the 345 returned surveys were omitted from the final analysis, as an insufficient number of questions were answered in these fifteen surveys. Table 3.1 presents a summary of individual participating school demographics. Table 3.2 presents a summary of school demographics by common groupings.

Table 3.1

Individual Participating School Demographics

School	Geography	Grades Served	Grade 6 Population	Surveys Completed	Response Rate
School A	Urban	K-8	94	11	12%
School B	Urban	K-8	15	15	100%
School C	Rural	K-8	35	13	37%
School D	Suburban	K-12	112	48	43%
School E	Suburban	6-8	225	72	32%
School F	Rural	K-8	62	26	42%
School G	Suburban	5-8	182	78	43%
School H	Suburban	5-8	83	27	33%
School I	Suburban	6-8	26	19	73%
School J	Urban	5-8	211	19	9%
School K	Rural	K-8	39	17	44%
Totals			1084	345	32%

Table 3.2

Categorical Groupings of Participating Schools and Study Demographics

Category	Grade 6 Population	Surveys Completed	Response Rate	% of Total Population	% of Surveys Completed
Urban (3)	320	45	14%	30%	13%
Suburban (5)	690	270	39%	64%	78%
Rural (3)	136	56	41%	13%	16%
5-8 (3)	476	124	26%	44%	36%
6-8 (2)	251	91	36%	23%	26%
K-8 (5)	245	82	33%	23%	24%
K-12 (1)	112	48	43%	10%	14%
Public (8)	795	259	33%	73%	75%
Charter Public (3)	289	86	30%	27%	25%

School A is a small urban public charter school, serving students in grades K-8. The school's total population is 742 with 94 students in grade six. Eleven surveys were returned, representing a 12% response rate.

School B is a small urban public school, serving emotionally-challenged students in grades K-8. The school's total population is 121 with 15 students in grade six. Fifteen surveys were returned, representing a 100% response rate.

School C is a small rural public school, serving students in grades K-8. The school's total population is 326 with 35 students in grade six. Thirteen surveys were returned, representing a 37% response rate.

School D is a suburban regional public charter school, serving students in grades K-12 from 29 diverse urban and suburban communities. The school's total population is 1,185 with 112 students in grade six. Forty-eight surveys were returned, representing a 43% response rate.

School E is a large suburban public middle school, serving students in grades 6-8. The school's total population is 763 with 225 students in grade six. Seventy-two surveys were returned, representing a 32% response rate.

School F is a small rural public school, serving students in grades K-8. The school's total population is 408 with 62 students in grade six. Twenty-six surveys were returned, representing a 42% response rate.

School G is a large suburban public middle school, serving students in grades 5-8. The school's total population is 712 with 182 students in grade six. Seventy-eight surveys were returned, representing a 43% response rate.

School H is a suburban public charter school, serving students in grades 5-8. The school's total population is 317 with 83 students in grade six. Twenty-seven surveys were returned, representing a 33% response rate.

School I is a suburban public school, serving students in grades 6-8. The school's total population is 890 with 302 students in grade six. Twenty-six students from a general life skills course participated in the survey. Nineteen surveys were returned, representing a 73% response rate.

School J is a large urban public school, serving students in grades 5-8. The school's total population is 815 with 211 students in grade six. Nineteen surveys were returned, representing a 9% response rate.

School K is a small rural public school, serving students in grades K-8. The school's total population is 321 with 39 students in grade six. Seventeen surveys were returned, representing a 45% response rate.

Data collection

Student surveys. A survey was selected and administered for this study. According to Plano Clark and Creswell (2007), surveys are administered to describe behaviors, characteristics, attitudes, or opinions of a sample population and have the advantage of being economical and efficient in gathering information. The purpose of a survey is to use questionnaires and/or interviews to collect data from a sample that has been selected to "represent a population to which the findings of the data analysis can be generalized" (Gall, Gall & Borg, 2003, p. 223). A potential disadvantage of surveys is that valuable information may not be obtained (Leedy & Ormrod, 2005). Consequently, follow-up interviews with individual students and teachers focused on the survey data and the research on early adolescent motivation were used in this study.

The quantitative data was collected through *The Motivation and Engagement Scale – Junior School* (Martin, 2010). This instrument (see Appendix A) measures elementary and middle school students' (ages 9-13) motivation and engagement. It is hypothesized to assess motivation and engagement through three adaptive cognitive dimensions, three adaptive behavioral dimensions, three impeding/maladaptive cognitive dimensions and two maladaptive behavioral dimensions of motivation and engagement. Each of the 11 factors comprises four items – hence it is a 44-item Likert scale type instrument. To each item, students rate themselves

on a scale of 1 (‘strongly disagree’) to 5 (‘strongly agree’). The four primary categories of scores center on: 1) self-belief, valuing, and learning focus (*Booster Thoughts*); 2) planning, task management, and persistence (*Booster Behaviors*); 3) anxiety, failure avoidance, and uncertain control (*Mufflers*); and 4) self-sabotage and disengagement (*Guzzlers*).

In this study, the *Motivation and Emotion Scale* survey was administered to 345 early adolescent students in sixth grade, ages 11 – 12, on a voluntary basis and with the permission of their parents. This survey was used to examine the factors that impact early adolescent learning and how school leaders can create conditions to re-engage and support students in their learning. Utilizing this survey, the researcher sought to investigate, identify, analyze, and compare the common elements that impact student learning during early adolescent years, occurring at all schools, regardless of grade configuration and time of grade transition. Students were recruited through an online introduction and invitation (see Appendix B) to Massachusetts public school principals who educate early adolescent children. All participating schools designated one teacher or administrator to serve as the on-site coordinator and assist with the administration of the survey. The researcher provided all on-site coordinators with direction and support to effectively administer the survey. All student participants were required to complete the Informed Letter of Consent Form (see Appendix C) and obtain parental permission. All student participants completed the survey as a group and within their classroom setting with the coordinator present and providing direction. The on-site coordinator sealed all surveys and corresponding signed parental permission forms in an envelope for the researcher to obtain. The researcher reviewed all documents for errors and completeness, ensured compliance with participation and parental consent, and inputted all responses into a web-based interface protocol, associated with the coded workbook and database. Comparing individual and cohort scores on *Booster*, *Muffler*, and *Guzzler* cognitive and behavioral dimensions provided the researcher

specific data on motivation and engagement measurements. This analysis led to the selection of interview candidates who shared common and different factors in motivation and represented each school configuration.

Interview questionnaires. Upon analysis of the quantitative phase of the study, interview questions were developed to more narrowly focus the results. Two separate interview questionnaires, one for students (see Appendix D) and one for teachers (see Appendix E), were developed for follow-up interviews to provide triangulation and to learn additional information concerning early adolescent motivation. Qualitative questions were designed to specifically address the statement of the problem and the questions that guided the study. Questions were developed from the common factors that contribute to motivation and engagement across all students regardless of school and grade configuration. Questions focused on positive and negative school and home experiences, directly related to their learning, engagement, and perceptions of teachers and parents. Questions were also designed in concert with the research of Dr. Sheryl Feinstein and Dr. David Sousa, two noted researchers on adolescent learning, motivation and engagement, and neuroscience. Dr. Feinstein reviewed and collaborated on the interview questions.

Twenty-four student interview subjects were chosen from a representative group of schools with different grade configurations. Twelve interview subjects who demonstrated high motivation and engagement scores and strong positive thoughts and behaviors on the survey were chosen and twelve interview subjects who demonstrated low motivation and engagement scores and low positive thoughts and behaviors on the survey were chosen. All subjects had previously volunteered and indicated this on the Informed Letter of Consent. Phone interviews were conducted with each participant and lasted approximately thirty minutes each. Only one

phone interview for each voluntary participant was required. The researcher conducted all interviews by phone.

Upon analysis of the student quantitative survey and the student qualitative interviews, interview questions were developed to examine teachers' perceptions of the factors that contribute to motivation and engagement in early adolescent students in school. Qualitative questions were designed to specifically address the statement of the problem and the questions that guided the study. Questions were developed from the common factors that contribute to motivation and engagement across all students regardless of school and grade configuration and the specific results of the student interviews. Questions focused on positive and negative school and home experiences, directly related to their learning, engagement, and the behaviors of students. Questions were also designed in concert with the research of Dr. Sheryl Feinstein and Dr. David Sousa, two noted researchers on adolescent learning, motivation and engagement, and neuroscience. Dr. Feinstein reviewed and collaborated on the interview questions.

Teachers from the 11 schools participating in the student survey phase of the study were invited to contribute to this phase. Twelve teachers volunteered to participate; however only 11 completed the questionnaire. Teacher interview subjects represented each of the schools with different grade configurations with the exception of schools configured with grades 5-8. There were no volunteers from these schools. Teacher subjects included four teachers from schools configured as grades 6-8, five teachers from schools configured as grades K-8, and two teachers from a school configured as grades K-12. Questionnaires consisted of 42 open-ended and multiple choice questions and were administered online. Questionnaires were completed in thirty minutes on average by each teacher participant.

Plan for data analysis

Student surveys. The information obtained from the student survey responses in the differing environments was collected and recorded. The data were disaggregated by school configuration, gender, school setting, and student perception of performance in school. The researcher conducted frequency and means analyses on the *Motivational Quotients* for *Booster Thoughts*, *Booster Behaviors*, *Muffler*, and *Guzzler* scores by grade configuration and gender. Subsequent frequency and means analyses were conducted on the individual subscale items of each category - *Self-Belief, Valuing, Learning Focus, Planning, Task Management, Persistence, Anxiety, Failure Avoidance, Uncertain Control, Self-Sabotage,* and *Disengagement* - by grade configuration and gender. Similar analyses were conducted for individual student scores and small cohorts of students as identified by high and low motivation thresholds. The researcher conducted various other statistical analyses, specific to guiding questions that support the study, including simple analyses of variance, t-tests for independent samples, and significance of correlation. These analyses and relevant findings are presented in chapter four.

Interview questionnaires. Student and teacher questionnaires were developed to provide triangulation and obtain clarification for follow-up questions from survey responses. Information obtained from the interview questions provided clarifying qualitative data to better understand early adolescent motivation in learning from the students' and teachers' perspective.

Student interview subjects. Twenty-four student interview subjects were chosen from those students who demonstrated by high and low motivation in their own learning and represented each of the schools with different grade configurations. Students were categorized as "high" or "low", defined by their survey scores. Students categorized as high motivation scored 187 or above on the combined *Booster* measures (*Thoughts and Behaviors*) with no individual score less than a 90 and no higher than a 65 combined score on the *Muffler* and

Guzzler measures. There were 40 students who met these criteria. Of these 40 students, 13 students had parental permission to participate in the interview phase of the study. Students categorized as low motivation scored less than 150 on the combined *Booster* measures and a 96 or higher on the *Muffler* and *Guzzler* measures. There were 45 students who met these criteria. Of these 45 students, 12 students had parental permission to participate in the interview phase of the study.

Although the students chosen to participate in the interview phase of the study had previously given permission to do so, nine of the twenty-five families did not respond to numerous requests for the interview. This consisted of five high motivation students and four low motivation students. Families were contacted by email, phone, letter, and where possible, direct contact with the student. Rather than expand the interview participant sampling with students who did not demonstrate the very high or low motivational scores as defined by the selection criteria, the researcher proceeded with sixteen total student interviews. This consisted of eight high motivation students and eight low motivation students, representing each of the grade configurations for both groups. The following tables indicate the individual *Booster, Muffler,* and *Guzzler* scores of the students selected to participate in the interview phase. Table 3.3 summarizes highly motivated student interview measures. Table 3.4 summarizes low motivated student interview measures. Table 3.5 summarizes the mean scores of all students surveyed and categorized by school grade configuration.

Table 3.3

High Motivation Interview Subjects By School Configuration and Survey Measures

High Motivation	Grades	Boosters	Muffler & Guzzler
Student A	K-8	200	40
Student B	K-12	200	53
Student C	K-12	200	62
Student D	K-12	187	57
Student E	5-8	200	40
Student F	5-8	200	47
Student G	5-8	190	53
Student H	6-8	200	40

Table 3.4

Low Motivation Interview Subjects By School Configuration and Survey Measures

Low Motivation	Grades	Boosters	Mufflers & Guzzlers
Student A	K-12	87	122
Student B	K-12	112	138
Student C	K-8	98	96
Student D	5-8	64	132
Student E	5-8	138	105
Student F	6-8	140	102
Student G	5-8	148	118
Student H	K-12	130	111

Table 3.5

Mean Boosters, Mufflers, and Guzzler Scores By Specific Student Sample Groups

Student Group	Boosters	Mufflers & Guzzlers
All Students	164.25	79.64
K-8	162.40	77.46
K-12	163.92	83.04
5-8	164.79	79.59
6-8	165.31	79.76
High Motivation Interviews	197	49
Low Motivation Interviews	115	116

The data obtained from the student interviews were analyzed and coded to identify themes among students in differing environments. This analysis was used to create teacher interview questionnaires and to determine recommendations for school leaders and educators.

Teacher interview subjects. Teacher interview subjects represented each of the schools with different grade configurations with the exception of schools configured with grades 5-8. There were no volunteers from these schools. Teacher subjects included four teachers from schools configured as grades 6-8, five teachers from schools configured as grades K-8, and two teachers from a school configured as grades K-12. The data obtained from the teacher interviews were analyzed and coded to discover common and contrasting themes among teachers in differing environments. This analysis was used to determine recommendations for school leaders and educators.

Student and teacher interviews. The researcher used a semi-structured interview format that enabled participants to incorporate their ideas regarding the topic and provide the opportunity for spontaneous responses. Students received the interview questions approximately 48 hours prior to the interview. This enabled the students to be familiar with the questions and format and to provide a more comprehensive and thoughtful response to the questions. Students and parents were cautioned to not rehearse answers together and that parents should not coach their children on their answers. It was clearly stated that the study was designed to better understand student perceptions and not those of their parents, other adults, or their peers. The interview included both closed and open-ended questions. The interviews enabled the researcher to understand the perceptions of students and teachers as to the factors that contribute to, support, and impede motivation and engagement in learning.

Students were interviewed by phone during the evening or on the weekend. Parental permission was obtained prior to each student interview. A letter describing the study and

inviting the randomly selected students to participate was sent home with students approximately two months prior to the scheduled interview dates.

The student interview protocol consisted of 32 questions. The teacher questionnaire consisted of 42 questions. The researcher recorded student responses manually. Teachers responded to the interview questions electronically, directly into a web-based interface questionnaire. Respondents were assured of confidentiality and anonymity. Data were immediately transcribed and organized in the database software.

Validity and reliability

Questionnaires and interviews must meet the same standards of validity and reliability that apply to other data-collection measures in educational research (Gall et al., 2003). Creswell (2005) defines validity as the "means that researchers can draw meaningful and justifiable inferences from scores about a sample or population" (p. 600).

For this study survey questions were developed based on the literature of several researchers who have been involved in the motivation and engagement of students in their learning (Martin, 2001, 2003, 2009, 2010; Marsh, 1993, 2002; Eccles, 2008; Eccles, Midgley, & Wigfield, 1993) and the impact of early adolescent brain development on student learning (Feinstein, 2007, 2010; Fischer & Immordino-Yang, 2008; Giedd, 2009; Jensen, 1998; Sousa, 2006; Steinberg, 2009; Sylwester, 2007).

There are many instruments that measure student motivation. For the most part, however, they tend to reflect only a single dimension of motivation underpinned by a single theoretical perspective (Martin, 2001). There are instruments measuring students' attributions reflecting attribution theory (eg., *Multidimensional Multiattributional Causality Scale* – Lefoucrt, Von Bayer, Ware, & Cox, 1979), instruments measuring control reflecting control theory (eg., *Multidimensional Measure of Children's Perceptions of Control* – Connell, 1985),

instruments measuring self-concept reflecting theory relevant to self-concept and the self-esteem (eg., *Self Description Questionnaire* – Marsh, 1990), instruments measuring performance orientation reflecting motivational orientation theory (eg., *Motivation Orientation Scale* – Nicholls, 1989), and instruments measuring planning and monitoring, reflecting self-regulation theory (eg., *Cognitive Engagement Scale* – Miller, Greene, Montalvo, Ravindran, & Nichols, 1996). The fact that a number of theoretical perspectives exists reflects the multidimensionality of motivation and these instruments have been pivotal to unraveling this multidimensionality (Martin, 2001).

Martin (2010) created and refined the *Motivation and Engagement Scale* to reflect the various theoretical models and corresponding instruments to better support educators and counselors in their efforts to identify various aspects of motivation and to create interventions to target multiple dimensions of motivation. In testing the validity and reliability of the instrument, Martin (2007, 2009) conducted various studies. In his 2007 study, Martin examined a multidimensional model of student motivation and engagement using within- and between-network construct validation approaches. The study tested the first- and higher-order factor structure of the motivation and engagement wheel and its corresponding measurement tool, the *Motivation and Engagement Scal*e (Martin, 2001). Martin (2007) reported:

> The study drew upon data from 12,237 high school students from 38 Australian high schools and hypothesized 11-factor first-order structure and the four-factor higher-order structure, their relationship with a set of between-network measures (class participation, enjoyment of school, educational aspirations), factor invariance across gender and year-level, and the effects of age and gender are examined using confirmatory factor analysis and structural equation modeling. (p. 413)

Martin (2010) further reported:

> In terms of within-network validity, (1) the data confirm that the 11-factor and higher-order factor models of motivation and engagement are good fitting and (2) multi-group tests showed invariance across gender and year levels. In terms of between-network validity, (3) correlations with enjoyment of school, class participation and educational aspirations are in the hypothesized directions, and (4) girls reflect a more adaptive pattern of motivation and engagement, and year-level findings broadly confirm hypotheses that middle high school students seem to reflect a less adaptive pattern of motivation and engagement. The study concluded that the first- and higher-order structures hold direct implications for educational practice and directions for future motivation and engagement research (p. 48).

A second study of the survey instrument examined motivation and engagement from a developmental construct validity perspective across elementary school, high school, and university/college, with particular focus on the *Motivation and Engagement Scale* (comprising adaptive, impeding/maladaptive, and maladaptive factors) (Martin, 2009):

> Findings demonstrated developmental construct validity across the three distinct educational stages in terms of good-fitting first- and higher order factors, invariance of factor structure across gender and age, and a pattern of correlations with cognate constructs (e.g., homework completion, academic buoyancy, class participation) consistent with predictions. Notwithstanding the predominantly parallel findings, there was also notable distinctiveness, primarily in terms of mean-level effects, such that elementary school students were generally more

> motivated and engaged than university/college students who in turn were more motivated and engaged than high school students (p. 815).

Validity is also strengthened by triangulation. Leedy and Ormond (2005) state that through triangulation "multiple sources of data are collected with the hope that they will all converge to support a particular hypothesis or theory" (p. 99). In this study, a sampling of sixth-grade students from 11 different grade-configured schools and from differing environments was surveyed and interviewed to provide validation. Additionally, a sampling of sixth-grade teachers from different grade-configured schools and from differing environments was interviewed.

Creswell (2005) defines reliability as the "means that individual scores from an instrument should be nearly the same or stable on repeated administration of the instrument and that they should be free from sources of measurement error and be consistent" (p. 597). To strengthen reliability, the survey has been tested (Martin, 2007, 2009) and the questionnaires were reviewed by experts in the field.

Management of data analysis

Data were organized and analyzed for the previously mentioned data collection processes. This involves several processes:

Data preparation. Analysis of data was conducted by the primary researcher. All returned questionnaires were examined for errors, failure of respondents to follow directions, explanatory comments, and other items noted by the respondents. The response rate was noted and invalid surveys omitted. Data from interviews were also reviewed for errors.

Data accuracy. Data were screened for accuracy upon receipt. Data were checked to ensure responses were legible, that questions were answered, and that responses were complete.

Developing a database structure. The database structure is the manner in which the data will be stored for the study so that it can be accessed in subsequent data analyses. A printed

codebook was generated that described the data and indicated where and how it can be accessed. This codebook included: variable names, variable descriptions, variable formats (number, data, text), instrument/method of collection, date collected, respondent or group, variable location in database, and any notes. This comprehensive documentation will also enable other researchers who might subsequently wish to analyze the data.

Data entry. The data were logged into the computerized database program, Microsoft Excel through a web-based interface, and further data analysis was completed with SPSS. Simple descriptive analyses were conducted to determine data status. Original data records were stored in a data archive.

A procedure was established to check the data for accuracy. Records were spot checked on a random basis. After the data were entered, a combination of spreadsheets and databases were used to summarize the data and check that all the data were within acceptable limits and boundaries. Additionally, all data were checked for missing values.

Data analysis. The data obtained on the returned questionnaires were entered into a Microsoft Excel database and exported to SPSS where an item analyses was conducted. Frequency distributions and cross tabulations were conducted in SPSS to analyze questionnaire responses. Frequency distributions were also used to determine the distribution of item/responses. Simple variance, t-test, and correlation statistical analyses were utilized to determine relationships between variables.

Interviews. Categorical aggregation was employed for the data obtained via interviews and questionnaires. The researcher identified patterns and arranged the data in tabular format.

Summary

An explanatory mixed-methods design was used to examine the levels of motivation and engagement in learning by early adolescents within schools of different transitions for sixth

grade students, to identify the primary factors that contribute to the motivation and engagement, and to understand the perceptions of both students and teachers for early adolescent motivation and engagement. The data were collected from student surveys, student interviews, and teacher questionnaires. Data analyses were performed using SPSS software. The following chapter will discuss results of the data collection and analyses.

CHAPTER IV

ANALYSIS AND FINDINGS

The primary purpose of this study was to investigate why early adolescents become disengaged in their learning. Substantial research has identified several major contributing factors to early adolescent student motivation and engagement in school settings including: early adolescent development and its relationship with school learning; the structure of the middle school model; transitions in schooling; student-teacher relatedness; and parental involvement. In addition, emerging research on neuroscience and early adolescent brain development highlights the relationship these additional factors have on student motivation and engagement in learning. The literature review clearly supports the need for further understanding of how early adolescent brain development and factors such as teacher relationships, parental support and participation, middle school models of instruction and support, and transitional issues support or impede student motivation and engagement in school. Educators who understand these factors are better prepared to create learning environments to help all children succeed academically, socially, and behaviorally.

This study examined the factors that impact early adolescent learning and how school leaders can create conditions to re-engage and support students in their learning; investigated, identified, and analyzed the common elements that impact student learning during early adolescent years, occurring at all schools, regardless of grade configuration and time of grade transition; sought to better understand the relationship between these factors, students' perceptions of their learning experiences, teachers' perceptions of student motivation and engagement in their learning, and the research on early adolescent brain development; and recommended actions for leaders to support early adolescents to increase student motivation and academic performance. The following guiding questions were investigated in this study:

1. What factors contribute to declining motivation and academic performance during early adolescent development?
    a. What are the common and contrasting factors among students who attend schools with different grade configurations during their middle years?
    b. What is the relationship between these factors and early adolescent brain development in the middle years?
2. What do teachers of early adolescent students perceive to be the factors that contribute to student motivation and engagement?
3. What are the school conditions necessary to support high motivation and academic performance in the early adolescent years?

In an effort to deconstruct these guiding questions on student motivation and engagement, the researcher conducted a mixed methods explanatory design, using student surveys, student interviews, and teacher interviews.

This chapter provides an overview of the study design, the focus of the research and guiding questions, and a sectioned analysis of the quantitative and qualitative data by student survey results, student interviews, and teacher questionnaires. It clearly presents the results of the research questions and briefly describes the direct relationship of the findings to the questions. These analyses also contribute to the student and teacher interviews to support a more thorough examination of motivation and engagement during the early adolescent years. Finally, the findings are presented to support the overall guiding questions of the study and lead to a more comprehensive discussion in the final chapter.

Quantitative study – student surveys

The quantitative data were collected through *The Motivation and Engagement Scale – Junior School* (*MES-JS*) (Martin, 2001). This instrument (see Appendix A) measures elementary

and middle school students' (ages 9-13) motivation and engagement. It is hypothesized to assess motivation and engagement through three adaptive cognitive dimensions, three adaptive behavioral dimensions, three impeding/maladaptive cognitive dimensions and two maladaptive behavioral dimensions of motivation and engagement. Each of the 11 factors comprised four items – hence it is a 44-item Likert scale type instrument. To each item, students rated themselves on a scale of 1 ('strongly disagree') to 5 ('strongly agree'). The four primary categories of scores centered on the following factors demonstrated to impact motivation and engagement in student learning: 1) self-belief, valuing, and learning focus (*Booster Thoughts*); 2) planning, task management, and persistence (*Booster Behaviors*); 3) anxiety, failure avoidance, and uncertain control (*Mufflers*); and 4) self-sabotage and disengagement (*Guzzlers*).

Three hundred forty-five sixth grade students were surveyed on their perceptions of their own learning, thoughts, and behaviors (see Appendix A). Participating students attended one of 11 different schools with various middle school age configurations, including K-8, K-12, 5-8, and 6-8. Schools represented both traditional public and charter public schools and were located in urban, suburban, and rural areas within the Commonwealth of Massachusetts.

Using the *MES-JS* to identify and measure factors of early adolescent motivation, the following supporting questions directed the appropriate analyses:

1. Is there a difference in the positive thoughts and behaviors of learning, as measured by scores on the *MES-JS*, of sixth grade students enrolled in schools with different grade configurations?
2. Is there a difference in the level of disengagement in learning, as measured by scores on the *MES-JS*, of sixth grade students enrolled in schools with different grade configurations?

3. Is there a difference in the level of anxiety, as measured by scores on the *MES-JS*, of sixth grade students enrolled in schools with different grade configurations?
4. Is there a difference in the positive thoughts and behaviors of learning, as measured by scores on the *MES-JS*, between highly motivated students and low motivated students, as identified by scores on the *MES-JS*?
5. Is there a difference in the level of disengagement in learning, as measured by scores on the *MES-JS*, between highly motivated students and low motivated students, as identified by scores on the *MES-JS*?
6. Is there a difference in the level of anxiety, as measured by scores on the *MES-JS*, between highly motivated students and low motivated students, as identified by scores on the *MES-JS*?
7. Is there a relationship between the positive thoughts and behaviors and the level of disengagement in learning, as measured by scores on the *MES-JS*, among highly motivated students?
8. Is there a relationship between the positive thoughts and behaviors and the level of anxiety, as measured by scores on the *MES-JS*, among highly motivated students?
9. Is there a relationship between the positive thoughts and behaviors and the level of disengagement in learning, as measured by scores on the *MES-JS*, among low motivated students?
10. Is there a relationship between the positive thoughts and behaviors and the level of anxiety, as measured by scores on the *MES-JS*, among low motivated students?

Quantitative study – survey results

1. Is there a difference in the positive thoughts and behaviors of learning, as measured by scores on the *MES-JS,* of sixth grade students enrolled in schools with different grade configurations?

In order to compare and contrast the thoughts and behaviors among students across different school configurations, the researcher conducted a simple analysis of variance. This analysis was appropriate because it identified the mean performance of four groups and these groups were compared on their average performance. This question and relevant analysis supported the overall study by examining a variety of factors such as students' self-belief, value of school, focus on learning, persistence, and approaches to planning and task management, and whether there are differences within these thoughts and behaviors depending upon the structure of the students' school grade configuration. Many argue that factors related to school transitions, the middle school model, and the impact of different school structures dramatically contribute to disengagement and declining motivation in early adolescent students. While research supports these factors negatively impact students and many districts have reconfigured their school districts accordingly, this study sought to identify motivation and engagement levels regardless of school configuration. The results of this analysis are presented in Tables 4.1 and 4.2.

Table 4.1

Mean Booster Thoughts and Behaviors Scores By Students With Different School Grade Configurations

Variable	Grades	n	M (SD)
Booster Thoughts	5 – 8	113	86.06 (12.59)
	6 – 8	91	86.79 (10.16)
	K – 8	77	85.37 (12.63)
	K – 12	48	85.45 (13.19)
	Total	329	86.01 (12.02)
Booster Behaviors	5 – 8	113	78.73 (14.38)
	6 – 8	91	78.52 (15.14)
	K – 8	77	77.03 (14.98)
	K – 12	48	78.47 (15.58)
	Total	329	78.24 (14.85)

Note. Booster Thoughts is the average of the total scores of student survey measures on questions related to Self-Belief, Valuing of School, and Learning Focus. Booster Behaviors is the average of the total scores of student survey measures on questions related to Planning, Task Management, and Persistence. M is the mean of total possible scores that range from 20 to 100.

Table 4.2

ANOVA of Booster Thoughts and Behaviors Scores By Students With Different School Grade Configurations

Variable	SS	df	MS	F	Sig.
Booster Thoughts					
Between Groups	103.08	3	34.36	.23	.87
Within Groups	47325.87	325	145.62		
Total	47428.94	328			
Booster Behaviors					
Between Groups	148.72	3	49.57	.22	.88
Within Groups	72273.23	325	222.38		
Total	72421.95	328			

Note. *Booster Thought* is the average of the total scores of student survey measures on questions related to Self-Belief, Valuing of School, and Learning Focus. *Booster Behaviors* is the average of the total scores of student survey measures on questions related to Planning, Task Management, and Persistence.

As shown in Tables 4.1 and 4.2, there was no significant difference in the levels of positive thoughts and behaviors compared across schools with different grade configurations. The data refuted other studies that directly link negative thoughts and behaviors of learning with students experiencing school transitions in the middle years. These results contributed to the overall study by supporting factors other than transitions and the structure of the middle school model that impede student learning in the early adolescent years.

2. Is there a difference in the level of disengagement in learning, as measured by scores on the *MES-JS*, of sixth grade students enrolled in schools with different grade configurations?

In order to examine the levels of disengagement in learning among students across different school configurations, the researcher conducted a simple analysis of variance. This analysis was appropriate because it identified the mean performance of four groups and these groups were compared on their average performance. In determining the levels of disengagement, students responded to four dispersed, yet related questions in the survey, including “Each week I’m trying less and less at school,” “I don’t really care about school anymore,” “I’m not involved in things like class activities and class discussion at school,” and “I’ve given up being interested in school”.

This question and relevant analysis supported the overall study by examining whether there were significant differences in student disengagement across schools with different grade configurations. Many argue that factors related to school transitions, the middle school model, and the impact of different school structures dramatically contribute to disengagement and declining motivation in early adolescent students. While research supports that these factors negatively impact some students and many districts have reconfigured their school districts accordingly, this study sought to identify motivation and engagement levels regardless of school configuration. The results of this analysis are presented in Tables 4.3 and 4.4.

Table 4.3

Mean Disengagement Scores By Students With Different School Grade Configurations

Grades	n	M (SD)
5 – 8	113	30.58 (12.67)
6 – 8	91	31.54 (13.37)
K – 8	77	32.86 (13.61)
K – 12	48	32.60 (15.47)
Total	329	31.67 (13.49)

Note. M is the mean of total possible scores of student survey measures related to Disengagement that range from 20 to 100.

Table 4.4

ANOVA of Disengagement Scores By Students With Different School Grade Configurations

Variable	SS	df	MS	F	Sig.
Between Groups	287.41	3	95.80	.52	.67
Within Groups	59393.13	325	182.75		
Total	59680.55	328			

Note. School grade configurations consisted of four groups including 5-8, 6-8, K-8, and K-12.

As shown in Tables 3 and 4, there was no significant difference in the levels of disengagement across schools with different grade configurations. In fact, students who attended school with no separate middle school structure or distinct transition reported slightly more disengagement than their peers in traditional middle schools. The data refuted other studies that directly link student disengagement in learning with school transitions in the middle years.

These results contributed to the overall study by supporting factors other than transitions and the structure of the middle school model that negatively impact student engagement in the early adolescent years.

3. Is there a difference in the level of anxiety, as measured by scores on the *MES-JS*, of sixth grade students enrolled in schools with different grade configurations?

In order to compare and contrast the levels of anxiety among students across different school configurations, the researcher conducted a simple analysis of variance. This analysis was appropriate because it identified the mean performance of four groups and these groups were compared on their average performance. In determining the levels of anxiety, students responded to four dispersed, yet related questions in the survey, including "When I have a project to do, I worry about it a lot," "I worry about getting bad marks in tests and projects," "When I do tests, I don't feel very good," and "I worry about school and schoolwork".

This question and relevant analysis supported the overall study by examining whether students have significantly different levels of anxiety across schools with different grade configurations. Early adolescent students are faced with a variety of external factors that cause them stress and anxiety, some of which contribute significantly toward a decline in their motivation and engagement in learning. This study sought to determine the relationship between these external factors and the internal biological changes in the early adolescent brain related to stress, anxiety, and emotion on motivation and engagement in learning. The results of this analysis are presented in Tables 4.5 and 4.6.

Table 4.5

Mean Anxiety Scores of Students With Different School Grade Configurations

Grades	n	M (SD)
5 – 8	113	61.33 (17.69)
6 – 8	91	58.19 (21.71)
K – 8	77	54.42 (17.15)
K – 12	48	61.88 (17.06)
Total	329	58.92 (18.82)

Note. M is the mean of total possible scores of student survey measures related to *Anxiety* that range from 20 to 100.

Table 4.6

ANOVA of Anxiety Scores By Students With Different School Grade Configurations

Variable	SS	df	MS	F	Sig.
Between Groups	2685.29	3	895.10	2.56	.06
Within Groups	113506.66	325	349.25		
Total	116191.95				

Note. School grade configurations consisted of four groups including 5-8, 6-8, K-8, and K-12.

As shown in Tables 4.5 and 4.6, mean levels of anxiety approached significance at the .05 level across the schools with different grade configurations. However, there did not appear to be a relationship between the levels of anxiety and middle school transitions. The two groups with the highest levels of anxiety were those with schools configured as grades 5-8, and K-12, while the two groups with the lowest levels of anxiety were those with schools configured as

grades 6-8 and K-8. In fact, students at the school who exhibited the highest levels of anxiety, 61.88, experienced no transitions during their K-12 education, other than the point of enrollment. These results contributed to the overall study by identifying comparable levels of anxiety among sixth grade students regardless of school grade configuration.

4. Is there a difference in the positive thoughts and behaviors of learning, as measured by scores on the *MES-JS*, between highly motivated students and low motivated students, as identified by scores on the *MES-JS*?

In order to understand the differences in the positive thoughts and behaviors of students with different motivational levels, the researcher conducted a t-test for independent samples analysis. This analysis was appropriate because the researcher sought to understand the difference in the average scores of several positive measures of thoughts and behaviors between those who demonstrated high and low engagement on the survey scale. Positive thoughts and behaviors were measured through student responses to 24 dispersed questions in the survey including students' self-belief, value of school, focus on learning, persistence, and approaches to planning and task management. Examples of questions included "If I try hard, I believe I can do my schoolwork well" (self-belief), "I'm able to use some of the things I learn at school in other parts of my life" (value of school), "I feel happy with myself when I really understand what I'm taught at school" (focus on learning), "If I can't understand my schoolwork, I keep trying until I do" (persistence), "When I do homework, I get organized so I can do it well" (task management), and "I have a plan for how to do my homework or projects when I start them" (planning).

This question and relevant analyses supported the overall study by identifying factors that differentiate between students who exhibit high and low motivation in their learning. By understanding these differences, educators can better identify and support the mitigating factors

that contribute to declining motivation during the middle school years. The results of this analysis are presented in Tables 4.7 and 4.8.

Table 4.7

Mean Booster Thoughts and Behaviors By Students With High and Low Motivation

Variable	ML	n	M (SD)
Booster Thoughts	High	40	97.54 (2.92)
	Low	40	67.42 (13.71)
Booster Behaviors	High	40	96.96 (3.48)
	Low	40	57.83 (11.90)

Note. *ML* is the motivational level based upon survey scale measures and student responses. M is the mean of total possible scores that range from 20 to 100. Booster Thoughts is the average of the total scores of student survey measures on questions related to Self-Belief, Valuing of School, and Learning Focus. Booster Behaviors is the average of the total scores of student survey measures on questions related to Planning, Task Management, and Persistence.
Mean Booster Thoughts for all students is 86.01.
Mean Booster Behaviors for all students is 78.24.

Table 4.8

Independent Samples Test of Booster Thoughts and Behaviors for Equality of Variances and Equality of Means

	LT for EV		t-test for Equality of Means					
Variable	F	Sig.	t	df	Sig.	M diff	SE diff	95% CI
Booster Thoughts								
Equal variances assumed	53.49	.00	13.59	78	.00	30.13	2.22	[25.71, 24.54]
Equal variances not assumed			13.59	42.54	.00	30.13	2.22	[25.65, 34.60]
Booster Behaviors								
Equal variances assumed	36.59	.00	19.96	78	.00	39.13	1.96	[35.22, 43.03]
Equal variances not assumed			19.96	45.61	.00	39.13	1.96	[35.18, 43.07]

Note. LT for EV is Levene'sTest for Equality of Variances. Booster Thoughts is the average of the total scores of student survey measures on questions related to Self-Belief, Valuing of School, and Learning Focus. Booster Behaviors is the average of the total scores of student survey measures on questions related to Planning, Task Management, and Persistence.
CI = confidence interval

As shown in Tables 4.7 and 4.8, there was a statistically significant difference in the levels of positive thoughts and behaviors as measured by the student survey scale and students with different motivational levels. These results contributed to the overall study by identifying certain impeding factors exhibited by students with low motivation during their early adolescent years that can be the focus of educational leaders and school improvement efforts.

5. Is there a significant difference in the level of disengagement in learning, as measured by scores on the *MES-JS*, between highly motivated students and low motivated students, as identified by scores on the *MES-JS*?

Student motivations were identified by calculating raw scores on Booster measures (positive thoughts and behaviors) and combined total scores on Muffler and Guzzler measures. Highly motivated students achieved combined Booster thoughts and behaviors scores of at least 187 out of a total 200 points with no individual Booster scores less than 90. These raw scores, when converted to grades using the *Motivation and Engagement Scale* represent A performance levels on a scale of A, B, C, and D. Highly motivated students also achieved no higher than a 65 out of a total 200 points on combined Muffler and Guzzler measures. These raw scores, when converted to grades using the *Motivation and Engagement Scale*, represent A performance levels. Low motivated students achieved combined Booster thoughts and behaviors scores less than 150 (D performance level) out of a total 200 points and a score of 96 (D performance level) out of a total 200 points on combined Muffler and Guzzler measures. As a result of the student survey responses and these calculations, the top 40 highly motivated students and the top 40 low motivated students were used to analyze levels of disengagement and motivation.

In order to understand the difference in disengagement between highly motivated and low motivated students, the researcher conducted a t-test for independent samples analysis. This analysis was appropriate because the researcher sought to understand the difference in the mean disengagement scores between those who demonstrated high and low engagement on the survey scale. In determining the levels of disengagement, students responded to four dispersed, yet related questions in the survey, including “Each week I’m trying less and less at school,” “I don’t really care about school anymore,” “I’m not involved in things like class activities and class discussion at school,” and “I’ve given up being interested in school”.

This question and relevant analyses supported the overall study by identifying factors that differentiate between students who exhibit high and low motivation in their learning. By understanding these differences, educators can better identify and support the mitigating factors

that contribute to declining motivation during the middle school years. The results of this analysis are presented in Tables 4.9 and 4.10.

Table 4.9

Mean Disengagement Scores By Students With High and Low Motivation

ML	n	M (SD)
High	40	20.88 (2.23)
Low	40	51.00 (16.95)

Note. *ML* is the motivational level based upon survey scale measures and student responses.
M is the mean of total possible Disengagement scores that range from 20 to 100.
Mean Disengagement for all students is 31.67.

Table 4.10

Independent Samples Test of Disengagement for Equality of Variances and Equality of Means

	LT for EV		t-test for Equality of Means					
Variable	F	Sig.	t	df	Sig.	M_{diff}	SE_{diff}	95% CI
Disengagement								
Equal variances assumed	61.10	.00	-11.14	78	.00	-30.13	2.70	[-35.51, -24.74]
Equal variances not assumed			-11.14	40.35	.00	-30.13	2.70	[-35.59, -24.66]

Note. *LT for EV* is Levene's Test for Equality of Variances.
CI = confidence interval

As shown in Tables 4.9 and 4.10, there was a statistically significant difference in the levels of disengagement as measured by the student survey scale and students with different motivational levels. These results contributed to the overall study by identifying certain impeding factors exhibited by students with low motivation during their early adolescent years that can be the focus of educational leaders and school improvement efforts.

6. Is there a difference in the level of anxiety, as measured by scores on the *MES-JS*, between highly motivated students and low motivated students, as identified by scores on the *MES-JS*?

In order to understand the differences in the levels of anxiety between students of different motivational levels, the researcher conducted a t-test for independent samples analysis. This analysis was appropriate because the researcher sought to understand the difference in the average anxiety scores between those who demonstrated high and low motivation on the survey scale. In determining the levels of anxiety, students responded to four dispersed, yet related questions in the survey, including “When I have a project to do, I worry about it a lot,” “I worry about getting bad marks in tests and projects,” “When I do tests, I don’t feel very good,” and “I worry about school and schoolwork”.

This question and relevant analyses supported the overall study by identifying the relationship between the anxiety and disengagement of students who exhibit high and low motivation in their learning. Early adolescent students are faced with a variety of external factors that cause them stress and anxiety, some of which contribute significantly toward a decline in their motivation and engagement in learning. By understanding this relationship, educators can better identify and support the mitigating factors that contribute to declining motivation during the middle school years. The results of this analysis are presented in Tables 4.11 and 4.12.

Table 4.11

Mean Anxiety Scores By Students With High and Low Motivation

ML	n	M (SD)
High	40	41.75 (16.62)
Low	40	71.25 (15.96)

Note. ML is the motivational level based upon survey scale measures and student responses. M is the mean of total possible Anxiety scores that range from 20 to 100.
Mean Anxiety for all students is 58.92.

Table 4.12

Independent Samples Test of Anxiety for Equality of Variances and Equality of Means

	LT for EV		t-test for Equality of Means					
Variable	F	Sig.	t	df	Sig.	M diff	SE diff	95% CI
Anxiety								
Equal variances assumed	.75	.39	-8.10	78	.00	-29.50	3.64	[-36.76, -22.25]
Equal variances not assumed			-8.10	77.87	.00	-29.50	3.64	[-36.76,-22.25]

Note. LT for EV is Levene's Test for Equality of Variances
CI = confidence interval

As shown in Tables 4.11 and 4.12, there was a statistically significant difference in the levels of anxiety as measured by the student survey scale and students with different motivational levels. These results contributed to the overall study by identifying certain

impeding factors exhibited by students with low motivation during their early adolescent years that can be the focus of educational leaders and school improvement efforts.

7. Is there a relationship between the positive thoughts and behaviors and the level of disengagement in learning, as measured by scores on the *MES-JS,* among highly motivated students?

In order to understand the relationship between these variables, the researcher identified the significance of the correlation coefficient. This analysis was appropriate because it identified whether there is a significant correlation between student scores on positive indicators and the levels of disengagement in their learning.

Positive thoughts and behaviors were measured through student responses to 24 dispersed questions in the survey include students' self-belief, value of school, focus on learning, persistence, and approaches to planning and task management. Examples of questions included "If I try hard, I believe I can do my schoolwork well" (self-belief), "I'm able to use some of the things I learn at school in other parts of my life" (value of school), "I feel happy with myself when I really understand what I'm taught at school" (focus on learning), "If I can't understand my schoolwork, I keep trying until I do" (persistence), "When I do homework, I get organized so I can do it well" (task management), and "I have a plan for how to do my homework or projects when I start them" (planning). In determining the levels of disengagement, students responded to four dispersed, yet related questions in the survey, including "Each week I'm trying less and less at school," "I don't really care about school anymore," "I'm not involved in things like class activities and class discussion at school," and "I've given up being interested in school".

This question and relevant analyses supported the overall study by further seeking to identify relationships between internal and external factors and student disengagement in their

learning during the early adolescent years. The results of this analysis are presented in Tables 4.13 and 4.14.

Table 4.13

Mean Booster Thoughts and Behaviors Scores and Disengagement Scores By Students With High Motivation

Variable	n	M (SD)
Booster Thoughts and Behaviors	40	194.50 (4.91)
Disengagement	40	20.88 (2.23)

Note. Possible Booster Thoughts and Behaviors scores range from 40 to 200. The mean Booster and Thoughts and Behaviors scores for all students is 164.25. Possible Disengagement scores range from 20 to 100. The mean Disengagement score for all students is 31.67.

Table 4.14

Correlation of Booster Thoughts and Behaviors Scores and Disengagement Scores By Students Demonstrating High Motivation

	Booster Thoughts and Behaviors	Disengagement
Booster Thoughts and Behaviors		
Pearson Correlation	1	-.19
Sig. (2-tailed)		.23
Disengagement		
Pearson Correlation	-.19	1
Sig. (2-tailed)	.23	

Note. N=40.

As shown in Tables 4.13 and 4.14, while highly motivated students exhibited strong positive thoughts and behaviors and extremely low disengagement levels, there appeared to be a weak correlation. These results contributed to the overall study by identifying certain common positive factors exhibited by students with high motivation during their early adolescent years that can be the focus of educational leaders and school improvement efforts.

8. Is there a relationship between the positive thoughts and behaviors and the level of anxiety, as measured by scores on the *MES-JS*, among highly motivated students?

In order to understand the relationship between these variables, the researcher identified the significance of the correlation coefficient. This analysis was appropriate because it identified whether there was a significant correlation between student scores on positive indicators and the levels of anxiety in their learning. Positive thoughts and behaviors were measured through student responses to 24 dispersed survey questions including students' self-belief, value of school, learning focus, persistence, and approaches to planning and task management. Examples of questions included "If I try hard, I believe I can do my schoolwork well" (self-belief), "I'm able to use some of the things I learn at school in other parts of my life" (value of school), "I feel happy with myself when I really understand what I'm taught at school" (focus on learning), "If I can't understand my schoolwork, I keep trying until I do" (persistence), "When I do homework, I get organized so I can do it well" (task management), and "I have a plan for how to do my homework or projects when I start them" (planning). In determining the levels of anxiety, students responded to four dispersed, yet related questions in the survey, including "When I have a project to do, I worry about it a lot," "I worry about getting bad marks in tests and projects," "When I do tests, I don't feel very good," and "I worry about school and schoolwork".

This question and analyses supported the overall study by seeking to identify relationships between internal and external factors and student disengagement in their learning

during the early adolescent years. The results of this analysis are presented in Tables 4.15 and 4.16.

Table 4.15

Mean Booster Thoughts and Behaviors Scores and Anxiety Scores By Students With High Motivation

Variable	n	M (SD)
Booster Thoughts and Behaviors	40	194.50 (4.91)
Anxiety	40	41.75 (16.62)

Note. Possible Booster Thoughts and Behaviors scores range from 40 to 200. The mean Booster and Thoughts and Behaviors scores for all students is 164.25. Possible Anxiety scores range from 20 to 100. The mean Anxiety score for all students is 58.92.

Table 4.16

Correlation of Booster Thoughts and Behaviors Scores and Anxiety Scores By Students Demonstrating High Motivation

	Booster Thoughts and Behaviors	Anxiety
Booster Thoughts and Behaviors		
Pearson Correlation	1	-.07
Sig. (2-tailed)		.67
Anxiety		
Pearson Correlation	-.07	1
Sig. (2-tailed)	.67	

Note. N=40.

As shown in Tables 4.15 and 4.16, while highly motivated students exhibited strong positive thoughts and behaviors and low anxiety levels, there appeared to be no relationship between these measures. These results contributed to the overall study by identifying certain common positive factors exhibited by students with high motivation during their early adolescent years that can be the focus of educational leaders and school improvement efforts.

9. Is there a relationship between the positive thoughts and behaviors and the level of disengagement in learning, as measured by scores on the *MES-JS*, among low motivated students?

In order to understand the relationship between these variables, the researcher identified the significance of the correlation coefficient. This analysis was appropriate because it identified whether there was a significant correlation between student scores on positive indicators and the levels of disengagement in their learning. Positive thoughts and behaviors were measured through student responses to 24 dispersed questions in the survey include students' self-belief, value of school, focus on learning, persistence, and approaches to planning and task management. Examples of questions included "If I try hard, I believe I can do my schoolwork well" (self-belief), "I'm able to use some of the things I learn at school in other parts of my life" (value of school), "I feel happy with myself when I really understand what I'm taught at school" (focus on learning), "If I can't understand my schoolwork, I keep trying until I do" (persistence), "When I do homework, I get organized so I can do it well" (task management), and "I have a plan for how to do my homework or projects when I start them" (planning). In determining the levels of disengagement, students responded to four dispersed, yet related questions in the survey, including "Each week I'm trying less and less at school," "I don't really care about school anymore," "I'm not involved in things like class activities and class discussion at school," and "I've given up being interested in school".

This question and analyses supported the overall study by further seeking to identify relationships between internal and external factors and student disengagement in their learning during the early adolescent years. The results are presented in Tables 4.17 and 4.18.

Table 4.17

Mean Booster Thoughts and Behaviors Scores and Disengagement Scores By Students With Low Motivation

Variable	n	M (SD)
Booster Thoughts and Behaviors	40	125.25 (22.65)
Disengagement	40	51.00 (16.95)

Note. Possible Booster Thoughts and Behaviors scores range from 40 to 200. The mean Booster and Thoughts and Behaviors scores for all students is 164.25. Possible Disengagement scores range from 20 to 100. The mean Disengagement score for all students is 31.67.

Table 4.18

Correlation of Booster Thoughts and Behaviors Scores and Disengagement Scores By Students Demonstrating Low Motivation

	Booster Thoughts and Behaviors	Disengagement
Booster Thoughts and Behaviors		
Pearson Correlation	1	-.78
Sig. (2-tailed)		.00
Disengagement		
Pearson Correlation	-.78	1
Sig. (2-tailed)	.00	

Note. N=40.
Correlation is significant at the 0.01 level.

As shown in Tables 4.17 and 4.18, there was a strong indirect correlation between the positive thoughts and behaviors of low motivated students and their high levels of disengagement in school. These results contributed to the overall study by identifying certain common factors exhibited by students with low motivation during their early adolescent years that can be the focus of educational leaders and school improvement efforts.

10. Is there a relationship between the positive thoughts and behaviors and the level of anxiety, as measured by scores on the *MES-JS*, among low motivated students?

In order to understand the relationship between these variables, the researcher identified the significance of the correlation coefficient. This analysis was appropriate because it identified whether there was a significant correlation between student scores on positive indicators and the levels of disengagement in their learning. Positive thoughts and behaviors were measured through student responses to 24 dispersed questions in the survey include students' self-belief, value of school, focus on learning, persistence, and approaches to planning and task management. Examples of questions included "If I try hard, I believe I can do my schoolwork well" (self-belief), "I'm able to use some of the things I learn at school in other parts of my life" (value of school), "I feel happy with myself when I really understand what I'm taught at school" (focus on learning), "If I can't understand my schoolwork, I keep trying until I do" (persistence), "When I do homework, I get organized so I can do it well" (task management), and "I have a plan for how to do my homework or projects when I start them" (planning). In determining the levels of anxiety, students responded to four dispersed, yet related questions in the survey, including "When I have a project to do, I worry about it a lot," "I worry about getting bad marks in tests and projects," "When I do tests, I don't feel very good," and "I worry about school and schoolwork".

This question and analyses supported the overall study by seeking to identify relationships between internal and external factors and student disengagement in their learning during the early adolescent years. The results of this analysis are presented in Tables 4.19 and 4.20.

Table 4.19

Mean Booster Thoughts and Behaviors Scores and Anxiety Scores By Students With High Motivation

Variable	n	M (SD)
Booster Thoughts and Behaviors	40	125.25 (22.65)
Anxiety	40	71.25 (15.96)

Note. Possible Booster Thoughts and Behaviors scores range from 40 to 200. The mean Booster and Thoughts and Behaviors scores for all students is 164.25. Possible Anxiety scores range from 20 to 100. The mean Anxiety score for all students is 58.92.

Table 4.20

Correlation of Booster Thoughts and Behaviors Scores and Anxiety Scores By Students Demonstrating Low Motivation

	Booster Thoughts and Behaviors	Anxiety
Booster Thoughts and Behaviors		
Pearson Correlation	1	.41
Sig. (2-tailed)		.01
Anxiety		
Pearson Correlation	.41	1
Sig. (2-tailed)	.01	

Note. N=40.
Correlation is significant at the 0.01 level.

As shown in Tables 4.19 and 4.20, there was a moderate correlation between the positive thoughts and behaviors of low motivated students and their high levels of anxiety in school. These results contributed to the overall study by identifying certain factors exhibited by students with low motivation during their early adolescent years that can be the focus of educational leaders and school improvement efforts.

Qualitative analysis – student interviews

Upon review of the literature and analysis of the student survey quantitative data, interview questions (see Appendix D) were developed to examine students' perceptions of the factors that contribute to declining motivation in early adolescent students. Qualitative questions were designed to specifically address the statement of the problem and the questions that guided the study. Questions focused on both positive and negative school and home experiences, directly related to their learning, engagement, and other student perceptions and within several categories including: perceptions of school; grade transitions; interest and engagement in school; positive learning and teacher experiences; perceptions of teacher excellence; classroom engagement factors; understanding of teacher and school expectations; student/teacher relatedness; stressors and coping strategies at school; parental involvement and relationships; school improvement needs; and personal improvement needs.

Student questionnaires were developed to provide triangulation, to obtain clarification for follow-up questions resulting from survey responses, and to seek specific information. The information obtained from the interviews provided clarifying qualitative data to better identify early adolescent motivation and engagement in learning from the students' perspective.

Student interview selection. Twenty-five student interview subjects were chosen from those students who demonstrated high and low motivation in their own learning and represented each of the schools with different grade configurations. Students were categorized as high

motivation and low motivation as defined by their survey scores. Students categorized as high motivation scored 187 or above on the combined *Booster* measures (*Thoughts and Behaviors*) with no individual score less than a 90. High motivation students also scored no higher than a combined 65 on the *Muffler* and *Guzzler* measures. There were 40 students who met these criteria. Of these 40 students, 13 students had parental permission to participate in the interview phase of the study. Students categorized as low motivation scored less than 150 on the combined *Booster* measures and a 96 or higher on the *Muffler* and *Guzzler* measures. There were 45 students who met these criteria. Of these 45 students, 12 students had parental permission to participate in the interview phase of the study.

Although the students chosen to participate in the interview phase had previously given permission to do so, nine of the 25 families did not respond to numerous requests for the interview. This consisted of five high motivation students and four low motivation students. Families were contacted by email, phone, letter, and where possible, direct contact with the student. Rather than expand the interview participant sampling with students who did not demonstrate the very high or low motivational scores as defined by the selection criteria, the researcher proceeded with sixteen total student interviews. This consisted of eight high motivation students and eight low motivation students, representing each of the grade configurations for both groups.

Student interview protocol. The researcher used a semi-structured interview format that enabled participants to incorporate their ideas regarding the topic and provide any spontaneous responses. Students received the interview questions approximately 48 hours prior to the interview. The interview included both closed and open-ended questions. The interviews enabled the researcher to understand the perceptions of students and teachers as to the factors that contribute to, support, and impede motivation and engagement in learning.

Students were interviewed by phone during the evening or on the weekend. The interview consisted of 33 primary questions. The researcher asked additional follow up or clarifying questions when student responses were either not clear or required further explanation. Twelve of the 16 interviews were completed within 25-35 minutes. One interview was completed in 20 minutes, two interviews were completed in 40-45 minutes, and one interview was completed in 55 minutes. The researcher recorded responses manually. Respondents were assured of confidentiality and anonymity. Data were immediately transcribed and organized in the database software.

Student perceptions of school. The majority of interviewed students (13 of 16) expressed positive feelings toward their school. Seven highly motivated students stated they like or love their school. This was the first statement from all of them. All of these students continued to provide specific reasons for their positive response such as the teachers (6), curriculum/lessons (6), and small school and/or classes (3). One highly motivated student only spoke of the structure and location of the school and did not volunteer any further statements. Six low motivated students responded with generally positive feelings about their schools. Of these, four students also reported specific concerns about their school. Three of these students indicated that their schools are too large or have too many students. One student reported teachers as a positive factor at the school. None of the other low motivated students mentioned teachers.

When questioned what they liked most about their school, all students immediately identified specific aspects, however with clearly different results. Six of eight highly motivated students stated they liked their teachers the most. None of the low motivated students mentioned teachers. Two highly motivated students preferred specific academic classes (foreign language). While three low motivated students also reported specific classes as what they liked most about

school, all identified non-academic, extra-curricular classes (orchestra, technology, and Discover club). Other aspects most liked by low motivated students included small environment with no bullying, the high level of responsibility and freedom, and friends.

All students reported a wide variety of topics when asked what they liked least about their school. Only two students, both highly motivated, stated there was nothing they did not like. Two of the three highly motivated students interviewed who attended a school with a dress code mentioned this as being the least liked aspect of their school. They did not like that that a dress code limits their individuality. Two highly motivated students reported frustrations with the curriculum; however one stated it was too difficult, while the other stated it did not challenge her. One highly motivated student indicated a frustration with the level of homework, while one disliked the "unrealistic expectations" of the teachers. Low motivated students reported similarly different dislikes at their school. Two students indicated a frustration with the amount of work, including homework, while two indicated there is not enough time to get to classes, lockers, or to eat lunch. One student was frustrated with the lack of depth covered in some subjects, while one believes too much time is spent on topics. One student believed the teachers spend too much time testing students. Finally, one student believed school starts too early.

Grade transitions. All students interviewed reported clear differences between fifth and sixth grades. Fourteen students indicated class and homework being more difficult, while two highly motivated students reported that sixth grade has essentially been a review of the material covered in fifth grade. Nine students indicated they are held more responsible and seven identified changing classes as a major difference. Of the eight highly motivated students, five reported that the subjects are more challenging and there is more homework. Four reported having more responsibility. Three indicated that changing classes and having more teachers is a noticeable difference. Of the eight low motivated students, five indicated they are held more

responsible in sixth grade, while three of these also stated that “with increased responsibility comes more freedom”, which they liked. Four reported changing classes as a major difference. Low motivated students also identified the increased number of teachers (2), quantity of homework (2), and use of lockers (2) as significant differences.

Students were then questioned if any of these or other differences had made learning in sixth grade more challenging. Eight of the sixteen students (six high motivated and two low motivated) reported no challenging differences. Four students, one highly motivated and three low motivated, reported that they become stressed and found difficulty changing classrooms. Three low motivated students indicated that the amount of homework and high level of expectations is difficult to manage. One highly motivated student believed the level of work and one particular teacher as having a negative impact.

Interest and engagement in school. Eight of the students, four highly motivated and four low motivated, indicated a declining interest in school this year, however six of these students, three highly motivated and three low motivated, reported it specific to one class and not to school in general. All six clearly stated their classroom-specific disengagement was directly related to the teacher. Four of these students reported “the teacher is boring,” while two indicate their “teacher is mean.” The remaining two students who demonstrated declining interest in school in sixth grade reported the lack of a challenging curriculum (highly motivated student) and excessive levels of expectations (low motivated student) as contributing factors.

Positive learning and teacher experiences. All students were quick to identify their best learning experiences and could easily describe it in detail, even if it occurred in previous years. Nine students, five highly motivated and four low motivated, identified specific academic projects as their memorable and best learning experience. Two highly motivated students described specific academic, year-long courses as their favorite, based almost entirely on their

interest and performance in the topics (technology and Spanish). Three low motivated students identified extra-curricular activities, orchestra/violin, football, and survival skills camp, as their most meaningful experiences. Two students, one highly motivated and one low motivated, identified their entire fifth grade as especially meaningful to their learning.

While many of these experiences differed, the students reported similar aspects of each experience that made it meaningful. Highly motivated students most often used words such as "integrated or connected" (6), "got to choose topic" (5), "fun" (4), "new or different" (4), "interesting" (3), and "hands-on" (3) to describe their experience. Low motivated students most often used words such as "integrated or connected" (4), "got to choose topic" (5), "fun" (4), "interesting" (4), and "hands-on" (4) to describe their experience.

Similarly, fourteen students, seven highly motivated and seven low motivated, identified a teacher as the person who made their best learning experience special. One highly motivated student reported her mother was the one who made the difference, while one low motivated student reported his friends made it special.

Perceptions of teacher excellence. Fourteen of the students, including all of the highly motivated students, immediately identified a teacher who made a significant impact in their lives. One low motivated student reported that he has had many great teachers and "couldn't pick just one." The most important quality he observed in all of them was "They treated me with respect." Finally, one other low motivated student reported not having a favorite teacher, stating "They have all been just okay."

When asked to describe their favorite teacher or to identify the qualities that made that teacher so significant, all students frequently used the same terms and descriptions. Highly motivated students described their teachers as "caring/understanding" (6), "uses different ways to connect to students" (6), "fun" (5), "interesting/creative" (4), and knows individual student needs

(4). Similarly, low motivated students mirrored statements, using descriptions such as "uses different ways to connect to students" (7), "fun" (6), "interesting/creative" (5), and "caring/understanding" (3).

Students were subsequently asked about the most important qualities a teacher should possess for the student to be successful. In addition to the descriptions listed above, the most common attributes were knowing students' individual needs and providing extra help (12). This was stated by four highly motivated students and eight low motivated students. Additional supports or qualities included keeping the pace of lessons consistent with the needs of the students (6); providing study guides (3); more effectively addressing behavior distractions (2); and setting high expectations and challenging students (1).

Boredom and its impact on engagement in the classroom. Five highly motivated students who reported they never get bored in class indicated they have teachers who are fun and interesting. These teachers introduce information in new and different ways and engage them in the discussion. However, the majority of students reported they are easily bored during certain classes. Thirteen, five highly motivated and all eight low motivated students, indicated teachers are central to their ability to keep them interested and involved. All of these students reported their teachers spend the majority of class talking to the class with little student participation or use of other teaching strategies, such as individual or small group work, technology, projects, presentations, or even using humor. Seven of these students, three highly motivated and four low motivated, stated "the teacher spends too much time talking or reviewing a subject."

The impact of this low level of engagement due to boredom in the classroom was subsequently reported in the students' ability or willingness to listen during class. Nine of the thirteen students who get bored admitted they stop listening to the teacher and often miss important information. Four highly motivated and five low motivated students identified

common times when they stop listening: “when class gets boring,” “the teacher just talks,” and “when the students are required to just take notes.” As two students separately claimed, “I just shut out the teacher.” All of the students understood that they shouldn’t stop listening, as it limited their understanding of the material and impacted their motivation to learn. They all indicated they have tried to pay attention, but “it is easy to just zone out or daydream” if the teacher is boring. “The teacher doesn’t seem to care if I don’t pay attention anyway,” stated one student.

Boredom in the classroom was also shown to play a role in four students’ behavior. One highly motivated and three low motivated students reported they often misbehave in class. They indicated their teachers didn’t capture their attention, and it was easier or more fun to just talk to friends or act out. Two students stated “acting out often got me out of that class,” while one student stated she wasn’t sure if she talked to her friends because she was bored or if she just couldn’t help it. In her words, “I just love to talk all the time.”

Understanding teacher and school expectations. There appeared to be little confusion on the part of students of what was expected of them, academically and behaviorally, at school and by their teachers. Fifteen students reported academic and behavior expectations are clearly communicated and understood. Teachers used a variety of methods to communicate expectations, both verbally and in writing, beginning at the start of the school year and periodically throughout the year. Similarly, the majority of students, seven highly motivated and six low motivated, stated the expectations were consistent among all of their teachers. A concern by many entering sixth grade was that having more teachers and different classrooms would mean having different rules. Students reported most teachers develop and implement expectations as a team. It is clear to them the teachers worked together and implemented consistent expectations. Not all students experienced this consistency, however. Three students

each identified one teacher who is not consistent with other teachers on academic and behavior expectations and consequences. All three reported these differences to be a negative influence on them.

Student/teacher relatedness. As indicated earlier, students reported when they enjoyed strong relationships with their teachers, the learning was more meaningful. Students were asked to assess their relationships with their current sixth grade teachers on a variety of measures and specific to whether the students experienced differences and disagreements with their teachers on these matters.

The highly motivated students overall reported extremely low levels of differences or disagreements with their teachers. In fact, on a scale of 1 "Never" to 5 "Always", none of the 15 indicators measured a rating average of more than 1.75. One hundred percent of students indicated "Never" or "Rarely" on eight of the 15 indicators. Four indicators, "Why do I need to know this?" "Unclear directions," "Inconsistent limits, rules, and consequences," and "Overreactions" resulted in 2 students reporting these differences occur sometimes. No students reported "Often" or "Always" on any of the indicators. As a group, these students had developed strong relationships with their teachers with several indicating its positive impact on their motivation to learn and do well in school.

Low motivated students reported moderate levels of differences or disagreements with teachers. On a scale of 1 "Never" to 5 "Always", five indicators measured a rating average of more than 2.0 with the top three being "Unclear directions" (2.88); "Verbal threats of failure" (2.75); and "Boring lessons" (2.50). One hundred percent indicated "Never" or "Rarely" on only three of the 15 indicators. Students reported "Often" or "Always" on two indicators "Verbal threats of failure" and "Inconsistent limits, rules, and consequences." While levels of

disagreement or differences with teachers were higher than the highly motivated students, most low motivated students reported overall satisfaction with their current sixth grade teachers.

Anxiety, stress, and coping skills at school. Anxiety and stress can prove to be powerful factors in motivation. Further, a student's ability to cope and effectively deal with stress can be the difference between sustained success and failure. Students were asked to assess their levels of stress on a variety of topics that tend to occur daily in their lives at school and at home. In addition, students were asked how they manage issues that may cause them anxiety or concern.

Highly motivated students reported many instances of stressful situations, although at relatively low levels. On a scale of 1 "Never" to 5 "Always", two of the 15 indicators measured a rating average of at least 2.0, including "Failing a test" (2.63) and "Being embarrassed in front of peers/classmates" (2.0). In fact, 50% of highly motivated students reported stress about failing a test. All students indicated "Never" or "Rarely" on only 1 of the 14 indicators. Consequently, students report at least occasional stress on 13 of the 14 indicators.

Most of the highly motivated students indicated they consciously address issues that bother them. Five reported they have strong relationships with teachers and/or parents and frequently discussed any issues or concerns. Two students typically used internal strategies to put things in perspective and think out solutions. They liked to be independent and work out problems themselves. If these strategies do not work, they turned to a teacher or parent. Only one student indicated that her attempt to deal with a stressful situation is to "ignore it, hoping it will go away or improve."

Low motivated students reported higher levels of stress than those with high motivation. On a scale of 1 "Never" to 5 "Always, seven of the 14 indicators measured a rating average of at least 2.0, including "Failing a test" (3.38), "The future" (3.0), and "An unexpected or pop quiz" (2.5). In fact, 63% of students reported stress about failing a test and the future. Concerns about

the future ranged from anxiety over an upcoming test to high school, college, and career. More in-depth questioning found extreme levels of worry with external pressures from parents and peers. Examples of statements from these sixth graders included: "I worry about college. I don't know what I want to be."; "I worry about the future. I worry about getting things done."; "I worry about the future. I want to excel, but I don't know if I will if I don't do well on MCAS and my grades."; "My friends always exaggerate about everything. I get stressed about it and can be emotional. I am always stressed about being judged."; "I have too many family obligations...This really stresses me out."; and "I worry about things in the future. Things I don't know about. Everything from tomorrow to the day I die." All of these students indicated "Never" or "Rarely" on only two of the 14 indicators. Consequently, students reported at least occasional stress on 12 of the 14 indicators.

Contrary to the highly motivated students, most low motivated students admitted they do not address their problems very well. Four students reported they "try to forget about it and hope the problem will go away." They do not have strategies to deal with stress and are not sure where or to whom to turn. Asked what they could do differently to realize a more positive result of dealing with their stress, three of the students indicated they would maybe go to a parent or teacher. However, all agreed "that is not what I would probably do." Two other students indicated they try to put their concern in perspective and think out solutions. Sometimes this doesn't work, so they feel comfortable asking a teacher or parent. One indicated she has a strong relationship with her parents and would go directly to them. Finally, one student, who identified areas of stress earlier in the interview, indicated that he rarely is stressed and stated "Nothing is really a big deal."

Parental involvement and relationships. Parents play a vital role in the success of their children at school. Positive and negative relationships clearly shape both short and long-term

learning outcomes. Students were interviewed on a variety of topics including how their parents are involved in their education, what their parents could do or do more to help them be more successful at school, as well as their perceptions to parent relationship indicators.

While 15 students, all highly motivated and seven low motivated, reported their parents help them with homework and study for tests, there was a significant difference in the perception of the quality of help. All highly motivated students indicated their parents' homework and study support helped them tremendously. As was often stated, "They couldn't do any more than they already do." In contrast, five of the seven low motivated students whose parents helped them with homework or study, indicated they wish their parents would help them more. Further, only four highly motivated and two low motivated students reported their parents regularly communicated with the school. It is important to note that two of these four highly motivated students have parents who are teachers. Finally, two highly motivated students reported their parents actively supported their education by providing subject-specific tutors.

Differences and disagreements with parents registered low with highly motivated students. On a scale of 1 "Never" to 5 "Always", only one of the 16 indicators measured a rating average of at least 2.0, "Household chores" (2.5). In fact, 75% of highly motivated students reported disagreements on this indicator. When asked of these students why it rated so high, all stated they just do not like to do chores. Low motivated students, however, reported higher levels of disagreements with their parents compared with students with high motivation. On a scale of 1 "Never" to 5 "Always, seven of the 16 indicators measured a rating average of at least 2.0, including "School grades" (2.75), "use of the computer/internet" (2.75), and "homework" (2.5). In fact, all students reported at least some disagreement with parents over their grades, while only one indicated there were never disagreements over homework. Further, students

reported “Often” or “Always” on eight of the indicators, a significant increase in the levels and number of specific indicators than students with high motivation.

School improvement needs. Students were asked what their school or teachers could do differently or more to help them become more successful. Four highly motivated students reported the school is doing a great job, and they cannot think of anything that could be done differently. One low motivated student expressed the same comment. Three highly motivated students indicated the school should help teachers learn new and different ways to teach, keeping learning interesting and fun. One other student suggested building in more after school extra help. Four low motivated students suggested the school and teachers should let students choose more of their topics, assignments, and projects. This recommendation was linked back to several of the students’ comments of their best learning experience. Other singular suggestions included more study guides, more educational field trips, better use of time spent on teaching material, less focus on homework, working toward goals, and increasing prizes and classroom competition.

Student self-improvement needs. Finally, students were asked what they could do differently or more to be more successful in school and with their learning. Fourteen of the students, all low motivated and six highly motivated, reported they could and should study more. Of the low motivated students, one “thinks it is more about how I am studying rather than how much I am studying”; while one indicated “I need to work on my emotions and how I react to situations.” One of the highly motivated student also expressed frustration by stating “it won’t matter even if I study more, because I am not being challenged.” One highly motivated student indicated she “needs to work on my self-confidence, so I can manage my stress and perform better.” Finally, one highly motivated student indicated that she does very well and will continue to learn as she has in the past.

Qualitative analysis – teacher questionnaires

While this study is focused on student perceptions of their learning, experiences, environment, and factors that contribute to motivational levels, the researcher sought to obtain teacher perceptions of the factors that contribute to motivation and engagement. The researcher designed a questionnaire (see Appendix E) to understand teachers' perceptions of their students' motivational and engagement levels and factors. The questionnaire was developed based upon the analysis of the student surveys and interviews and consisted of 42 open-ended and multiple-choice questions. These questions centered on teacher and instructional excellence; student engagement factors; student behaviors; defining students with high and low motivation; identifying factors that impact stress and anxiety levels for students with high and low motivation; identifying prevalent stressors impacting all students with motivation and engagement; comparing student motivation levels with parent involvement; examining school transition supports; ascertaining professional development experiences; and pinpointing school, student, and teacher self-improvement areas. Comparing these perceptions resulted in further critical insight and findings of how school leaders can create learning environments to support all students during their early adolescent education.

Teachers from the 11 schools participating in the student survey phase of the study were invited to contribute to this phase. Twelve teachers, representing schools with different grade configurations, volunteered to participate; however only 11 completed the questionnaire. The results of this phase are based upon the analysis of these 11 teacher participants. Teacher interview subjects represented each of the schools with different grade configurations with the exception of schools configured with grades 5-8. There were no volunteers from these schools. Teacher subjects included four teachers from schools configured as grades 6-8, five teachers from schools configured as grades K-8, and two teachers from a school configured as grades K-

12. Participating teachers varied greatly in their experience, both in the number of years teaching and in the number of years teaching sixth grade students. Participating teachers averaged 14.3 years of experience, however there was a wide range; from 5 years to 32 years. Six participants had taught between 5-10 years, while two teachers and three teachers had 11-20 and 21-32 years' experience, respectively. The average number of years teaching sixth grade students was 8.3 years, however there was similarly a wide range; from 3 years to 25 years. Four participants had taught between 3-5 years, while five teachers had taught between 6-10 years. The final two participants had taught sixth grade students 18 and 23 years, respectively.

Teacher excellence. Teachers were asked to describe what they believe are qualities of an excellent teacher. While there were a few similarities, the majority of respondents stated very different definitions of teacher excellence. In fact, not one description was mentioned by a majority of teachers. Five teachers identified "being knowledgeable in their content" as essential for instructional excellence. Words or descriptions resulting in responses from three teachers included "flexible", "compassionate/caring", "listens", "humor", "professional and positive demeanor", "dedicated/engaged", and "patient". Three descriptions of excellence, "respects their students", "consistent and clear", "maintains a positive learning environment and classroom management style" were mentioned by two teachers. Finally, descriptions singularly mentioned included "honest", "firm", "fun", "holds students accountable", "develops an engaging curriculum", "interesting", "prepared", "innovative/creative", "problem-solver", "life-long learner", "motivated", "enthusiastic", "organized", "self-confident", and "knows and supports individual students".

Student engagement. Teachers were then asked the ways in which they make their subject or class meaningful to students. A follow up question focused on gaining and sustaining students' attention in class. The majority of teachers (9) identified "making connections" to their

students as a critical quality. Seven teachers indicated "listening to their students and adjusting to their personal interests or needs" as an important quality of an excellent teacher. Nearly half (5) expressed the need for instructional "differentiation" and one-quarter stated it is important for teachers "to explain why students are being taught certain material." Two teachers expressed qualities such as "being fun" and "having a sense of humor" were important, while one teacher focused on the ability for teachers to build upon their lessons and "scaffold" their instruction.

Student behaviors. Teachers were asked to identify the student behaviors they most often witness that negatively impact student engagement. Seven teachers expressed frustration over the "side conversations", "talking out", or "failing to remain on task" as the primary negative behaviors displayed in their classrooms. One teacher mentioned the "extremes" of students completing work. "Students that want to do all the work by themselves or students that don't want to do any work at all. Both extremes negatively impact student engagement." Other singularly mentioned behaviors included "negativity", "class readiness", and "sleeping." Finally, one teacher indicated that certain students intentionally disrupt teachers. "Defiance and insubordination are typical of middle school students who are testing the authorities around them."

Defining students with high motivation. While teachers were not consistent with their descriptions of teacher excellence, there was significant similarity in their responses to defining highly motivated students. All teachers, while sometimes using different words with similar meanings, i.e. internal motivation and intrinsically motivated or comfortable asking questions and self-confident, identified clear meaning of the term "highly motivated students." In addition to the above descriptions, teachers used the terms "mature", "curious", "resilient", "invested", "enthusiastic", "driven", "happy", "goal-oriented", and "prepared" to summarize their

perceptions. All were able to present a clear view with their words of what a highly motived student looks like in their class.

Significant differences occurred, though, when teachers estimated the percentage of highly motivated students they teach each year in their typical class; percentages ranged from 5%-95%. Two teachers reported between 5% and 20%; three teachers reported between 25% and 50%; three teachers reported between 60% and 75%; and two teachers reported between 80% and 95%. One teacher did not estimate, rather expressed motivation of her students as "different kids at different times. Science is so varied. Over the course of the year, I try to get every kid hooked on something."

Teachers were asked to identify the factors they believe contribute to students being highly motivated in their learning. Eight of the eleven respondents identified positive home environment and support as the most important factor. Four respondents indicated positive, connected relationships with teachers, while three identified internal or biological factors at play. "I think…is due to having a strong locus of control, which may be something they were born with," stated one teacher. Another echoed this sentiment. "I know a lot of it is something students are just born with. There have been students with seemingly supportive families who do fantastic and then those who do not do well. And, vice-versa, there are students with difficult home lives who do really well, too." Other factors, mentioned by two teachers each, perceived as contributing to high motivation included students' desiring a better education/life, previous successful learning experiences, and a strong curriculum/learning environment.

Finally, while teachers generally agreed they rarely or never have disagreements or differences with their highly motivated students, three common situations were identified by a majority of teachers as occurring "sometimes." These included when students question why they need to know something, when students feel that directions or expectations are unclear, and

when students feel that lessons are boring. One teacher spoke specifically about the first two items, summarizing her claims with "I believe doing well is important to highly motivated students. At times it becomes crucial that they understand directions – open-ended prompts or out-of-the-box conversations are sometimes confusing for this group – they need to be sure and so the specificity of directions becomes very important – sometimes TOO important."

Highly motivated students, anxiety, and stress. Anxiety and stress can prove to be powerful factors in motivation. Further, a student's ability to cope and effectively deal with stress can be the difference between sustained success and failure. Teachers were asked to assess highly motivated students' levels of stress on a variety of topics that tend to occur daily in their lives at school and at home.

Teachers reported many instances of stressful situations that impact student learning. In fact, on a scale of 1 "Never" to 5 "Always", a majority of teachers reported moderate to high levels of impactful stress on 12 of the 14 indicators. The top stressors chosen of those listed included "Failing a test" (4.0) and "A pop quiz or test" (3.45). Only two indicators were identified as never or rarely occurring by the teachers: "Student claims of unrealistic classroom demands or expectations" and "Trying to pass between classes in a few minutes while stopping at their locker or visiting the bathroom."

Defining students with low motivation. Contrary to their descriptions of students exhibiting high motivation, teachers reported a variety of terms associated with their perceptions of low motivation. Four teachers indicated "low self-esteem", while three teachers reported two descriptors, "distracted" and "disinterested", demonstrated by students with low motivation. Terms reported by two teachers included "academically challenged", "abandoned/alone", "disconnected", and "apathetic". Singular mentions included "poor listener", "negative", "disruptive", "closed-minded", "lack of empathy", "poor executive functioning", "frustrated",

"ashamed", and "disorganized". Two teachers provided further insight into their perceptions. One placed it on how the students view themselves. She indicated that with low intrinsic motivation and past failures, it is easy to become a student with low or no motivation. Another teacher provided similar comments, indicating these students are "missing the key to unlock their thirst for learning." Finally, one teacher used a more positive and forward-thinking summary of these students, "They (students) are puzzles that need time, creativity, and persistence to solve. Sometimes figuring out what DOES motivate them will change the low motivation to high motivation. If one takes the time to learn about these individuals, we can change it."

Teachers identified smaller percentages and a smaller range of students who demonstrate low motivation in their classes as compared to their highly motivated student estimates. When asked their perception of the numbers of low motivated students, six teachers reported between 2% and 10% and four reported between 11% and 25%. The remaining teacher reported her typical class consists of 35% low motivated students.

Teachers were asked to identify the factors they believe contribute to students having low motivation. Contrary to other questions, teachers were consistent in their responses. Nine teachers identified self-esteem or a lack of self-confidence as a motivational factor. Similarly, nine teachers identified the home environment and parental involvements as a factor. Two other factors were mentioned five times each: learning difficulties and past negative experiences. There were no responses indicating that current teachers may be a factor in low motivation.

Finally, teachers agreed overwhelming and consistently they sometimes, often, or always have disagreements or differences with their low motivated students. In fact, on a scale of 1 "Never" to 5 "Always", a majority expressed this concern on 15 of the 15 indicators. Indicators measuring the highest levels of concern included "Students failing to listen" (4.0), "Unfinished

work" (3.91), "Bad or poor attitude" (3.82), and "Student claims of boring lessons" (3.36), and "Disrespect for authority or adults" (3.27). Further, all indicators were reported to occur "often."

Low motivated students, anxiety, and stress. Teachers were asked to assess the levels of stress and anxiety of their students with low motivation and to respond to a variety of topics or situations often faced by students. Similarly to their reports on highly motivated students, teachers reported many instances of stressful situations that impact student learning. Overall ratings for these situations were reported at even higher levels for students with low motivation than with high motivation. In fact, on a scale of 1 "Never" to 5 "Always", a majority of teachers reported moderate to high levels of impactful stress on 12 of the 14 indicators. The top stressors chosen of those listed included "Situations that threaten self-esteem" (3.36), "Disagreements with teachers, parents, or other adults" (3.36), "Student claims of unrealistic demands or expectations" (3.27), "Problems with peers or classmates" (3.27), and "Being judged or evaluated by others" (3.18). Only two indicators were identified by the majority of teachers as never or rarely occurring: "Being graded with only one type of assessment in a course" and "Not being allowed to participate in class or ask questions." Finally, no teachers reported any stressful situation as "always" occurring with their students with low motivation.

Identifying prevalent stressors impacting student motivation. Teachers were then asked about their perceptions of the stressors that prevent all students, regardless of motivational level, from learning and being engaged in school. Respondents ranked their top three stressors. Similarly to other answers in the questionnaire, teachers had a wide range of responses. A summary of these responses are presented in Table 21.

Table 4.21

Teacher Perceptions of the Top-Three Stressors Preventing Students from Achieving

Stressor	#1	#2	#3	Total
Problems with Peers	2	2	1	5
High Academic Standards/Expectations	2	0	1	3
Fear of Failure	2	0	1	3
Learning Style	1	0	0	1
Learning Disability	1	0	1	2
Previous Negative Learning Experiences	1	0	1	2
Lack of Parent Support/Home Environment	1	4	3	8
Student Self-Confidence	1	2	0	3
Failure to Listen or Participate in Class	0	1	1	2
High Internal Expectations	0	1	0	1
High Rate of Absences	0	1	0	1
Lack of Teacher Support	0	0	1	1
Lack of Differentiated Instruction	0	0	1	1

As shown in Table 4.21, teachers offered a wide range of responses in identifying their top-three stressors that negatively impact student learning. A non-supportive parent, family, or home structure was mentioned nearly twice as much as any other issue and by a majority of the teachers. However, only one teacher identified it as the number one stressor. Teachers reported "problems with peers" as another identified stressor with two indicating it as a top choice and

two as a second choice. Finally, three other stressors were identified by three teachers each as negatively impacting learning and motivation. These included students unable to respond positively to high academic expectations and class work, students fearing failure, and students having low self-confidence.

Teachers were then asked the percentage of their students who are prevented from being successful at school due to these reported stressors and how they, as teachers, help their students cope. The majority (eight) indicated between 2% and 10% of their students are negatively impacted. Two teachers reported between 15% and 20%, while one teacher indicated 70% are negatively impacted. All teachers articulated similar responses in how they support these students. Most indicated they make individual, personal connections. They show compassion and empathy, helping to develop strong relationships. Four teachers mentioned specific strategies they use to "decrease frustration and fear." "Framing the big picture," "Focusing on effort," "Every day is a new slate," and "Identifying ways to boost their status" were some ways teachers identified as successful for "nurturing" their stressful or anxious students. Finally, four teachers indicated they strive for a healthy, positive classroom environment.

Motivation levels and parent involvement. Teachers were asked whether they observe differences between their highly motivated students and their students with low motivation in the ways their parents are involved in their education. Not surprisingly, all teachers reported a distinct difference with these groups and provided detailed responses. Specific excerpts include "The majority of times, the caring, nurturing, involved parents have kids that are motivated."; "Yes!! Highly motivated students have families who are involved in the school itself as well as their children's successes. The opposite is true for students with low motivation."; "Absolutely. Most students who are low motivated have little to no parental support at home. When phone calls or conferences are made with parents, nothing changes. Highly motivated students have

parents who are involved or invested in their child's education. They also support teachers if or when their child is ever in trouble." While these statements reflect the majority of respondents, several teachers identified exceptions. "However, I am always inspired by my students who do not have the most supportive and involved parents, yet they are still able to motivate themselves," stated one. Further, "We cannot use this (lack of parent support) as an excuse nor can we allow the student (to use this as an excuse). We can help the student take control of his or her own learning. We need to direct them to their gifts in a guiding way and help them find the motivation from within." Finally, one teacher acknowledged "Many highly motivated students don't have the parent support."

School transition supports for early adolescent students. Sixth grade is typically a time of transition – changes with buildings, classes, teachers, and classmates – as well as a time when the body and brain undergo dramatic changes. Teachers were asked what they and their colleagues do to support this transitional phase between elementary and middle school age groups. Seven teachers responded they "team" teach with other faculty and coordinate their lessons and environment along a consistent model. Students similarly are grouped in teams for consistency and familiarity. Six teachers mention a "moving up to sixth grade event" or orientation session as a successful way to transition students. However, the models vary dramatically from a summer tour to an extensive evening activity outlining curriculum, expectations, question and answer sessions for students and parents, followed by a tour. Three teachers indicated they either were "not sure" or briefly mentioned items they related to transition such as teaching study and organizational skills, working with students in homeroom, and being visible outside of their classrooms.

Professional development experiences. Teachers were asked whether they had been trained in or attended a workshop in four areas: differentiated instruction; student emotional,

social, and behavioral needs and supports; early adolescent development; and neuroscience or brain-based learning.

Nine teachers indicated they have taken a course or workshop on differentiated instruction, however in varying levels and through different means. Four have had extensive training in the undergraduate and graduate degree programs, while five have attended a session on the subject within the past 10 years.

Seven respondents indicated they have been trained in the emotional, social, and behavioral needs and supports of students. Three teachers have taken college courses central to these issues with one of these teachers earning a degree in child psychology. Three teachers reported taking one seminar on issues impacting student needs. Finally, one teacher indicated the only training she has received is annual restraint training, focused on behavioral and emotional issues.

Ten respondents reported attending training in early adolescent development. All indicated their college studies required course(s) in this topic. Two of these ten respondents indicate they have received follow up instruction in early adolescent development through school-sponsored professional development.

Four of the eleven teachers reported they have received training in neuroscience or brain-based student learning. Three indicated this topic was a portion of a college course taken between 5-10 years ago. One teacher indicated she attended a professional development workshop on brain-based learning in the mid-1980s. No one reported a recent course or workshop related to this topic.

School improvement areas. Teachers were asked what their school could do more or differently to help them become better teachers of early adolescent students. Seven teachers specifically mentioned more focused professional development. Offered by one teacher, “Most

of my trainings and workshops (since college) have been mainly academically based. There is such a big focus on closing the achievement gap, that the other topics are usually not mentioned." Others stated, "We need more training on best practices," "Teachers need more extensive training in the unique social, emotional, and psychological needs of adolescents," and "We need to learn more about brain development and the psychology of adolescents." Summed up by one teacher, "I think professional development on early adolescence would be beneficial because often times teachers forget that they are kids." Additionally, four teachers indicated school leaders should do a better job of communicating, especially about the specific needs of at-risk students and "work to have them succeed rather than punish their failures." Finally, one teacher suggested more planning time would help them become a better teacher.

Student improvement areas. Teachers were asked what their students could do more or differently to become better students. The responses varied greatly from "Relax. Enjoy. Have fun. Be glad." to "Pay attention in class!!!! Listen, take notes, READ the material they are given, THINK for themselves, and use their notes to help them. Sometimes my students want me to spoon feed them EVERYTHING. If they read or reread some of the things I've given them, they will do well for themselves and for me." Most, in some way, indicated students need to either work on skills, such as participating, being organized, paying attention, and completing homework, or to change their mindsets, such as identifying ways to be interested in their learning, seeing that "failure is a habit of mind and that effort will trump ability," and focusing on what they can control. Finally, one teacher addressed the need for a positive adult relationship. Students must "find a teacher/counselor/adult who they admire, respect and could become connected with. Those without home leadership need to find that leadership in another place."

Teacher self-improvement areas. Teachers were asked what they could do more or differently to become a better teacher of early adolescents. Responses were similar and grouped along two primary areas: more knowledge of research/training and more knowledge of individual students. Six teachers indicated a need to be more knowledgeable of the research and practical applications of working with the social and emotional needs of early adolescents. "I need to keep abreast on new techniques that would make me a more effective teacher," stated one. Others spoke specifically about the need for more training in social emotional needs and brain development. "The world is changing so quickly and children are changing in ways we cannot even imagine." Teachers similarly reported the need to know their individual students, their needs, and their challenges. Part of this realization included the need to focus less on academic achievement and more on the process of learning. "I think I could try and find more time to listen to the students and what's going on in their lives," stated one teacher. "I need to check with my students more often. They all need more attention from me no matter what their needs are," responded another. Further, one teacher offered that she needs to allow her early adolescent students more say in what and how they learn. "Allowing students more control of the learning process and giving more choice" are ways to motivate students who may otherwise become disengaged. "This would lead to more respect which would indeed make me a better teacher."

Summary

In this chapter, I analyzed data and reported findings on students' perceptions of their learning and clearly identified factors impacting motivation and engagement. Quantitative data were further examined based on student enrollment within different middle school structures and experiences with transitional learning times. The data were also used to create interview questions to seek additional and clarifying information from individual students. Eight highly

motivated students and eight low motivated students – motivational levels were identified by the results of various survey measures – were interviewed to further examine common and contrasting factors impacting motivation and engagement during their early adolescent learning experiences. Interview responses provided specific examples of positive and negative influences and important common factors encountered in their learning. Further, these findings aided the development of a questionnaire designed to understand teachers' perceptions of their students' motivational and engagement levels and factors. Extensive feedback was obtained from eleven teachers, representing schools with different grade configurations, of their perceptions of student learning.

The data and resulting findings clearly identified specific factors that support and impede motivation during the early adolescent years. These factors were evident among all students, regardless of motivation, however there were noticeable distinctions between highly motivated students and students who demonstrated low motivation. Contrary to other studies, the data indicated no motivational differences solely related to students who attended schools with different transitional moments or grade configurations. Further, the study clearly identified common and stark differences in student and teacher perceptions of early adolescent motivational factors.

Finally, current research on early adolescent brain development was examined to determine the relationship between cognitive neuroscience and early adolescent motivation and engagement. This relationship and subsequent findings direct a critical discussion in the following chapter on how school leaders can create supportive learning environments to proactively address motivational and engagement issues often faced by early adolescents. The discussion places the study in a larger context to specify its significance, implication of findings, application of findings, and makes recommendations for further study.

CHAPTER V

DISCUSSION, RECOMMENDATIONS, AND IMPLICATIONS

This chapter summarizes the study and presents a discussion with the major points and findings and direct answers to the guiding questions. It places the study in a larger context to specify its recommendations for school leaders, implications for practice, and limitations. Finally, the chapter identifies recommendations for further areas of study and provides a concluding section.

Summary of study

This study focused on early adolescent motivation in school. It is an inquiry that examined the factors that impact early adolescent learning and how school leaders can create conditions to engage and support students. The study sought to investigate, identify, analyze, and compare the elements that impact student learning during early adolescent years, occurring at all schools, regardless of grade configuration and time of grade transition. The study also sought to better understand the relationship between these factors, students' perceptions of their learning experiences, teachers' perceptions of student motivation and engagement in their learning, and the research on early adolescent brain development. Finally, the study identified recommendations for leaders to increase student motivation and academic performance in the early adolescent years.

Summary of the problem. Students who are motivated and engaged in school are more successful as defined by a variety of measures and factors. Students typically earn better grades and are more proficient on standardized tests when they attend school regularly, focus on learning, abide by school rules, and avoid disruptive behaviors (Bandura, Barbaranelli, Caprar, & Pastorelli, 1996; Caraway, Tucker, Reinke, & Hall, 2003; Finn & Rock, 1997; Wang & Holcombe, 2010). In contrast, students who are disengaged and unmotivated in their learning

are more likely to perform poorly and display problematic behaviors such as dropping out of school (Finn & Rock, 1997; Wang & Holcombe, 2010). While dropping out typically takes place during high school, the process of disengagement that ultimately leads students to leave school early may start as early as first grade, but more often starts or is intensified during the middle school years (Balfanz, Herzog, & McIver, 2007; Finn, 1989; Wehlage & Rutter, 1985; Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006).

Summary of the research. The research literature consistently reports that young adolescents struggle with motivational declines as they move from elementary to middle school (Alspaugh, 1998; Eccles et al., 1993). Reasons for these declines often seem unclear; however, several factors should be considered: the timing of the school transition with the transition into adolescence (Blyth, Simmons, & Carlton-Ford, 1983; Simmons & Blythe, 1987); mismatches between the school environment and young adolescents' needs (Eccles et al., 1993); and the shifting nature of the relationships with middle school teachers (Davis, 2003). Several studies provide evidence that the transition to middle school is associated with a loss of academic achievement, elevated suspension rates, and reduced self-esteem (Alspaugh, 1998; Byrnes & Ruby, 2007; Weiss & Kipnes, 2006). Researchers have also focused on the motivational orientation in the middle school classrooms, and they suggest that task-oriented classrooms (learning to finish the task) are linked to motivational and achievement declines in the middle school, while mastery-oriented classrooms (learning for the sake of learning) are associated with increases in motivation and academic achievement (Anderman & Midgley, 1997). Further, students tend to perform better in school when their parents are positively and proactively involved in their education. Research has linked parental involvement to a variety of positive educational outcomes in children, including improved grades and test scores (Shumow & Miller, 2001; Steinberg, Lamborn, Dornbusch, & Darling, 1992; Stevenson & Baker 1987), reductions

in behavioral problems (Amato & Rivera, 1999), and increases in overall well-being (Simons-Morton & Crump, 2003; Wenk, Hardesty, Morgan, & Blair, 1994).

There is also a large body of work by educational researchers and developmental psychologists documenting changes in attitudes and motivation as children enter adolescence (i.e., Eccles et al., 1984), and some have hypothesized that instructional differences in middle schools contribute to these changes. During this time, many students do not achieve at the same levels as the previous year and can become further disenfranchised with their own learning. These struggles can continue through to their high school years, significantly contributing to dropping out of school (Balfanz, Herzog, & McIver, 2007; Alspaugh, 1998; McDonald & Marsh, 2004). Understanding and supporting students during their early adolescent years is essential to preventing a nearly reversible decline as they grow older.

Students' emotional engagement is also related to success or failure at school. Several scholars suggest that alienation, a feeling of estrangement or social isolation, contributes to disengagement, low achievement, and the dropout problem (Elliot & Voss, 1974; Finn, 1989; Newman, 1981). Other studies have compared students who drop out of school to those who remain in school; students who drop out are more likely to have social difficulties and negative attitudes towards school (Cairns, Cairns, & Neckerman, 1994; Wehlage & Rutter, 1986).

Further, cognitive neuroscientists have identified that the emotional responses of adolescents – fear, outbursts, risky behavior, and the resulting lack of motivation and engagement in school – are not solely the result of surging hormones. Rather, the regions in the adolescent's brain which govern reasoning, planning, language, and impulse control are still developing (Giedd et al., 1999; LeDoux, 2000; Steinberg, 2009). Since educators are at the forefront of teaching, molding, and supporting children, these professionals must be equipped with the knowledge of how and why adolescents both learn and avoid learning. They must also

be skilled in the strategies to effectively engage their students' emotional mindset (Feinstein, 2006; Jensen, 1998; Medina, 2008).

Guiding research questions. Research and the high levels of students who demonstrate low motivation and engagement at school clearly support the need to further understand how early adolescent brain development and factors such as teacher relationships, parental support and participation, middle school models of instruction and support, and transitional issues support or impede student motivation and engagement in school. Educators who understand these factors, and especially the relationships among these factors, are better prepared to create learning environments to help all children succeed academically, socially, and behaviorally. School leaders must create conditions to engage early adolescent students before they become unmotivated in their learning. Therefore, this study addressed the following research questions:

1. What factors contribute to motivation and engagement during early adolescent development?
    a. What are the common and contrasting factors among students who attend schools with different grade configurations during their middle years?
    b. What is the relationship between these factors and early adolescent brain development in the middle years?
2. What do teachers of early adolescent students perceive to be the factors that contribute to student motivation and engagement?
3. What are the school conditions necessary to support high motivation and academic performance in the early adolescent years?

Summary of the methodology. In an effort to deconstruct these guiding questions on student motivation and engagement, the researcher conducted a mixed methods explanatory design, using a variety of instruments to obtain and analyze data. These instruments included

student surveys, student interviews, and teacher interviews. The purpose of this mixed-methods design was to collect both quantitative and qualitative data, analyze the data, and apply the results to the research questions.

Surveys were distributed to sixth grade students in differing middle school environments, consisting of four primary grade configurations (grades 5-8, grades 6-8, grades K-8, and grades K-12). Student and teacher interviews were conducted as well, representing schools with different grade configurations, to address follow up questions. Interviews allowed for clarification of survey responses and provided triangulation in obtaining additional qualitative information as to factors of motivation and engagement from students' and teachers' perspectives.

Discussion

The data and resulting findings clearly identified specific factors that support and impede motivation during the early adolescent years. These factors were evident among all students, regardless of motivation, however there were noticeable distinctions between highly motivated students and students who demonstrated low motivation. Contrary to other studies, the data indicated no motivational differences solely related to students who attend schools with different transitional moments or grade configurations. Further, the study clearly identified common and stark differences in student and teacher perceptions of early adolescent motivational factors.

After a thorough examination of the data, each of the research questions were answered. This section of the discussion is divided by research questions 1, 1a, 1b, and 2. The response to research question 3 is included in the recommendation section, including specific actions leaders can undertake to improve learning conditions.

Question 1: What factors contribute to motivation and engagement during early adolescent development? The results of the study showed a number of factors impact

motivation and engagement during the early adolescent years, specifically related to students' experiences, thoughts, and behaviors, although to varying degrees. Experiential factors identified included students' perceptions of school, grade transitions, interest and engagement in class, learning experiences, relationships with teachers and parents, and stressful situations that cause a disruption in student learning. Factors related to students' thoughts and behaviors were identified as self-belief, value of school, persistence, planning, task management, focus on learning, failure avoidance, anxiety, uncertain control, disengagement, and self-sabotage. Of these experiential, thinking, and behavioral factors, the study found several to be most influential in the motivation and engagement of the early adolescent students. These aspects included transitions, positive learning and teacher expectations, teacher relationships, parent relationships, and stress, anxiety, and coping skills.

School Transitions. School transitions have been a frequent topic in both the research and practice literature in recent years (Alspaugh, 1998; Eccles et al., 1993; Felner et al., 1997; Mizelle, 2000; Weldy, 1991). For a number of students, these transitions can be difficult to negotiate. One important transition involves the move from elementary school to middle school. This is a major transition for children and can occur around the same time early adolescents begin puberty, creating a period when individuals are experiencing both a developmental and a systemic transition (Nottelman, 1987). The middle school transition has been found to be associated with a variety of negative effects on adolescents including declines in achievement (Alspaugh, 1998), decreased motivation (Anderman, Maehr, & Midgley, 1999), and lowered self-esteem (Eccles et al., 1993; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991).

Further, studies consistently indicate that students tend to experience a decline in grades and overall academic performance between their last year in elementary school and their first year in middle school. Herszenhorn (2006) reports that in 2005–2006 the percentage of students

in New York State who were reading and writing at grade level dropped sharply between the fifth and sixth grades, according to results from a new state testing system for tracking year-to-year progress.

Consistent with other research, this study found the transition from fifth grade to sixth grade presented challenges to early adolescent students. However, it is important to note that these challenges did not center on moving to a new building or suddenly attending school with numerous or different classmates. Students were impacted entirely on what could be considered philosophical or actual differences in higher standards of academic and behavioral expectations between fifth and sixth grades. Students demonstrated high levels of stress and anxiety over what they perceived to be increased rigor, challenging curriculum and assessments, increased homework, and higher expectations of accountability and responsibility. Further, students were ill-prepared for the dramatic changes they perceived upon entering sixth grade. While most attended school-sponsored "Moving Up" events, classroom tours, and information sessions of what to expect in sixth grade, students failed to understand the actual, and often dramatic, differences between the grades. These issues occurred with students who attended all schools, regardless of grade configuration. School leaders should carefully examine the effectiveness of transition activities, intensive student supports, and the perceived wide divide of academic and behavioral expectations and responsibilities between fifth and sixth grades.

Positive learning and teacher experiences. Traditional methods of instruction in the 20th century focused on rote memorization, facts, and a teacher-centered environment. Classrooms tended to be lecture-based and ability-grouped along age-formulated grade levels. Text books were the center of the curriculum while students were placed in rows, all facing the teacher (Feinstein, 2006; Sousa, 2003). Students requiring special support were subjected to pull-out models, receiving much of their instruction away from the primary classroom and missing much

of the primary lesson. Teacher and school expectations were aligned with structure, discipline, and a one-size fits all approach to teaching and learning (Dweck, 2006; Giedd et al., 1999; Jensen, 1998; Medina, 2008).

Over the past two decades many, yet not all schools, teachers, and professional development programs have evolved to find classrooms somewhat more student-centered with students grouped heterogeneously and using small group and peer learning environments (Jackson & Davis, 2000; Sylwester, 2007). Educators embraced Gardner's (1983) Theory of Multiple Intelligences, promoting eight different intelligences to account for a more broad range of potential in children and adults. Schools have incorporated differentiated instruction to varying degrees to focus on individual student needs, created more inclusionary practices for all students, and integrated technology into classroom settings. Districts have also moved toward standards-based curriculum and assessments and use student performance data to drive decision-making. Although in some respects these trends and improvements served as important steps toward educating students based upon their own learning needs, the results have varied greatly (Feinstein, 2006; Sousa, 2003).

Students in this study clearly remembered learning experiences that were meaningful to them. They often recounted with specificity what they learned, how they learned, and who made that learning special. Their memories of this learning were relived as if the learning occurred yesterday. Often, however, this experience occurred years before. What made this learning so memorable, especially when students have difficulty recalling a recent classroom lesson? Most often, it was a project-based experience, using a variety of instructional methods, including individual or small group work, research, and experiential application. It was connected to students' interests, their lives, or their community. Students were often given a choice within a framework that included clear expectations and timelines. They had a say in what they would

study and how they would be demonstrate their understanding. Their experience was often integrated with other areas of learning, specifically with other subjects. Finally, the teacher taught, facilitated, and supported them individually. Students felt their needs were addressed. By having a say and choice, students described their learning as fun and interesting. Most importantly, these positive experiences cemented knowledge and helped to create a love of learning. However, it also highlighted their typical experiences of lecture-based instruction which often led to boredom, poor listening, disruptive behavior, and lower levels of learning.

Teacher relationships. Research suggests that students' decisions to remain in school are influenced by caring teachers and highly regarded relationships (Knesting, 2008; McMillan & Reed, 1994; Wilson, 2007). As reported in Garza, Ryser, & Lee (2010), a significant body of research identifies caring as a factor in fostering relationships with students (Baker, 1999; Ladson-Billings, 1994; Scales & Taccogna, 2000; Stanton-Salazar, Vasquez, & Mehan, 2000) listening to students (Nelson & Bauch, 1997; Nelson, Lott, & Glenn, 1997; Noddings, 2005; Wentzel, 1997) or addressing student needs in a culturally responsive manner (Gay, 2000). "A caring demeanor is critical, especially for culturally diverse students who may be at risk of failing or who may be disengaged from schooling" (Perez, Garza et al., p.1). In contrast, the inability of teachers to connect with students and students' perceptions that teachers are uncaring significantly contribute to students' negative disposition towards learning (Garza, Ryser, & Lee, 2010). Relationships with teachers are particularly important to early adolescents, who are often experiencing changes in their sense of self and are struggling with their evolving relationships with parents and peers. Since teachers can be external to these influences, they can provide support and guidance with adult values, advice, and perspectives (Rhodes, Grossman, & Resch, 2000).

The results of this study clearly indicated when students enjoyed strong relationships with their teachers, their learning was more meaningful. Students were engaged, connected, and wanted to excel. They felt comfortable asking questions and seeking support. What are these teachers doing to make such a significant impact in their students' lives? What are the qualities perceived by students that make such a difference in student motivation and engagement? The results were quite clear. Teachers demonstrated empathy and understanding. They showed they cared by getting to know students individually, presenting them information based upon their individual needs, interests, and circumstances. Teachers took the time to build relationships based on trust and respect. They clearly communicated expectations for all students and were consistent with their actions. Finally, they used their subjects and lessons to connect with students, making learning creative and interesting. Students were then part of developing the learning, rather than being solely the receiver of information. What was also clear was these same teachers did not sacrifice high standards and rigor for the sake of empathy, caring, and understanding. They used their engaging and respectful manner to challenge their students to their fullest potential. Students typically responded with high motivation and goals to excel.

Parent relationships and involvement. Students tend to perform better in school when their parents are positively and proactively involved in their education. Research has linked parental involvement to a variety of positive educational outcomes in children, including improved grades and test scores (Shumow & Miller, 2001; Steinberg, Lamborn, Dornbusch, & Darling, 1992), reductions in behavioral problems (Amato & Rivera, 1999), and increases in overall well-being (Simons-Morton & Crump, 2003; Wenk, Hardesty, Morgan, & Blair, 1994). As a result, many researchers and educators have focused on parental involvement to improve student achievement, behavior, and self-esteem. However, even with research indicating strong benefits to parental involvement, the importance placed upon this educational partnership

through policy initiatives, such as the federal law, No Child Left Behind, and state-led programs (Massachusetts Department of Education, 2005), and individual school family outreach plans (Caspe & Lopez, 2006; Epstein, 2001; Epstein et al., 2002; Sheldon, 2003, 2005), educators continue to witness impactful disconnects between school and home.

The results of this study clearly indicated parents play a vital role in the success of their children at school. Positive and negative relationships shaped both short and long-term learning outcomes. Students were interviewed on a variety of topics including how their parents are involved in their education, what their parents could do or do more to help them be more successful at school, as well as their perceptions to parent relationship indicators. The results of the study showed there was a noticeable relationship between the perceived role of parent involvement and student motivation. Parents who provided a comfortable study environment at home, regularly checked for homework, asked their children about their school day, and supported them with academic and emotional difficulties were likely to have children who were well-adjusted and focused on their learning. Students were also quick to acknowledge their parents did not necessarily need to do anything. Just knowing their parent(s) were there to help lends a sense of confidence that extended to the learning process. Conversely, parents who did not exhibit these qualities typically had children who were not motivated in their learning. It is important to note that motivation did not necessarily equate to achievement. Some students performed well in school, yet they demonstrated a lack of care and focus in school. Further, the quality of parent involvement was indicative of the levels of student engagement and corresponding achievement at school. Positive interactions and relationships resulted in higher motivation. Parents who helped with homework or asked their children about their day, yet who were perceived by their children to be negative in tone, message, support, or attitude, had children who lacked motivation.

Anxiety, stress, and coping skills. Classrooms can be filled with distress. The fear of being called on and not knowing the answer, quizzes, homework, the reaction of other students and even the expression on a teacher's or student's face may all make learning impossible or promote a negative experience that may damage a student permanently (Posner & Rothbart, 2007). Emotions can positively or negatively affect the acquisition of new learning. A number of scientists have suggested that early adolescents and teenagers may not see the world as we see it and may respond with different areas of their brain. In particular, in stressful situations, they may respond more quickly with their more primal, emotional part of their brain because the frontal cortex, the more rational part, is not yet fully wired (Fellous, Armony, & LeDoux, 2000; Medina, 2008). Adolescents take unnecessary risks, but if parents, teachers, and other adults expect it, they may be able to help (Spear, 2009; Strauch, 2003).

Further, emotion can be considered in terms of the school climate. Emotional climate is directly related to classroom climate and classroom climate is regulated by the teacher who could approach mistakes as opportunities to identify learning gaps and develop understanding (Sigler & Stevenson, 1991). This can often result in negative, destructive behavior or the development of a passive, disconnected student, both of which contribute to the cycle of ineffective learning conditions.

It is clear that anxiety and stress can prove to be powerful factors in motivation. Further, a student's ability to cope and effectively deal with stress can be the difference between sustained success and failure. Students in this study were asked to assess their levels of stress on a variety of topics that tend to occur daily in their lives at school and at home. In addition, students were asked how they manage issues that may cause them anxiety or concern.

All students, regardless of motivation level, reported similar stressful situations, however at varying degrees. Failing a test or being surprised with a "pop" quiz rated high on all students

stress levels. Students who performed well wanted to keep their grades and learning at high levels. Anything that could jeopardize their grades greatly impacted their anxiety. Similarly, students who typically did not perform well demonstrated high stress levels in these situations. This was contrary to the perception by teachers and their peers that they did not care. In fact, they internalized their fears and were able to mask their outward signs of stress. The "unknown" provided stress and anxiety for these students as well. The perceptions their peers are self-confident, know what they want to be when they get older, and where they want to go to college, provides an unspoken level of anxiety. Through external pressures by parents, teachers, their peers, and the media, these students often identified with a self-image that was negative and underperforming. This self-assessment of their present and future often translated to low motivation and declining performance.

Further, students who demonstrated high motivation were able to more clearly identify anxious situations and address them in a proactive and successful manner. Often, this was attributed to meaningful relationships they had with their teachers and parents, who were able to listen and guide student reactions. However, those who did not report positive relationships with adults were often the ones who were unable to successfully cope with or address stress. This inability contributed greatly to their motivation and resulted in thoughts and behaviors that negatively impacted both short and long-term learning.

Summary of early adolescent motivational factors. Experiences create knowledge and habits. Positive experiences provide a strong foundation for learning and achieving. Negative experiences, however, can drive low self-esteem and low motivation. This study identified highly influential factors dramatically impacting student motivation and engagement during the early adolescent years. Pressures from external factors such as transitional issues, learning experiences, and teacher and parent relationships were significantly impacted by the developing

and changing brain during early adolescence. Some children were able to effectively succeed during this time, while others become overwhelmed. Educators must understand the factors that impact these potentially life-long obstacles to success. Fortunately, thoughts and behaviors can be learned and influenced. Teachers and school leaders can change behaviors through a focused effort to target factors that impede motivation and achievement. Cognitive neuroscientists and educators who study brain-based learning believe traditional and even developing instructional practices do not support the needs of early adolescent students who are negatively impacted by these factors. If we want to improve early adolescent learning, teaching requires a new approach (Jensen, 2001; Medina, 2008; Sousa, 2006).

Question 1a: What are the common and contrasting factors among students who attend schools with different grade configurations during their middle years? Many argue that factors related to school transitions, the middle school model, and the impact of different school structures dramatically contribute to disengagement and declining motivation in early adolescent students (Alspaugh, 1998; Blyth, Simmons, & Carlton-Ford, 1983; Eccles et al., 1993; Simmons & Blyth, 1987). While research supports these influential factors and many districts have reconfigured their school districts accordingly, this study sought to identify motivation and engagement levels regardless of school configuration. In order to compare and contrast the thoughts and behaviors among students across different school configurations, the researcher examined a variety of factors such as students' self-belief, value of school, focus on learning, persistence, and approaches to planning and task management, and whether there are differences within these thoughts and behaviors depending upon the structure of the students' school grade configuration. The results of the study showed there was no significant difference in the levels of positive thoughts and behaviors compared across schools with different grade configurations.

Levels of disengagement and anxiety among early adolescent students and across schools with different grade configurations were also examined. The results of the study showed there was no significant difference in the levels of disengagement across schools with different grade configurations. In fact, students who attended school with no separate middle school structure or distinct transition reported slightly more disengagement than their peers in traditional middle schools. Further, early adolescent students are faced with a variety of external factors that cause them stress and anxiety, some of which contribute significantly toward a decline in their motivation and engagement in learning. This study sought to determine the relationship between these external factors and the internal biological changes in the early adolescent brain related to stress, anxiety, and emotion on motivation and engagement in learning. The results of the study showed there were significant differences in the mean levels of anxiety across the schools with different grade configurations. However, there did not appear to be a relationship between the levels of anxiety and middle school transitions. The two groups with the highest levels of anxiety were those with schools configured as grades 5-8, and K-12, while the two groups with the lowest levels of anxiety were those with schools configured as grades 6-8 and K-8. In fact, students at the school who exhibited the highest levels of anxiety, experienced no transitions during their K-12 education, other than the point of enrollment. The data refuted other studies that directly linked negative thoughts and behaviors of learning, disengagement, stress, and anxiety with students experiencing school building transitions in the middle years.

School districts have spent considerable attention, money, time, and effort on monumental solutions to target issues thought to be caused by transitions and middle school structures. These included new school construction, school grade re-configuration, student redistricting, and a variety of other expensive alternatives. This study clearly identified transition as a factor, yet this occurred with all students at all schools. Transitions were not

linked to a physical change of buildings, but the changes occurring within the learning environment. Transitions in teacher relationships, academic and behavioral expectations, and learning experiences increased the levels of stress and anxiety. These results demonstrated that school leaders should focus their attention, money, time, and effort on creating learning conditions that are developmentally appropriate, consistent, and aligned throughout a K-12 systematic approach. Regardless of school grade configuration, an understanding of these factors and conditions can help school leaders support students' transition and succeed during their natural progression through childhood, early adolescence, adolescence, and into early adulthood. Knowledge and decisions need to be based on the changing needs of students and how teachers, staff, and parents can best support these needs.

Question 1b: What is the relationship between these factors and early adolescent brain development in the middle years? While some experts acknowledge, and this study confirmed, risk factors such as middle school transitions, peer and teacher relationships, and family support contribute to student disengagement at school, evolving research indicates that early adolescent brain development has common and central relationships with all of these factors and declining motivation (Feinstein, 2006; Sousa, 2003). Early adolescent students suffer declines in motivation and academic performance regardless of their school configuration, time of grade transition, relationships with others, and level and quality of parental involvement. Further, these declines occur across all socioeconomic, racial, and cultural groups (Caspe, Lopez, & Wolos, 2007; Gonzalez-DeHass & Willems, 2006; Turney & Kao 2009). One constant recognized by researchers and educators alike is the timing of the patterns of decline, as students transition from childhood to adolescence. This coincides with the significant biological changes in all early adolescents, a time of tremendous brain development, second only to birth in an individual's lifetime (Giedd et al., 1999; LeDoux, 2000; Steinberg, 2009). As a result, there is a

strong relationship between what we know about early adolescent brain development and the motivational factors identified in this study related to transitions, learning experiences, teacher and parent relationships, and stress. Since educators are at the forefront of teaching, molding, and supporting children, these professionals must be equipped with the knowledge of how and why adolescents both learn and avoid learning. They must also be skilled in the strategies to effectively engage their students' emotional mindset (Feinstein, 2006; Jensen, 1998; Medina, 2008).

Cognitive neuroscientists have identified that the emotional responses of adolescents – fear, outbursts, risky behavior, withdrawal, and the resulting lack of motivation and engagement in school – are not solely the result of surging hormones. Rather, the regions in the adolescent's brain which govern reasoning, planning, language, and impulse control are still developing (Giedd et al., 1999; LeDoux, 2000; Steinberg, 2009). By using the area of the brain that is developed and identifies situations with emotions, early adolescents react in an impulsive manner more than a reasoned one. This occurs at a critical time of brain development when early adolescents are learning and growing through the exposure to additional environmental factors. Further, it is a time when parts of the brain that are used frequently will be strengthened, while other parts that are used less frequently will weaken and die off (Sowell, Toga, & Thompson, 2006; Spear, 2003). Opportunities to embed important decision-making, problem-solving, and coping skills are present representing both enormous potential and risk (Byrnes, 2001). Increased participation in activities such as sports, music, and more advanced academic content helps to hard-wire the brain in the skills, knowledge, and attitudes developed. On the other hand, if early adolescents are exposed to less strenuous or sedate activities, such as watching television or lying on the couch, the connections made by these activities survive during the pruning process (Jensen, 1998; Medina). Likewise, negative behaviors and

experimentation with alcohol and drugs can hard-wire the brain, resulting in long-term effects for learning (Giedd et al., 2009; Sousa, 2006).

Given this research, it is critical that further study of the developing early adolescent brain and its direct relation to emotional learning be linked to the implications for behavior and learning. Understanding this role and contributing findings can promote effective learning conditions in the school setting (Feinstein, 2004; Medina, 2008). School lessons, the teaching of curricular content, the use of common, formative assessment to measure student understanding, and the requirements of clearly stated expectations all involve tasks and skills associated with memory. Understanding the brain and the specific biological processes occurring with early adolescents, emotional memory, and the impact on the ability to recall information, provides educators an opportunity to positively engage emotion to increase memory, learning, and motivation (Dweck, 2006; Medina).

Chemicals in the brain also play a role in the emotional feelings and responses by adolescents. Dopamine is a chemical produced by the brain that helps link actions to sensation of pleasure. Levels of dopamine production shift during adolescence, impacting desires, needs, and resulting actions (Spear, 2003). Further, when students feel positive about their learning environment, endorphins are released to the brain stimulating the frontal lobe and producing a feeling of euphoria. The positive learning is actually a chemically pleasurable experience. In contrast, when students feel negative about their learning environment, the hormone cortisol is released and travels throughout the brain and the body and activates the defensive behavior of fight, flight, or freeze. The frontal lobe of the brain is then consumed dealing with the source of the stress making focusing on the learning task virtually impossible (Sousa, 2003). Chronic stress, such as hostility at home or intense, repeated perceptions of safety issues at school, dangerously deregulates the body's defense system. Under chronic stress, adrenaline creates

scars in the blood vessels that can cause heart problems and the release of cortisol damages the cells of the hippocampus, crippling a student's ability to learn and remember (Medina, 2008).

Students' experiences and memories promote a path for future learning. Early adolescent students have years of experiences, many of which are rooted in fear, negative perception, or poor or neglectful relationships with adults. The results of this study clearly identified stress and anxiety as highly influential factors in the motivation of early adolescent learners. Further, students' ability to address and cope with their stressors provided a noticeable difference in the sustained engagement in their learning. Students' abilities and skills help to develop their individual path for future learning. Relationships with teachers and parents proved to be both stressors and building blocks for successful or failed coping strategies. The tone, volume, and timeliness of a message can invoke an unanticipated response without clear reasoning. Educators must identify such instances and understand that emotional responses are forms of memory being resurrected through certain stimuli (Medina, 2008). It is clear that stress and emotion are directly connected to the anxiety caused by inconsistent expectations, poor or negative teacher relationships, and non-supportive parents. It is essential for teachers to understand the role of brain development, the link to classroom instruction, and the corresponding emotional responses by early adolescents.

Question 2: What do teachers of early adolescent students perceive to be the factors that contribute to student motivation and engagement? While this study is focused on student perceptions of their learning, experiences, environment, and factors that contribute to motivational levels, the researcher sought to obtain teacher perceptions of the factors that contribute to motivation and engagement. The researcher designed a questionnaire to understand teachers' perceptions of their students' motivational and engagement levels and factors. The questionnaire was developed based upon the analysis of the student surveys and interviews and

consisted of 42 open-ended and multiple-choice questions. These questions centered on teacher and instructional excellence; student engagement factors; student behaviors; defining students with high and low motivation; identifying factors that impact stress and anxiety levels for students with high and low motivation; identifying prevalent stressors impacting all students with motivation and engagement; comparing student motivation levels with parent involvement; examining school transition supports; ascertaining professional development experiences; and pinpointing school, student, and teacher self-improvement areas. Comparing these perceptions resulted in further critical insight and findings of how school leaders can create learning environments to support all students during their early adolescent education.

The results of this study clearly identified common and stark differences in student and teacher perceptions of early adolescent motivational factors. Both groups agreed that making connections both between the teacher and student and the subject matter and student interest areas are critical to building and sustaining classroom engagement. Teachers who took the time to know their students and adjust their lessons based upon the needs of and feedback from the class made the difference between classroom success and failure. Further, perceptions of engagement impacted by levels and quality of parental involvement were clearly aligned. While acknowledging exceptions, teachers clearly identified along the same lines as students the importance of positive, parental engagement in their children's education. Finally, the lack of consistency and wide divide of expectations between fifth and sixth grades was a noticeable concern. Even with transitional supports in place – some perceived to be successful, while others were not – the extensive differences in academic and behavioral expectations contribute to unnecessary anxiety. It further complicated teaching and learning in the sixth grade, as teachers were responding more to emotional and stressful situations than they anticipated. By not addressing these transitional and expectations gaps, schools are setting many students for failure.

While the survey resulted in identifying several motivational factors agreed upon by both teachers and students, other factors presented contrasting views. Students were clear on the attributes of the teacher who engages them. These come from exceptional experiences, as well as current, desirable needs to be successful. The ideal teacher cares, understands, and empathizes with individual student needs. While the teacher upholds high standards and rigor, the teacher does so by making connections with the class. Finally, teachers trust and respect their students.

As a whole, teachers did not view these descriptions as key characteristics of an excellent teacher. While there were a few similarities, the majority of respondents stated very different definitions of teacher excellence. In fact, not one description was mentioned by a majority of teachers. Five teachers identified "being knowledgeable in their content" as essential for instructional excellence. Words or descriptions resulting in responses from three teachers included "flexible", "compassionate/caring", "listens", "humor", "professional and positive demeanor", "dedicated/engaged", and "patient." Three descriptions of excellence, "respects their students", "consistent and clear", "maintains a positive learning environment and classroom management style" were mentioned by two teachers. Finally, descriptions singularly mentioned included "honest", "firm", "fun", "holds students accountable," "develops an engaging curriculum," "interesting", "prepared", "innovative/creative", "problem-solver", "life-long learner", "motivated", "enthusiastic", "organized", "self-confident", and "knows and supports individual students." The disconnect between what students said they needed to be successful and what teachers indicated students needed to be successful highlighted a concerning divide. While the research does not promote a single approach to teaching, more consistency and alignment is required to maximize learning with early adolescents.

Teachers accurately gauged the stress levels with highly motivated students, both in overall anxiety and in identifying high levels with failing a test and being surprised with a "pop" quiz. However, relatively few identified these topics impacting anxiety with low motivated students. By masking outward signs of stress, misbehaving, being absent, or otherwise displaying a poor or uncaring attitude, students with low motivation were not acknowledged in teachers' perceptions of students caring about their performance.

Further, student boredom, inattention, and classroom behavior were reported differently by teachers and students. Students clearly identified these behaviors as specific to disengaging teachers or lessons. Teachers stated it is the students' responsibility to behave, pay attention, and positively participate, regardless of material, lesson, or structure. This overall perception of teachers seemed to conflict with previous perceptions that a key attribute to gaining and sustaining student engagement is to make connections, know individual students' needs, and adjust material accordingly.

The study also found teachers of early adolescent students want and need specific training and professional development. They acknowledged the challenges faced by students and teachers during the middle school years and look for targeted research-based strategies to support them. Too often, school-sponsored professional development focused on whole school or district efforts, standardized assessments, or something perceived to be the education reform fad of the time. They understood early adolescents are undergoing dramatic biological and environmental changes, typically combined with a new model of instruction i.e. different teachers and expectations, academic or homeroom teams, leveled and changing classes, and different classmates, to name a few. Without the knowledge to work with students who are maturing at different times, who have different supports and educational experiences, who are impacted differently by stressful situations, and who have different abilities to cope with these

stressors, teachers felt they were unable to reach their diverse students. Often, only those who positively participated, performed well, and remained engaged, received teachers' attention. The others, who most needed the support, were left behind. Teachers of early adolescents require updated and continuous knowledge of early adolescent development, biological changes occurring during this time, and the specific instructional and support strategies they can implement to help make all students motivated to learn.

Recommendations for school leaders

The results of this study and guiding questions provide specific learning conditions at school to address issues that influence motivation and engagement during the early adolescent years. These results also help to identify precise recommendations for school leaders to create these conditions for their school community.

Question 3: What are the school conditions necessary to support high motivation and academic performance in the early adolescent years? There are a variety of school conditions required to support high motivation and academic performance in early adolescent students. The findings of this study clearly highlighted specific factors requiring the immediate and sustained attention of school leaders. These conditions included: the physical and emotional safety of students; an aligned curriculum, instructional, and assessment program that provides rigor, relevance, recognition, and a set of clear and consistent set of academic and behavioral expectations; a commitment to hiring, coaching, supporting, evaluating, training, and an exceptional faculty and staff; a professional development program based on brain research and the developmental needs of students; a formal parent engagement program that proactively involves families in their children's education; a district-wide collaboration to ensure consistency and successful transitions throughout a child's K-12 educational journey, including an intensive support program focused on individual needs of students; and school leadership with flag holders

knowledgeable of and committed to the developmental needs of students and who can engage the community to facilitate long-lasting school improvement. While these conditions are consistent with previous research, they should be developed through an understanding of early adolescent and brain development. The middle school years are the bridge between *the learning is fun years* of elementary school and *the learning is essential for college and career success years* of high school. This bridge must be constructed to ensure all students are prepared for success.

Emotional and physical safety and school structure. Students must feel emotionally and physically safe. School environments must be free of violence and behaviors that threaten or perceive to threaten student safety. Additionally, schools must develop a culture where students feel free from emotional and social harm. This safety extends from peer interactions to being comfortable asking questions in the classroom. Unless students are physically and emotionally secure, they will not learn to the best of their abilities.

Once students feel safe, they can learn and grow socially and emotionally. Even with a continued heavy focus on academic achievement and standardized testing, schools must integrate a comprehensive social and emotional learning curriculum. This must be age and developmentally-appropriate and consistently transition throughout all grades. This becomes even more critical with an ever-increasing diverse society with different cultures, customs, and experiences.

Assured their safety and an understanding of social learning, students are provided the security to create their own sense of identity. For some, this occurs naturally. For some, questions of self, role, and responsibility progress with the support of positive and trusted relationships. For others, this can be an extreme time of stress and anxiety, and without the appropriate supports, can negatively impact their identity, confidence, and motivation. School

leaders who create safe and secure learning conditions help promote self-learning and adjustment in the early adolescent years.

Classroom structure, school facility climate, and school culture are also areas related with a safe learning environment with developing connections to brain-based research. Culture and climate researchers have identified critical elements of the classroom structure to understand how the school environment impacts learning. Biller (2003) identifies six building blocks to create a brain-friendly classroom: positive rapport; student feedback; aesthetic value; classroom arrangement; peripheral learning; and rituals. Addressing three fundamental questions "Do I feel accepted and a part of this school?, Do I feel I can make a positive contribution and be successful in this class and school? and Do I feel physically safe in this class and school," Biller insists that addressing the deep underlying psychological needs common in all students is critical to preparing them to learn (p.24).

Using Biller (2003) and others as a guide to develop discussion topics and action plans, educators can effective scientifically target questions such as: How should seating and work group arrangements be made? How can teachers ensure that students are receiving immediate and appropriate feedback? How can lighting, color, and wall space impact learning? How can teachers incorporate various strategies in their lessons to involve multi-sensory processing? What are the key factors of the school climate which directly impact student learning (p.36)? Based upon these and other guiding questions, the school is poised to develop an environmental structure centered on integrating neuroscience and learning throughout the school.

Aligned curriculum, instruction, and assessment. The past decade has seen an aggressive move toward the development and implementation of a nationalized curriculum. Schools throughout the country will have a common set of standards and learning objectives. While there remains debate about this standardization, states will be provided some flexibility to

incorporate some of their own unique standards and expectations. Schools will likewise have some ability to develop individual options for learning.

Schools leaders must capture the opportunity to be creative and link curriculum, standards, and student expectations with student needs. Each school district must engage the entire school community to develop a comprehensive K-12 curriculum that represents a connection between content and application; school lessons and life. These connections must be local, regional, national, and global. They must be include real-life applications and frequent opportunities for experiential learning to engage students in lessons.

Schools must also review and revise academic content in specific subject areas. Improving student education about the brain, both in biology and in emotional implications, exploring opportunities for cross-curricular activities, and developing collaborations with external partners all provide opportunities to bridge neuroscience with education. Specific lessons in the science and health curricular are natural places to incorporate targeted strategies, while all subject areas play a role in the teaching and learning environment of neuroscience. Interdisciplinary projects can build upon content material and using multi-sensory approaches.

Methods of creative, engaging, and multi-disciplinary instruction must also be consistently utilized in all classrooms. Using Gardner's (1983) Linguistic, Logical-mathematical, Spatial, Bodily-Kinesthetic, Musical, Interpersonal, Intrapersonal, and Naturalist categories, educators must target the developing brain and adolescent learning through a multitude of initiatives. For example, the 6th grader works on designing the "dream" house. Using geometric and mathematical equations, the "architect" maps out the design and creates a budget and project timeline for construction. Using imagery, vision, and language, the "author" vividly describes the interior layout and significance of personal contents. Using knowledge of climate, geography, energy sources, and earth structure, the "scientist" constructs a home

considerate of comfort, practicality, and the environment. Using an understanding of social awareness, historical significance, diversity, and community, the "sociologist" selects a neighborhood which reflects culture, language, social and human services, and citizenry. Using knowledge of civic engagement, business, politics, and service, the "leader" articulates the plan to serve the community. Using personal interests and skills in the arts, music, and technology, the "communicator" presents a verbal, written and multi-media plan which ties academic knowledge to real-life applications.

While these strategies may seem like good teaching to some and difficult to maintain for others, they "speak" to the emotional brain of an adolescent and support an educational climate for more effective learning. By targeting multi-sensory and brain-based processing, the "architect, author, scientist, sociologist, community leader, and communicator" become one in the student, providing a learning environment compatible with the developing adolescent brain. Further, by providing choice, input, and interest and connecting it to the world around them, students become active in their learning consistent with their needs described in theories such as goal orientation and self-determination.

In addition, assessments must be varied and include projects, research, presentations, technology, and other methods to demonstrate understanding. Rote memorization, pencil-paper multiple choice tests, and one-size fits all worksheets do not promote an engaging environment. Students need novelty, creativity, and interaction. In fact, their brains embrace it. Similarly, student input to the educational environment is crucial for impactful learning to occur. Teachers and students are told what will be learned. By giving students the opportunity to frame the conversation, identify their own connections to the material, and create ways to demonstrate their learning, they will be motivated to learn.

Further, school leaders must provide curricular and extra-curricular opportunities and activities that are specific to student interest. Educators must utilize a variety of ways to engage their students in school. This often can be done by identifying interests and strengths and helping students build upon these in creative and intellectual ways. For example, a young girl may show little interest in school however is conscious about her fashion. Educators should embrace her interest and connect it to learning. She can be motivated to learn about fashion, clothing, and different styles by culture. She can develop a business or marketing plan. She can create an advertising message. She can learn about manufacturing. By connecting her interest to the learning objectives, she can become motivated to learn about history, math, language, science, and technology. She also develops leadership skills and can build service opportunities into her studies, using her core interest of fashion. A program to connect students to real-life application and interest does not necessarily require teachers playing the primary role. Partnerships with the community, business leaders, and public officials can support such an expanded, yet integral educational component to increase both learning and motivation.

Finally, districts must create a consistent set of academic and behavioral expectations that transition appropriately through all grade levels. There should be no dramatic changes or inconsistent practices as students move from grade to grade. Developmentally appropriate expectations that support and build upon each other provide fewer instances for confusion, anxiety, or stress. This is critically important during the early adolescent years, as students are more influenced by external influences, are viewed by some as young adults, capable of often unrealistic expectations, and are experiencing biological changes that impact response, emotion, behavior, and decisions.

Exceptional faculty and staff. This study confirmed other research that teachers have a dramatic impact on student motivation. A caring, respectful, knowledgeable, creative, and

engaging professional who easily connects lessons to student life and interest makes a difference. These teachers do not sacrifice rigor and high expectations; rather they have the ability to challenge all students to achieve to the best of their abilities. School leaders must have a sense of urgency to provide every student in every classroom an educator who exemplifies these characteristics. School leaders must look at this responsibility in a comprehensive and systematic way, starting with identifying and communicating the professional standards expected of personnel.

School leaders must engage the faculty, staff, administration, parents, students, and community and define a set of professional educational standards to serve as the cornerstone for their school. These standards are a set of ideals that embody the school's mission and vision and to which all hold themselves accountable. These standards are then integrated into all personnel decisions including recruiting, hiring, coaching, mentoring, observing, evaluating, training, recognizing, and replacing.

Prospective candidates must be considered based on these standards. New hires must be provided with mentors and an induction program to meet these standards. Each of the standards is described by a variety of concrete, measurable indicators. These indicators make the educational experience for the students exceptional. They are observable and the evidence is used to evaluate effective instruction and student learning. Teachers are supported by skilled leaders to be the best they can be and are provided with timely and accurate feedback to improve their craft. Further, individual professional development plans are created and measured, directly linked to performance. School leaders must provide students with exceptional educators who meet the needs of students at various times in their development. Students deserve such a comprehensive and aligned process to ensure instructional excellence throughout their education.

Brain-based professional development. Teachers are not usually trained as neuroscientists, but they are members of the only profession whose job it is to change the human brain every single day (Sousa, 2006). Cognitive neuroscience plays a role in almost all aspects of a classroom experience for both teachers and students. Over the past twenty years, many educational leaders have promoted efforts to help educators apply the findings of neuroscience to classroom instruction (Feinstein, 2009; Jensen, 2001, 2009; Sousa, 2006, 2010; Sprenger, 2010; Sylwester, 2007; Tokuhama-Espinosa, 2010; Wolfe, 2003).

From content, knowledge, and skills-based curriculum, aligned pedagogy, and corresponding authentic assessments to behavioral expectations and consequences and classroom structures, schools must create a learning environment which embraces an early adolescent's natural ability to wonder, inquire, engage and learn (Feinstein, 2004; Medina, 2008). Working with educators in the classroom setting to understand adolescent brain development and the implications new knowledge of the brain can have on the improvement of instructional practice can be difficult. The term *neuroscience* alone can cause anxiety and fear. Some may think it too complex or intellectual a topic to discuss and understand, while others may dismiss it as just another education reform fad. Regardless of these beliefs and initial responses, many of the pedagogical approaches widely recognized as *just good teaching* can be directly tied to recent studies on cognitive neuroscience. By understanding and implementing these instructional strategies, teachers can begin the journey to a more learned approach to understanding brain-based research (Feinstein, 2004).

Fortunately, there are those in the profession who understand the need for more targeted professional development. The results of this survey indicate teachers of early adolescent learners were seeking more extensive training in the unique social, emotional, and psychological needs of early adolescents. As the topic of brain-based learning or neuroscience becomes more

easily understood and directly linked to their daily classroom environment, these teachers acknowledge the need to learn more about brain development, social and emotional issues, and the psychology of early adolescents. Teachers similarly reported the need to know their individual students, their needs, and their challenges. Part of this realization included the need to focus less on academic achievement and more on the process of learning. Teachers have further acknowledged they witness greater motivation and sustained engagement by giving students more control of the learning process and providing variety and choice in assignments. School leaders must embrace this desire by teachers to learn and improve their teaching through the development and psychological needs of their students.

Parent engagement. The results of this study clearly indicate parents play a vital role in the success of their children at school. This was accurate for both the level of involvement and the quality of involvement. Positive and negative relationships clearly shaped both short and long-term learning outcomes, especially critical during the early adolescent years when students are increasingly influenced by external factors such as peers, more interaction with adults, and the media. This can be further complicated by efforts to self-identify through the normal course of early adolescent development and biological changes in the developing brain. Stressors caused by fragile or dysfunctional relationships at home can often translate to motivational issues and underachievement at school. Parents must understand the connection between biological changes in their children, especially during the early adolescent and adolescent years, so they can better comprehend the emotional responses they witness. With this knowledge, parents can better support their children in their academic, emotional, and social development and can recognize their critical role in both enhancing and impeding the process of learning.

School leaders must embrace the opportunity to engage parents and families in the school community. In addition to providing basic education about early adolescent brain development

and its relationship with motivation, leaders must create a formal outreach plan to engage parents and eliminate barriers that may cause a disruption in effective school and home communication. Schools must recruit parents to participate in school-wide initiatives and on committees; create parent ambassador programs to provide outreach, education, and support to others; conduct focused workshops aligned with academic, social, and emotional supports at the school; and create a multi-layered plan to effectively utilize a variety of methods to communicate with the school community. However, these strategies can be difficult to implement. While workshops on algebra, Spanish, or supporting emotional needs of students, for example, can be provided for parents, research indicates these methods can fall short of intentions. Afifi and Olson (as cited in Jeynes, 2010) submit that communication skills are not easy to teach parents, while other researchers contend that a spirit of communication in families either exists between parents and their children, or it does not. Family communication typically takes years to develop, and its absence is one of the most common causes of family tension (Jones, Wynne, & Al-Khayyal, 1984; Rimm-Kaufman & Pianta, 2005). Communication, alone, does not support children's engagement and achievement needs. Caring, loving, and open communication is required to foster the appropriate atmosphere for learning (Jeynes, 2010; Rimm-Kaufmann & Pianta, 2005).

These difficulties should not dissuade school leaders from addressing this critical issue or prevent them from developing parent engagement programs. Educators who take a proactive and strategic approach to bridge the school and home connection create a culture of collaboration and open communication. This culture is centered on trust and respect, where people listen, understand, and support each other. As this meaningful partnership strengthens, all students are better prepared to succeed.

District transitions and supports. Academic, social, emotional, personnel, and communication expectations must be aligned throughout the district to be effective for all

students. Further, an opportunity for leaders and teachers to plan, implement, and evaluate throughout the district must occur. A district must be viewed and operate as a collaborative organization, centered on a shared vision.

The results of this study identified the transition from fifth grade to sixth grade as a stressful and demotivating time for students. It is important to note this occurred at all schools regardless of whether students transitioned to different buildings. Students were impacted entirely on what could be considered philosophical or actual differences in higher standards of academic and behavioral expectations between fifth and sixth grades. Students demonstrated high levels of stress and anxiety over what they perceived to be increased rigor, challenging curriculum and assessments, increased homework, and higher expectations of accountability and responsibility. Further, students were ill-prepared for the dramatic changes they perceived upon entering sixth grade. While most attended school-sponsored "Moving Up" events, classroom tours, and information sessions of what to expect in sixth grade, students failed to understand the actual, and often dramatic, differences between the grades. These issues occurred with students who attended all schools, regardless of grade configuration. School leaders should carefully examine the effectiveness of transition activities, intensive student supports, and the perceived wide divide of academic and behavioral expectations and responsibilities between fifth and sixth grades. Key faculty and staff from elementary, middle, and high schools must develop partnerships between grades, regardless of location, to support easy transitions. They must meet regularly to create learning environments to ensure curriculum, assessments, instructional strategies, academic and behavioral expectations, and parent engagement programs are developmentally appropriate, yet aligned across the grades.

School leadership. Creating an educational environment focused on the ongoing improvement of instruction is a school leader's primary challenge and commitment. Today's

leaders must be equipped with a variety of embedded characteristics and learned strategies in order to develop a culture where continuous improvement is at the forefront of the entire school community. A leader not only must embrace this mindset but also develop the leadership capacities of those throughout the community. Specifically, for schools to be truly effective and to improve the practice of teaching, classroom teachers must be at the forefront of embracing and modeling these qualities.

Johnson's study (as cited in Wagner & Kegan, 2006) noted that teachers viewed the lack of student motivation and the lack of parental support as the key determinants in low achievement. In this study, teachers were reported to often not view their role in these issues or understand that these may be symptoms of larger problems, not the problems themselves. Two questions then easily present themselves to any school leader. How can teachers and schools identify how they may be part of the problem i.e. lack of differentiated instruction, engaging style, and topics or presentations of interest, and how they can be part of the solution such as learning how to better support or motivate students or parents? The answers are not so easily presentable, however they have received significant attention and research over the past 10 years, and ones, with focus, commitment, and collaboration, can be identified and addressed.

Wagner and Kegan (2006) state,

> Organizations that engage in ongoing dialogue around goals, priorities, and professional standards for individual and group performance intentionally foster the skills and norms that require everyone in the system to work more collaboratively and to be more accountable to one another. Everyone's work becomes more visible – beginning with the leader's. The leader models learning, teamwork, and openness to others' feedback – behaviors very different from those that are traditionally associated with school or district leadership. (p.16)

School leaders must initiate and facilitate this dialogue. And it must be a dialogue across the entire school. Teachers, students, parents, administrators, board members, and community leaders all have a vested interest in identifying and supporting great teaching. School leaders must embrace the opportunity to have this discussion and facilitate a collaborative effort to create a shared definition.

Leadership framework for improving learning conditions. The results of this study demonstrate a need for a variety of district and school-based conditions for early adolescents to achieve. A school leader must create a framework to facilitate, discuss, and act for these conditions to be successfully implemented. A framework, created, shared, and reviewed by active participants, is essential to tackle large-scale issues. Once the framework is identified, it is important to commit to the process and understand the expectations, timeframes, and outcomes. One such framework is *Lesson Study*, designed by Stigler and Hiebert (1999).

Stigler and Hiebert (1999) authored *The Teaching Gap* with a focus on teaching and how to improve it. Based upon a comprehensive analysis of the *Third International Mathematics and Science Study (TIMMS)* report, the authors investigated and reported student achievement among 4th, 8th, and 12th graders across 41 nations. Given the results and the poor comparisons found with students from the United States, the authors provide recommendations for improving teaching practices. Stigler and Hiebert identify some of the failed practices of teaching and the continued support of these failed practices. What the United States has tried to do, according to the authors, is recognize good teachers in a variety of ways, hoping that some of their good practices will trickle down to others. But, change doesn't happen that way.

Schools in the United States also celebrate individual achievements and recognize teachers who do initiate new thinking and learning in the classroom. Yet, individual innovations will never improve teaching in the average classroom. "They cannot do so", contend Stigler and

Hiebert, "because they do not change standard practice. Rather than searching for silver-bullet approaches, U.S. schools need to commit to the long-term, continuous improvement of teaching" (Stigler & Hiebert, 1999, p. 107).

Stigler and Hiebert (1999) promote *Lesson Study*, as a possible revolution in the practice of teaching and learning in the United States. This approach consists of several components to which all members of the school community must be committed in order for it to be successful. Similarly, this approach can lead to an effective framework to identify and improve all learning conditions necessary to strengthen learning, motivation, achievement, and support systems throughout a school. Broken down into its finest elements, these components represent some very basic, sound, and common-sense methods to truly improve teaching and learning, and include: small teams of teachers; identifying an area of student achievement for improvement; researching how to achieve improvement; designing a lesson or assignment to accomplish that improvement and a method for assessing whether such improvement occurred; testing the lesson or assignment; assessing and revising the lesson or assignment; demonstrating the lesson or assignment to other teachers; publishing the results of their work; and reviewing the results of other teams.

At first, these criteria appear to relate well to any thoughtful approach to improvement goals. However, as found in the *TIMMS* study and regularly reported throughout schools across the country, they conflict with current practice. In reality, there tends to be a philosophical difference between what public schools typically do and what they should do. The authors are optimistic that a change can come about and that lesson study can be adapted to the United States, despite several differences between the Japanese and U.S. educational systems. School leaders must ask themselves, what are some of the obstacles that exist which prevent continuous improvement in instructional practices and how do we address these issues?

Stigler and Heibert (1999) identify six principles which must be followed in order for to improve teaching (p. 131-137). While these principles directly relate to *Lesson Study*, they also can be followed to improve learning conditions to address student motivation and learning.

Principle #1: Expect improvement to be continual, gradual and incremental

- Changes come in small steps, not in dramatic leaps
- Must take a long-term view when designing initiatives to improve teaching
- Must value small victories
- Teachers should invent, track, and share small changes

Principle #2: Maintain a constant focus on student learning goals

- Goal of improving teaching is improving students' learning
- Focus on the bottom-line goals: student learning and commitment to evaluation

Principle #3: Focus on teaching, not teachers

- Dedicate attention to the practice and methods of teaching

Principle #4: Implement improvements in the context of our own local classrooms

- Do not rely on prescriptive methods based on research or practice in another school or setting
- Improvements must be developed in the classroom
- Try other methods yet adjust as needed

Principle #5: Make improvement the work of teachers, not administrators or experts

- Entrust change to teachers
- Teachers can ensure students' learning improves
- Requires the efforts of all players
- Must be done in collaboration with each other

Principle #6: Build a system that can learn from its own experience

- Create a system with a memory
- Accumulate knowledge and share with new practitioners
- Change the teaching scripts that govern classroom practice
- Essential for improvement over time

Based on these six guiding principles, Stigler and Hiebert (1999) describe three broad initiatives for closing the teaching gap (p. 138-147):

1. Build consensus for continuous improvement
    a. leading and facilitating dialogue
    b. creating measures of results that are sophisticated enough to detect small changes in student learning
2. Set clear learning goals for students and align assessments with the goals
    a. without clear goals, changes may represent improvement or possibly *just* change
    b. goals must be widely understood and accepted
    c. goals must capture the kind of learning we value
    d. goals must be clear enough to link to lessons, units, and grade levels
    e. goals must be developed by all in the school community
3. Restructure schools as places where teachers can learn
    a. requires redeployment of existing resources to allow time for activities
    b. culture respects time and recognition of collaboration
    c. restructuring should occur at the district level: small enough for consensus-building; large enough for substantive change through funding and staff allocations; at a level where educational leaders can exert strong

leadership; and in a multi-building setting allowing teachers to learn from those outside of their own classrooms and schools

d. Finally, according to Stigler and Hiebert (1999),

> Improving teaching is not something that can be left to refresher courses in the evenings or during the summer in university classrooms. Improving teaching must be done at school, in classrooms, and it must be seen by teachers, parents and administrators as a substantial and important part of the teacher's workweek. Schools must be places where teachers, as well as students, can learn. (p. 144)

The keys for success related to this comprehensive process require time, energy, focus, and leadership. Hard work and results, leading to successfully achieving goals do not happen overnight. It requires clearly developed and understood expectations, time, and a commitment to time. This framework provides school leaders with the structure, commitment, and process to facilitate large-scale improvement efforts, including improving learning conditions, integrating brain-based research strategies, and improving the motivation and engagement of students.

Leadership reflection for continuous improvement. Reflection requires thoughtful understanding, evaluation, and patience. It requires a self-awareness of both the individual and the team. A reflective leader and team remain flexible in order to address issues that require attention through constantly assessing and revising based on need. Reflection is an integral component of the continuous learning cycle, for without true reflection and understanding, no real long-term improvement can occur.

Most school leaders have risen to their positions given their abilities to be strong managers, problem-solvers, and decision-makers. However, facilitating dialogue often does not

come easy for many. It is necessary for leaders to respect the fact that all those who will be involved in the effort to define, recognize and support shared visions and goals have their own beliefs and values. Collaborating on sensitive issues require a leader's attention and appreciation of these issues. At the same time the leader must exhibit the ability to facilitate and lead a dialogue on creating shared beliefs and values. This requires patience and an embedded understanding and commitment to a process that is deliberate, gradual, incremental, and celebrates small "wins".

It is also a leader's responsibility to actively listen and obtain the feedback of all members of the school community. Leadership does not mean having all the answers. It requires listening to and understanding the needs of others, while learning from their experiences and education. A true leader knows and learns from the community in order to better guide, support, and direct.

Such a dialogue will undoubtedly result in varying, and possibly conflicting points of view. Personalities may clash, while priorities may compete. If the leader conducts a process developed and based upon trust, respectful dialogue, a commitment to the team, and a focus on students, differences of opinion will prove to be healthy for the process, the culture, and the participants. This will lead to a shared vision, a significantly improved teaching practice, and an educational environment where all students are progressing and learning to the very best of their abilities.

Leadership and external partners. School leaders have the ability to engage their school community and directly impact improvement. In fact, without effective leadership, learning conditions will rarely meet the needs of all students. This responsibility is comprehensive and must include the alignment of the entire school operation. The task is daunting, yet the results can make a significant difference for the entire school community.

However, the role of the school leader is not confined within the school walls. Leaders must educate the community, as they are the bridges between the classroom and the world. While this study does not define how school leaders must embark on this endeavor, it is essential they be thoroughly invested in a communication and education plan to engage external partners. These partners include policy makers, public and elected officials, business and community leaders, institutions of higher education, and non-profit organizations. Schools cannot accomplish successful student learning alone. It requires, not only collaboration with all parties within the school setting, but also strategic and meaningful large-scale partnerships throughout society. Therefore, as school leaders target student motivation and improve learning conditions through cognitive neuroscience and scientifically-based strategies, they must document and disseminate their results to inform and influence research, policy, and funding decisions.

Implications

The results of the study were used to inform school leaders, teachers, and parents of the factors influencing early adolescent motivation, including understanding the relationship between these factors and the significant biological changes occurring in early adolescents. The results also identify and support the learning conditions necessary to effectively address early adolescent motivation in the middle school years. Further, the results contribute to the body of knowledge by increasing awareness of how to meet the academic, procedural, and social challenges early adolescents face during their middle school years and during various transitions in their lives. As a result, school leaders may be informed to create more effective, research-based learning environments to reduce the number of students who experience a sustained decline in motivation and performance.

Further implications of the findings may support the strengthening of upper elementary and middle school-age transition programs, the creation of interconnected student support

networks, the development of a comprehensive and cohesive family network program, and the integration of brain-based learning instruction, interventions, and structures. Finally, implications of the findings may reduce the costly and disruptive decisions pursued by districts to redistrict students and modify school building and grade configurations.

It is important to note that the identification and analysis of successful pedagogy is central to research in education, but is currently a foreign field to cognitive neuroscience (Goswami, 2004). Given how much we do not yet know about brain development, as well as having limited research linking neuroscience, instructional strategies based in brain study, and a direct correlation with student learning and achievement, there are difference of opinion on the implications for schools and education.

Of course, obstacles to cognitive neuroscience can be numerous. These may include one or more of issues related to resources, time, buy-in, support, understanding, philosophy, disconnects between theory and practice, priorities, the "fad" perception, intellectual realities and perceptions, or others. However, it is a leader's responsibility to bring theory, research-based strategies, and practice together to improve the craft of teaching and student learning.

Educators continue to fight over what good teaching looks like; how to define and measure student growth and achievement; how accountability standards and top-down level mandates, created by those furthest away from children, are impacting large-scale education reform; and what the most appropriate strategies to close the achievement gap are, both across and within demographics. Politicians, federal and state education officials, and special interests have demonstrated that they are not ready for such a debate on how neuroscience plays a role in student learning. There are many other educational issues competing for scarce dollars; adding one more, no matter the relevance, rarely gets the immediate attention it requires.

Some teachers and parents similarly do not appear ready for such an extensive dialogue on linking neuroscience and schools. Education is somewhere between the two poles of early adopters and tentative newcomers (Varma, McCandliss, & Schwartz, 2008). It takes courage from school leaders to stand up for children, their needs, and both the theoretical and practical approaches to helping students learn. Neuroscience must be front and center in our schools and educators must initiate, lead, and facilitate the dialogue with students, teachers, and the school community.

Limitations of the study

This study is limited to the perceptions of early adolescent students through a self-reported survey. Although there are protections for biased responses and tendencies for random answers, findings reflect a reliance on respondents answering accurately and honestly. This study does not consider how responses may differ based upon socioeconomic, cultural, or racial backgrounds. The study is also limited as it reflects the perceptions of only students and teachers. It does not take into account the perceptions of student engagement and motivation by parents or other members of the school community. While the study examines student and teacher perceptions and subsequent interviews, it is limited in that these perceptions are not observed by the researcher. Further, this study looks at the perceptions at one moment in time. It does not compare changes in perceptions, motivational levels, or academic performance possibly seen in a longitudinal study.

Recommendations for further study

Research indicates that there is a direct connection between using targeted instructional strategies to engage the developing adolescent brain and increasing the engagement of students in their learning. Yet there remain conflicting reports as to whether there is sufficient evidence to determine a correlation between the increased use of brain-based instruction and actual student

achievement and growth. The lack of empirical evidence contributing to this conflict indicates a need for further investigation to measure and determine the effectiveness of bridging neuroscience and education.

It is clearly understood that numerous factors contribute to student achievement and growth. These include parental involvement, school-home communication, socioeconomics and demographics, teacher training and effectiveness, student-teacher relatedness, individual student supports, a rigorous and relevant curriculum, and immediate, positive feedback, among others. Further research should conduct a longitudinal study exploring student motivation and the relationship among adolescent brain development, brain-based instructional strategies, and these influential factors of motivation.

Although cognitive neuroscience and its implications on student learning has become an increasingly studied topic over the past decade, the specific and current findings remain far from being understood and implemented in most classroom settings. Further research is necessary to examine the real and perceived barriers which contribute to the disconnected link between theory and practice in order to understand how to more successfully integrate neuroscience within the educational setting.

While cognitive neuroscience receives attention in educational circles, the study of social neuroscience, simply the study of biological mechanisms and human interactions, is also critical with respect to childhood development. While some researchers and educators may interchange the social and cognitive terms relating to teaching and learning environments, there are distinctions, as well as overlapping and supporting components, which should be clearly identified. Introducing and implementing neuroscience in early childhood, early adolescent, and adolescent educational settings requires further investigating the research and impact of both

social and cognitive findings. This is particularly critical when creating professional standards and expectations of educators in the classroom.

Conclusion

While some experts acknowledge that risk factors such as middle school transitions (Alspaugh, 1998; Eccles et al., 1993; Felner et al., 1997; Mizelle, 2000; Weldy, 1991), peer and teacher relationships (Knesting, 2008; McMillan & Reed, 1994; Wilson, 2007), and family support (Caspe & Lopez, 2006; Epstein, 2001; Epstein et al., 2002; Jeynes, 2010; Sheldon, 2003, 2005) contribute to student disengagement at school, evolving research indicates that early adolescent brain development has common and central relationships with all of these factors and declining motivation (Feinstein, 2006; Jensen, 1998; Medina, 2008; Sousa, 2006). Early adolescent students suffer declines in motivation and academic performance regardless of their school configuration, time of grade transition, relationships with others, and level and quality of parental involvement. Further, these declines occur across all socioeconomic, racial, and cultural groups (Caspe, Lopez, & Wolos, 2007; Gonzalez-DeHass & Willems, 2006; Turney & Kao 2009). One constant recognized by researchers and educators alike is the timing of the patterns of decline, as students transition from childhood to adolescence. This coincides with the significant biological changes in all early adolescents, a time of tremendous brain development, second only to birth in an individual's lifetime.

During such a critical time in cognitive and social development, early adolescents are presented with numerous opportunities to successfully navigate their evolving life at school and home (Feinstein, 2006; Sousa, 2003). However, this time also provides a variety of potentially negative experiences that can have dramatic consequences, impacting both short and long-term success. As these students transition from childhood to adolescence, the biological changes occurring in their brains directly drive their ability to appropriately react, respond, behave, and

understand their world around them. These emotional reactions, both internal and external, often cement their attitudes and beliefs, directly contributing to their level of motivation and engagement in their learning (Giedd et al., 1999; LeDoux, 2000; Steinberg, 2009). The time of early adolescent brain development, then, has a strong relationship with the individual factors often attributed to declining motivation, academic performance, and behavior, such as school transitions, teacher and parent supports, and the school environment. Researchers, educators, parents, policy makers, public officials, and business leaders must consider how the relationship among neuroscience and school environments, instructional practices, and support programs are interconnected and directly impact student motivation and performance. Aligning students' educational experiences with research on brain development will improve their engagement in learning, positively impact the dropout rate, reduce the reactive and intensive financial investment in high school prevention programs, and better prepare students for success in college, career, and life (Feinstein, 2009; Jensen, 2009; Sprenger, 2010; Tokuhama-Espinosa, 2010).

Since educators are at the forefront of teaching, molding, and supporting children, these professionals must be equipped with the knowledge of how and why adolescents both learn and avoid learning. They must also be skilled in the strategies to effectively engage their students' emotional mindset (Feinstein, 2006; Jensen, 1998; Medina, 2008). Specifically, for schools to be truly effective and to improve the achievement of all students, teachers must be at the forefront of understanding and implementing brain-based strategies (Gardner, 1983; Biller, 2003; Varma, McCandliss, & Schwartz, 2008; Medina, 2008; Dweck, 2006). Teachers must be active change agents, and school leaders must provide teachers with the opportunities necessary to be so empowered. Only through a collaborative effort, led by those closest to the students, can we

expect to achieve real and meaningful change in linking neuroscience and education (Jensen, 2009; Sprenger, 2010; Tokuhama-Espinosa, 2010).

Yet, success in bridging the two fields requires a thoughtful and focused approach. School leaders must frame the conversation, create highly effective and performing teams of stakeholders committed to a comprehensive and integrated approach, and proactively consider and address challenges to such a critical endeavor (Wagner & Kegan, 2006; Elmore, 2000; Stigler & Hiebert, 1999; Sylwester, 2007). Failing to address these issues from the start will only result in a flawed approach and likely a failed outcome. Educators must continue to develop their own knowledge and partner with others outside of the schools in order to capture the opportunity to improve the teaching and learning environment for all children. If we want to change the organization, if we want to change other's behaviors and practices, if we want to bring about success in our schools, leaders must start with their own learning. According to Elmore (2000), "If public schools survive, leaders will look very different from the way they presently look, both in who leads and in what these leaders do" (p. 3).

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Appendix A

Motivation and engagement scale student survey

Dear Student,

Welcome to the Motivation and Engagement Scale – Junior School.

This survey has been given to you to examine your motivation and engagement, how you study, and what you think of yourself as a student.

There are no right or wrong answers. Just make sure that your answers show what you really think about yourself. When answering the questions, if you want to change an answer, just select the answer that you prefer. If you are not sure which answer to select, just select the one that is the closest to what you think. You should have only one answer for each question. For the purposes of the survey, it is best that you do not leave out any questions.

If before, during, or after the survey you have any concerns, please talk to your teacher, tutor, counselor, psychologist, or the person who administered this survey.

There are some questions that are very similar to each other. This is not a trick. It is just that this type of survey needs to ask some similar questions in slightly different ways. Just answer them in a way that shows what you really think about yourself.

Thanks for your participation.

A. First or Given Name

B. Last Name

C. City or town where you live

_____

D. What Year or Grade are you in?

E. Are you Female or Male? (1=Female; 2=Male)

OFemale

OMale

F. How old are you (in years)?

G. Is your school public or private? (1=Public; 2=Private)

OPublic

OPrivate

H. Is your school co-educational or single-sex? (1=Co-Ed; 2=Girls; 3=Boys)

O Co-educational (girls and boys)

O Single-sex girls (all girls)

O Single-sex boys (all boys)

H2. What grades are served by your school? (1=Yrs 5-8; 2= Yrs 6-8; 3=Yrs K-6; 4=Yrs K-8; 5=Yrs K-12; 6=0ther)

O Years 5-8

O Years6-8

O YearsK-6

O YearsK-6

O Years K-12

Oother

I. Where is your school located? (1=Urban; 2=Suburban; 3=Rural)

O In an urban area

O In a suburban area

O In a rural area

J. How do you usually per:form in school tests and assignments? (1=LowerThird; 2=Middle Third; 3=Upper Third)

O In the lower third of my year group

O In the middle third of my year group

O In the upper third of my year group

K. How often do you do and complete your homework? (1=Never; 5=Aiways)

L. PLEASE RATE YOURSELF ON THIS STATEMENT:

	1 Disagree Strongly	2	3	4	5 Agree Strongly
I'm happy to continue with school.	O	O	O	O	O

M. PLEASE RATE YOURSELF ON THIS STATEMENT:

	1Disagree Strongly	2	3	4	5 Agree Strongly
I regularly get involved in class activities.	O	O	O	O	O

N. PLEASE RATE YOURSELF ON THIS STATEMENT:

	1 Disagree Strongly	2	3	4	5 Agree Strongly
I am good at dealing with setback, challenge, and poor performance at school.	O	O	O	O	O

0. PLEASE RATE YOURSELF ON THIS STATEMENT:

	1 Disagree Strongly	2	3	4	5 Agree Strongly
I enjoy school.	O	O	O	O	O

Please rate each statement using the following 1-5 scale:

1. Disagree Strongly
2. Disagree
3. Neither Disagree nor Agree
4. Agree
5. Agree Strongly

MES Question 1

	1 Disagree Strongly	2	3	4	5 Agree Strongly
1. If I can't understand my schoolwor , I keep trying until I do.	O	O	O	O	O

MES Question 2

	1 isagree Strongly	2	3	4	5 Agree Strongly
2. I feel very happy with myself when I really understand what I'm taught at school.	O	O	O	O	O

MES Question 3

	1 Disagree Strongly	2	3	4	5 Agree Strongly
3. I usually do my homework in places where I can concentrate.	O	O	O	O	O

MES Question 4

	1 Disagree Strongly	2	3	4	5 Agree Strongly
4. I'm able to use some of the things I learn at school in other parts of my life.	O	O	O	O	O

MES Question 5

	1 Disagree Strongly	2	3	4	5 Agree Strongly
5. Sometimes I don't try hard at school so I can have a reason if I don't do well.	O	O	O	O	O

MES Question 6

	1 Disagree Strongly	2	3	4	5 Agree Strongly
6. When I don't do well at school I don't know how to stop that happening next time.	O	O	O	O	O

MES Question 7

	1 Disagree Strongly	2	3	4	5 Agree Strongly
7. I feel very happy with myself when I do well at school by working hard.	O	O	O	O	O

MES Question 8

	1 Disagree Strongly	2	3	4	5 Agree Strongly
8. Each week I'm trying less and less at school.	O	O	O	O	O

MES Question 9

	1 Disagree Strongly	2	3	4	5 Agree Strongly
9. If my homework is difficult, I keep working at it trying to figure it out.	O	O	O	O	O

MES Question 10

	1 Disagree Strongly	2	3	4	5 Agree Strongly
10. When I have a project to do, I worry about it a lot.	O	O	O	O	O

MES Question 11

	1 Disagree Strongly	2	3	4	5 Agree Strongly
11. The main reason I try at school is because I don't want people to think that I'm dumb.	O	O	O	O	O

MES Question 12

	1 Disagree Strongly	2	3	4	5 Agree Strongly
12. When I get a good mark I often don't know how I'm going to get that mark again.	O	O	O	O	O

MES Question 13

13. If **I** try hard, **I** believe **I** can do *my* schoolwork well.

1 Disagree Strongly	2	3	4	5 Agree Strongly
O	O	O	O	O

MES Question 14

14. Learning at school is important.

1 Disagree Strongly	2	3	4	5 Agree Strongly
O	O	O	O	O

MES Question 15

15. **I** don't really care about school anymore.

1 Disagree Strongly	2	3	4	5 Agree Strongly
O	O	O	O	O

MES Question 16

16. When **I** get a bad mark **I** don't know how to stop that happening next time.

1 Disagree Strongly	2	3	4	5 Agree Strongly
O	O	O	O	O

MES Question 17

17. When **I** do homework, **I** get organized so I can do it well.

1 Disagree Strongly	2	3	4	5 Agree Strongly
O	O	O	O	O

MES Question 18

18. **I** don't know how to get good marks at school.

1 Disagree Strongly	2	3	4	5 Agree Strongly
O	O	O	O	O

MES Question 19

19. **I** worry about getting bad marks in tests and projects.

1 Disagree Strongly	2	3	4	5 Agree Strongly
O	O	O	O	O

MES Question 20

20. The main reason I try at school is because **I** don't want people to think bad things about me.

1 Disagree Strongly	2	3	4	5 Agree Strongly
O	O	O	O	O

MES Question 21

21. **I** usually have a plan for how to do *my* homework when **I** start it.

1 Disagree Strongly	2	3	4	5 Agree Strongly
O	O	O	O	O

MES Question 22

	1 Disagree Strongly	2	3	4	5 Agree Strongly
22. I'm not involved in things like class activities and class discussion at school.	O	O	O	O	O

Engagement-

MES Question 23

	1 Disagree Strongly	2	3	4	5 Agree Strongly
23. If I don't give up, I believe I can do schoolwork that is hard.	O	O	O	O	O

MES Question 24

	1 Disagree Strongly	2	3	4	5 Agree Strongly
24. I sometimes don't work very hard at school so I can have a reason if I don't dowell.	O	O	O	O	O

MES Question 25

	1 Disagree Strongly	2	3	4	5 Agree Strongly
25. I feel very happy with myself when what I learn at school shows me how something works.	O	O	O	O	O

MES Question 26

	1 Disagree Strongly	2	3	4	5 Agree Strongly
26. I feel very happy with myself when I learn new things at school.	O	O	O	O	O

MES Question 27

	1 Disagree Strongly	2	3	4	5 Agree Strongly
27. Before I start a project, I plan out how I am going to do it.	O	O	O	O	O

MES Question 28

	1 Disagree Strongly	2	3	4	5 Agree Strongly
28. When I'm taught something that doesn't make sense, I spend time to try to understand it.	O	O	O	O	O

MES Question 29

	1 Disagree Strongly	2	3	4	5 Agree Strongly
29. I've given up being interested in school.	O	O	O	O	O

MES Question 30

	1 Disagree Strongly	2	3	4	5 Agree Strongly
30. I have a plan for how to do my homework or projects when I start them.	O	O	O	O	O

MES Question 31

	1 Disagree Strongly	2	3	4	5 Agree Strongly
31. The main reason I try at school is because I don't want to disappoint my parents.	O	O	O	O	O

MES Question 32

	1 Disagree Strongly	2	3	4	5 Agree Strongly
32. When I do homework, I try to find a place where I can do it well.	O	O	O	O	O

MES Question 33

	1 Disagree Strongly	2	3	4	5 Agree Strongly
33. If I have enough time, I believe I	O	O	O	O	O

MES Question 34

	1 Disagree Strongly	2	3	4	5 Agree Strongly
34. What I learn at school will be useful one day.	O	O	O	O	O

MES Question 35

	1 Disagree Strongly	2	3	4	5 Agree Strongly
35. I sometimes waste time the night before a test so I can have a reason if I don't do well.	O	O	O	O	O

MES Question 36

	1 Disagree Strongly	2	3	4	5 Agree Strongly
36. I'll keep working at difficult schoolwork until I've worked it out.	O	O	O	O	O

MES Question 37

	1 Disagree Strongly	2	3	4	5 Agree Strongly
37. When I do tests I don't feel very good.	O	O	O	O	O

MES Question 38

	1 Disagree Strongly	2	3	4	5 Agree Strongly
38. The main reason I try at school is because I don't want my teacher to think bad things about me.	O	O	O	O	O

MES Question 39

	1 Disagree Strongly	2	3	4	5 Agree Strongly
39. I usually stick to a homework plan.	O	O	O	O	O

MES Question 40

	1 Disagree Strongly	2	3	4	5 Agree Strongly
40. If I try hard enough, I believe I can do all my schoolwork.	O	O	O	O	O

MES Question 41

	1 Disagree Strongly	2	3	4	5 Agree Strongly
41. It's important to understand what I'm taught at school.	O	O	O	O	O

MES Question 42

	1 Disagree Strongly	2	3	4	5 Agree Strongly
42. I sometimes leave homework until the last moment so I can have a reason if I don't do so well.	O	O	O	O	O

MES Question 43

	1 Disagree Strongly	2	3	4	5 Agree Strongly
43. I worry about school and schoolwork.	O	O	O	O	O

MES Question 44

	1 Disagree Strongly	2	3	4	5 Agree Strongly
44. When I do homework, I usually do it where I can concentrate best.	O	O	O	O	O

Appendix B

Letter requesting participation in study by author

To Whom It May Concern:

My name is Mark Logan. I am a doctoral candidate in the Graduate School of Education at Lesley University in Cambridge, Massachusetts. I am conducting a research study as part of the requirements of my Ph.D. in Educational Leadership, and I would like to invite your child to participate in a brief, confidential survey.

I am studying the factors that impact declining motivation and academic performance in the early adolescent learner. The primary purpose of my study is to confront the dropout crisis by examining why early adolescents become disengaged in their learning. Evidence strongly suggests that the magnitude of declines in motivation and academic performance in the early adolescent years is a significant predictor of dropping out of secondary school. It is clear to me that school leaders must identify and mitigate the factors that contribute to early adolescent stressors to realistically address the alarming high school graduation and dropout rates. To support me in my research, I will be surveying students in sixth grade on their perceptions of their learning environment. Students at all levels of motivation and engagement in their learning are strongly encouraged to participate.

If you decide to allow your child to participate, he or she will be asked to complete a confidential survey about motivation and engagement in school, consisting of 44 questions and taking approximately 10-15 minutes to complete. There is also a second phase of the study, requiring separate parental permission, to allow your child to be part of a smaller group of students to be interviewed over the phone. It is anticipated that phone interviews will take approximately 15-20 minutes to complete.

Your child may decline to be in the study at any time or decide not to answer any question he or she is not comfortable answering. Although you probably won't benefit directly from participating in this study, we hope that others in the community/society in general will benefit by assisting me to support educational leaders to create school conditions to continuously engage students.

Participation is confidential. Study information will be kept in a secure location accessed only by the researcher. The results of the study may be published or presented at professional meetings, but the identity of participants will not be revealed. Once the research study is complete, all participants' materials will be destroyed.

If you have any questions about the study, you may contact me (617-413-4234, mlogan@lesley.edu) or my faculty advisor, Dr. Salvatore Terrasi (617-699-8769, sterrasi@lesley.edu). You may contact the Office of the Provost at Lesley University (617-349-8517) with questions about your rights as a research participant.

Thank you for your consideration. If you would like to participate, please begin by completing the attached Informed Letter of Consent.

With kind regards,

Mark Logan
Lesley University Graduate School of Education
617-413-4234 -- mlogan@lesley.edu

Appendix C

Informed consent form

Title: Examining the factors that impact declining motivation and academic performance in the early adolescent learner.

Lead Researcher:

Mark Logan
30 Plain Street
Rockland, MA
617-413-4234
mlogan@lesley.edu

Principal Investigator:

Dr. Salvatore Terrasi
Lesley University Graduate School of Education
Cambridge, MA
617-699-8769
sterrasi@lesley.edu

Description and Purpose: I am conducting a study to confront the dropout crisis by examining why early adolescents become disengaged in their learning. This study is being conducted under the supervision of Dr. Salvatore Terrasi, my senior advisor. This study examines the factors that impact early adolescent learning and how school leaders can create conditions to re-engage and support students before they drop out of school. The study seeks to investigate, identify, analyze, and compare the common elements that impact student learning during early adolescent years, occurring at all schools, regardless of grade configuration and time of grade transition. The study also seeks to better understand the relationship between these factors, students' perceptions of engagement, and the possible correlation with research on early adolescent brain development. Finally, the study will make recommendations for school leaders to support students in their early adolescent education to increase student motivation and academic performance, resulting in fewer students progressing toward the possibility of dropping out of school.

Your child is being invited to participate in this study through the completion of a brief survey. As an early adolescent student in the middle years of his/her education, his/her honest and candid perceptions of the factors that contribute to declining motivation and academic performance during this time is essential to creating conditions to better support students in their schooling. Students who voluntarily participate in the study will be asked to complete a short survey centered on student engagement. It will take approximately 10-15 minutes to complete.

Following the completion of this survey process, the researcher will proceed to gather additional information by conducting telephone interviews with a small number of volunteers. If you would like to volunteer for this portion of the study, please indicate and sign in the space provided at the bottom of this form.

Procedures: This study will use a sequential explanatory mixed methods design. This is characterized by the collection and analysis of quantitative data followed by the collection and analysis of qualitative data. The two methods will be integrated during the interpretation phase of the study. This design will enable

the researcher to use the qualitative results to assist in explaining and interpreting the findings of the quantitative study as well as to further explore quantitative findings. This design will enable the researcher to report in two distinct phases (quantitative and qualitative) with a final discussion that brings the results together.

The quantitative data will be collected through The Motivation and Engagement Scale – Junior School (MES-JS; Martin, 2001, 2003e – formerly the Student Motivation and Engagement Scale). This instrument measures elementary and middle school students' (ages 9-13) motivation and engagement. It is hypothesized to assess motivation and engagement through three adaptive cognitive dimensions, three adaptive behavioral dimensions, three impeding/maladaptive cognitive dimensions and two maladaptive behavioral dimensions of motivation and engagement. Each of the 11 factors comprises four items – hence it is a 44-item instrument. To each item, students rate themselves on a scale of 1 ('strongly disagree') to 5 ('strongly agree'). The four primary categories of scores center on: 1) self-belief, valuing, and learning focus; 2) planning, task management, and persistence; 3) anxiety, failure avoidance, and uncertain control; and 4) self-sabotage and disengagement.

The Motivation and Engagement Scale will be administered to early adolescent students in sixth grade on a voluntary basis and solely with the permission of their parents. Students will be recruited through an online introduction and invitation to Massachusetts public school principals who educate early adolescent children. Students will participate in one survey, anticipated to be made available on October 1, 2010. The survey will close no later than January 10, 2011.

Upon analysis of the Motivation and Engagement Scale quantitative phase of the study, a list of interview questions will be developed to more narrowly focus the results. Qualitative questions will be designed to specifically address the statement of the problem and the questions that guide the study. Qualitative questions will be developed from the common factors that contribute to engagement and declining motivation across all students regardless of school and grade configuration. Questions will focus on both positive and negative school experiences, directly related to students' learning, engagement, and perceptions.

Between eight and twelve interview subjects will be chosen from a representative group of schools with different grade configurations. Interview subjects will be chosen randomly from the number of voluntary respondents from each group of schools. It is anticipated that phone interviews will take approximately 15-20 minutes. Phone interviews will be conducted with students who volunteer for this second phase of the study, anticipated to begin on January 10, 2011 and end by January 31, 2011. Only one phone interview for each voluntary participant will be required.

Student interaction with the study will be primarily through the online survey component. The lead researcher will conduct all interviews by phone. There will be no interactions with other people as a result of participation in the study.

Risks: There are no known risks and/or discomforts associated with this research. Students will be requested to identify their perceptions of factors which contribute to declining motivation during the early adolescent years. As this is a self-report survey, students may identify factors which may cause them stress or emotion.

Freedom to Withdraw: Participation in research is voluntary. You and your child have the right to refuse to be in this study. If you decide to be in the study and change your mind, you and your child have the right drop out at any time. Your child may skip questions. Whatever you decide, you and your child will not lose any benefits to which you are otherwise entitled.

Confidentiality, Privacy and Anonymity: You and your child have the right to remain anonymous. If you elect to remain anonymous, we will keep your records private and confidential **to the extent allowed by law**. We will use numerical identifiers rather than your child's name on study records. Your child's name and other facts that might identify him/her will not appear when the results of this study are published. If for some reason you do not wish to remain anonymous, you may specifically authorize the use of material that would identify your child as a subject in the study. A copy of this consent form is yours to keep.

Compensation: Neither you nor your child will receive any monetary compensation for participating in this project.

Opportunity to Ask Questions: If you have questions concerning this study that you wish to have answered before agreeing to participate, you may contact me at 617-413-4234, or you may call Dr. Salvatore Terrasi, my Senior Advisor at Lesley University at 617-699-8769. If you have any questions about your rights as a participant in this study that have not been answered by the investigator, you may contact the Institutional Review Board at 617-349-8375.

Consent: Your signature below and your child's completion of the survey signify your consent to participate in this study, after having read and understood the information presented above. Please feel free to keep a copy of the consent form for your records.

Signatures and names:

a) **Investigator's Signature**:

_____	_____	_____
Date	Investigator's Signature	Print Name

b) **Student's and Parent/Guardian's Signature**:

I am 18 years of age or older. The nature and purpose of this research have been satisfactorily explained to me and I agree to become a participant in the study as described above. I understand that I am free to discontinue participation at any time if I so choose, and that the investigator will gladly answer any questions that arise during the course of the research.

_____	_____	_____
Date	Student's Signature	Print Name
_____	_____	_____
Date	Parent/Guardian's Signature Legally Authorized Representative	Print Name

If you would also like to volunteer to participate in the second phase of the study, consisting of a brief telephone interview, please check here: ☐

_____	_____
Phone Number	Email Address

What time would be best to conduct the telephone interview?

Weekdays:	4:00 p.m. – 6:00 p.m.	☐	6:00 p.m. – 8:00 p.m.	☐
Saturdays:	9:00 a.m. – 11:00 a.m.	☐	1:00 p.m. – 3:00 p.m.	☐

There is a Standing Committee for Human Subjects in Research at Lesley University to which complaints or problems concerning any research project may, and should, be reported if they arise. Contact the Dean of Faculty or the Committee at Lesley University, 29 Everett Street, Cambridge Massachusetts, 02138, telephone: (617) 349-8517.

Appendix D

Motivation and engagement student interview

Thank you for taking the time to speak with me today. As you know, I am interested in understanding the factors that contribute to student motivation and engagement during the early adolescent years. I will be asking you questions about your perceptions of school, your learning experiences, and certain factors that often impact learning. I plan to use the information I obtain during my research to help school leaders create educational environments that better support students in their learning.

Before we begin the interview, I want to remind you that participating in this study is voluntary and your responses are completely confidential. If for any reason you would like to stop the interview at any time, please let me know. Do you have any questions before we begin?

1. Please provide the following information:
   Name:_____
   School:_____
   Grades Served at School:_____
   Avg. Number of Students in Classroom:_____
   # of Teachers Current year (Academic):_____
   # of Teachers Last Year (Academic):_____

2. Tell me about your school?
3. What do you like most about your school?
4. What do you like least about your school?
5. What are the biggest differences between 5^{th} grade and 6^{th} grade?
6. Which of these differences has been the most challenging to you?
7. This year, have you been less interested in school or in a specific class?
8. If yes, why?
9. What was the best learning experience you have ever had?
10. What made it so special?
11. Who made it so special?
12. Please describe the qualities of your all-time favorite teacher.

13. What are the most important things your teacher(s) could do to help you be successful at school?
14. Do you ever get bored in class?
15. Please explain.
16. Do you ever act out in class?
17. Please explain.
18. Do you ever stop listening to the teacher in class?
19. Please explain.
20. Do you understand the expectations of your teacher?
21. Please explain.
22. Are the expectations of your teachers the same in every class?
23. Please explain.
24. How often do you have differences/disagreements with your teachers about:

	Never	Rarely	Sometimes	Often	Always
Unfinished work					
Bullying					
Tardiness					
Truancy					
Lying					
The question, “Why do I need to know this?”					
Unclear directions					
Boring lessons					
Verbal threats of class failure					
Inconsistent limits, rules, and consequences					
Overreactions					
Failure to listen					
The question, “How many times do I have to tell you?”					
Bad attitude					
Disrespect for authority/adults					

25. Please identify whether these situations cause you concern or stress:

	Never	Rarely	Sometimes	Often	Always
Failing a test					
Physical appearance					
Judgment or evaluation by others					
Unrealistic classroom demands					
The future					
Problems with peers/classmates					
Problems with friends					
Any situation that threatens self-esteem					
Disagreements with teachers, parents, or other adults					
Trying to pass between classes in a few minutes while stopping at your locker or visiting the bathroom					
Being embarrassed in front of peers/classmates					
Only one type of assessment in a course					
Not allowing any classroom discussion or questions					
A pop quiz					

26. Are there any other situations that cause you stress at school?

27. How do you handle stress so that you can continue to learn?

28. How are your parents involved in your education?

29. How often do you have differences/disagreements with your parent(s) this year about:

	Always	Often	Sometimes	Rarely	Never
Friends					
Curfews					
Going out					
Hairstyles					

Clothes					
Where you are going					
Household chores					
Spending money responsibly					
Telephone					
Computer/internet					
School grades					
Homework					
Behavior at school					
Lack of respect for parents					

30. What are the most important things your parent(s) do or could do to help you be successful at school?
31. What could your school do differently or more to help you become a better student?
32. What could you do differently or more to become a better student?
33. Is there anything else you would like to add?

Appendix E

Motivation and engagement teacher questionnaire

Thank you for taking the time to complete this questionnaire. As you may know, I am examining the factors that contribute to student motivation and engagement during the early adolescent years. I have recently surveyed 350 6th grade students and have conducted follow up interviews with 16 of these students. The student interviews focused on their perceptions of their school, their learning experiences, and certain factors that often impact learning.

It is important to me that I also understand teachers' observations of student learning and their perceptions of what contributes to early adolescent motivation and engagement in school. By participating in this survey, you are helping me to analyze this critical issue. I plan to use the information I obtain during my doctoral research to help school leaders create educational environments that better support students in their learning.

Before you begin the questionnaire, please know that your participation is voluntary and your responses are completely confidential. If for any reason you would like to stop participating, please feel free to do so.

Again, thank you for your participation!

1. Name:_____
2. School:_____
3. Grades Served at School:_____
4. Avg Number of Students in Classroom:_
5. Yrs Teaching Overall:_____
6. Yrs Teaching 6th Grade:_____

7. What do you believe to be the qualities of an excellent teacher?
8. What measures do you take to make sure students find your subject area/class meaningful?
9. How do you gain and sustain students' attention in your class?
10. What student behaviors displayed in your classroom negatively impact student engagement?
11. What words would you use to describe students who are *highly motivated* in their learning?
12. In the typical year, approximately what percentage of your students is *highly motivated*?
13. What factors do you believe contribute to students being *highly motivated* in their learning?
14. How often do you have differences or disagreements with your *highly motivated* students about the following:

	Never	Rarely	Sometimes	Often	Always
Unfinished work					
Bullying					
Tardiness					
Truancy					
Lying					
The question, "Why do I need to know this?"					
Unclear directions					
Boring lessons					
Verbal threats of class failure					
Inconsistent limits, rules, and consequences					
Overreactions					
Failure to listen					
The question, "How many times do I have to tell you?"					
Bad attitude					
Disrespect for authority/adults					

15. Please provide any further comments or list any additional items, if necessary.

16. Please identify whether these situations cause your *highly motivated* students stress or concern:

	Never	Rarely	Sometimes	Often	Always
Failing a test					
Physical appearance					
Judgment or evaluation by others					
Unrealistic classroom demands					
The future					
Problems with peers/classmates					
Problems with friends					
Any situation that threatens self-esteem					

Disagreements with teachers, parents, or other adults					
Trying to pass between classes in a few minutes while stopping at your locker or visiting the bathroom					
Being embarrassed in front of peers/classmates					
Only one type of assessment in a course					
Not allowing any classroom discussion or questions					
A pop quiz					

17. Please provide any further comments or list any additional items, if necessary.
18. What words would you use to describe students who have *low motivation* in their learning?
19. In a typical year, approximately what percentage of your students has *low motivation*?
20. What factors do you believe contribute to students having *low motivation* in their learning?
21. How often do you have differences or disagreements with your students with *low motivation* about:

	Never	Rarely	Sometimes	Often	Always
Unfinished work					
Bullying					
Tardiness					
Truancy					
Lying					
The question, "Why do I need to know this?"					
Unclear directions					
Boring lessons					
Verbal threats of class failure					
Inconsistent limits, rules, and consequences					
Overreactions					
Failure to listen					

The question, "How many times do I have to tell you?"					
Bad attitude					
Disrespect for authority/adults					

22. Please provide any further comments or list any additional items, if necessary.

23. Please identify whether these situations cause your students with *low motivation* stress or concern:

	Never	Rarely	Sometimes	Often	Always
Failing a test					
Physical appearance					
Judgment or evaluation by others					
Unrealistic classroom demands					
The future					
Problems with peers/classmates					
Problems with friends					
Any situation that threatens self-esteem					
Disagreements with teachers, parents, or other adults					
Trying to pass between classes in a few minutes while stopping at your locker or visiting the bathroom					
Being embarrassed in front of peers/classmates					
Only one type of assessment in a course					
Not allowing any classroom discussion or questions					
A pop quiz					

24. Please provide any further comments or list any additional items, if necessary.

25. What are the top three *stressors* you believe prevent students from moving ahead with their learning?

26. Please estimate the percentage of your students who become prevented from moving ahead with their learning *due to these stressors*.
27. What do you do to help relieve your students' stress levels?
28. Do you observe differences between *highly motivated* students and students with *low motivation* in the ways their parent(s) are involved in their education?
    a. Please explain.
29. In what way(s) do you and your colleagues support the transition between elementary and middle school grades/age groups?
30. What changes would you recommend?
31. Have you ever been trained or attended a workshop on *differentiated instruction*?
32. If yes, where (i.e. college, work-sponsored professional development, etc.) and what year?
    a. If yes, what was the name of the training?
33. Have you ever been trained or attended a workshop on *student emotional, social, and behavioral needs and supports*?
34. If yes, where (i.e. college, work-sponsored professional development, etc.) and what year?
    a. If yes, what was the name of the training?
35. Have you ever been trained or attended a workshop on *early adolescent development*?
36. If yes, where (i.e. college, work-sponsored professional development, etc.) and what year?
    a. If yes, what was the name of the training?
37. Have you ever been trained or attended a workshop on *neuroscience* or *brain-based student learning*?
38. If yes, where (i.e. college, work-sponsored professional development, etc.) and what year?
    a. If yes, what was the name of the training?
39. What could your school do differently or more to help you become a better teacher of early adolescent students?
40. What could your students do differently or more to help themselves become better students?
41. What could you do differently or more to become a better teacher of early adolescent students?
42. From your experience, what words of wisdom would you like to share with someone entering – or already in – the education profession, especially working with early adolescent students?