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The Transference of Mindset: Middle School Student Perceptions of the Influences of Implicit Theories

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Middle School Student Perceptions of the Influences of Implicit Theories

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Abstract

Recent studies have shown the predictive nature of mindset and motivation. Students tend to have one of two mindsets: a growth mindset or a fixed mindset (Dweck, 2000). Those with a growth mindset believe that their knowledge can increase and they are able to continuously improve. Students with a fixed mindset believe that their intelligence was bestowed upon them, and that they cannot really change how smart they can become. This study examined the perceptions of middle school students about their mindsets and explored the question of where they think their mindset originates. Nearly 500 students were surveyed to determine both their mindset and their most significant influencers. These included growth and fixed mindset messages from either adults at home, adults at school, other adults, friendly peers, negative peers, and siblings. Results revealed that adults at home have the most influence on students with a growth mindset. Adults at home and school have the most influence on students with a fixed mindset. Positive peers also highly influenced both groups. These findings suggest that schools considering growth mindset interventions should also consider them for parents and guardians at home. Consistent, growth mindset messaging at home and at school will teach middle school students how to persevere and value growth. It is expected that these students will ultimately experience more academic success.

Dedication

My parents, Don and RoseMary Burck, raised me to believe that anything could be possible if I put my mind to it. They have been the influence of my own mindset. Their deep beliefs of loving Jesus, honoring family, and treasuring lifelong learning are what make me who I am. Their pride, support, and hope have been fundamental to the success of my work.

When I started this dissertation, I did not fully understand the sacrifices my family would have to make in order to help me see this work through to completion. There were many Saturdays that went by when my wonderful boys would come in and give me a peck on the cheek before their devoted dad took them out the door so that I could study. I am not sure if it was pride or sympathy I saw in their eyes as they walked out the door. All I know is that it compelled me to push on.   Words cannot completely express the gratefulness I have for each of them. Since I started this journey, we have lived in the Philippines, Kentucky, Hong Kong, and Oregon. With each transition, they all encouraged me, in their own ways, to get back into the work and finish strongly.

I dedicate this work to my family. To Eli, my eldest son, who always looks on the bright side, who compassionately completed his own homework next to me, and who made me laugh my way through the dramas that descended in this doctoral program. To Isaac, my youngest son, who was ready with an encouraging hug or pat on the back just when I needed it, who never doubted me, and who was more than willing to critique my data at any time. It was because of those two boys that I knew

I had to finish, so they could see the importance of working hard, completing what you start, and ultimately seeing that having a growth mindset ends in success.

My husband, Simon, never gave up on me. He gave me time, he encouraged me, and he put up with my sleep talking about statistics and mindset theories for hours on end. He picked me up from the depths of doubt and made me believe in myself. Simon supported me so I could find who I am. There were several obstacles that came my way during this journey, even tears, and Simon's attitude and response to my problems made me excited to conquer them. It is an absolutely wonderful gift to be married to someone who can hope for the best in me. I would not be crossing this finish line without him.

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Along the way, a number of mentors have invested in my research journey. Principal Kathleen Gregg, Dr. Jane Stickney, Principal Jodi Dedera, Mr. Bradley Burck, Mrs. Teresa Cornwell, and Superintendent Maria Delapoer gave me the guidance, brainstorming support, and resources necessary to complete this project.

I would also like to thank Dr. Brian Dodd, my father-in-law, for his countless hours of feedback, support, and guidance, which were an enormous help to me, both mentally and emotionally.

I appreciate the support of my extended family and friends who took the time to engage in this journey. Their questions helped me define my own thoughts about mindset. They encouraged me to finish the race so that we could all have the answers to the questions we were asking.

Finally, I would like to thank the teachers and families of students who chose to participate in this study. This research would not be possible without their cooperation and support.

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Chapter One: Introduction

Introduction to the Problem

As students navigate their educational careers, all of them will face obstacles at one point or another. These obstacles can be academic or social, but in any case, students must know how to navigate resiliency in order to overcome these inevitable challenges. Many of the strategies educators and parents innately use to motivate students through adversity actually do more damage to the student's motivation than help (Yeager & Dweck, 2012).

Motivation is an essential aspect of deep thinking, and a critical part of the equation in helping students learn (Sternberg & Ben –Zeev, 2001). It is necessary to understand that educational legislation has created two separate goals where school motivation reform is concerned (Ryan & Brown, 2007). The first goal focuses on competence promotion and teaching that reflects an operant theory of motivation (Kellaghan, Madaus, & Raczek, 1996), while the second view targets educational outcomes that are more closely aligned with performance goals rather than mastery or learning goals (Deci & Ryan, 2002). This research will center its lens upon the last-mentioned viewpoint, which examines learning growth.

Motivation and Competency: Learning at School and at Home

As a forerunner in research on growth mindset, Carol Dweck and her colleagues (Dweck, 1975, 1986, 1990, 1991, 1996a, 1996b, 1996c, 1999, 2002; Dweck & Elliot, 1983; Dweck & Leggett, 1988), who were influenced by the social-cognitive perspective in psychological theory, believed that every person reacts to the

world differently, based on the value they perceive or assign to circumstances in their social and physical environments. These meanings are referred to in research as *self-theories* or *mindsets* (Dweck, 2000, 2006; Dweck & Bempechat, 1983; Dweck & Elliott, 1983). Because of these meanings, people create their viewpoint of the world, which causes them to respond to situations in certain predictable ways (Dweck, 1999). These meanings also determine the resiliency with which a person will push through adversity to learn a new challenge (Dweck, 2012).

Dweck (1999, 2014) described these mindsets as being either fixed or growth mindsets. Some people naturally approach situations with motivation that comes from a fixed mindset. These people believe that they can or cannot do things based on their ability, which is fixed. People with a fixed mindset tend to be threatened by the success of others, and they often do not try new things that they know they will probably fail. As such, people with a fixed mindset do not conceive that they are capable of doing certain things. For example, a student with a fixed mindset might think, "I'm just not a math person," and give up before he/she even begins to grapple with the problem. Dweck and Leggett (1988) also described this as an *entity theory* in early research, which links Dweck's research to earlier educational psychologists (McClelland, 1984; McClelland, Atkinson, Clark, and Lowell, 1953). Dweck suggested (2012) that much of education is set up to promote a fixed mindset for students. For example, letter grades suggest that students should do just enough to get an "A," but usually little of the focus on the report card values the process or expansion of knowledge and learning (Dweck, 1999, 2012).

As opposed to a fixed mindset, people who believe that intelligence and personality traits are malleable have a *growth mindset* or are *incremental theorists.* These people have a tendency to believe that they can do anything, as long as they put their mind to it. They embrace challenges, because they see adversity as a path to mastery (Dweck, Chiu, & Hong, 1995). Those with a growth mindset have a tendency to "embrace challenges, learn from criticism, and persist in the face of setbacks" (Dweck, 2008, p. 7). For example, a student facing a tough math problem in school who has a growth mindset might say, "This is really tough. But I'm pretty sure that with a little research and determination, I can figure it out." Figure 1.1 describes the characteristics of both growth and fixed mindsets.

Understanding that mindsets fall onto a continuum for different students, during various parts of the day and amid diverse activities is a key understanding in the research about mindsets (Aronson, et. al., 1999; Aronson, Fried, & Good, 2002; Auten, 2014; Blackwell et. al., 2007; Good, Aronson, & Inzlicht, 2003; Yeager & Dweck, 2012). Students' mindsets can vary greatly, depending on the topic and mode of the challenge at hand (Yeager & Dweck, 2012). Internal factors, such as personality and mood also play a role in a student's mindset toward a given challenge. External factors, such as messages from adults, friends, and the media also play a role (Auten, 2014; Blackwell, et. al., 2007; Yeager, Trzesniewski, & Dweck, 2014). However, intervention experiments have shown that students do tend to create very defined psychological worlds in which they view their own challenges through either a growth or fixed mindset lens (Aronson, Fried, & Good, 2002; Auten, 2014;

Blackwell et. al., 2007; Good, Aronson, & Inzlicht, 2003; Yeager & Dweck, 2012). In fact, the student domain identification, in which a student's feelings of self-worth and perceptions of competence make up identity, is an important focus for mindset intervention (Harter, Whitesell, & Junkin, 1998). This domain identification theory contends that when young people value a certain domain and then succeed in that domain, their feelings of competence or self-worth will improve. These domains include academics, sports, social realms, and even fashion. Understanding these changing adolescent domains and being able to guide adolescents when domain expectations do not meet domain realities is an important role in mindset intervention. Thus, asking students to express their innate belief about their general approach to challenges reveals a general psychological view of the world of the student and is the avenue through which this research will journey.

"Neither cognitive ability, gender, ethnicity, nor a person's education can determine a person's mindset" (Dweck, 1999, p. 89). However, obtaining a growth mindset is a lesson that can and should be taught in schools (Dweck, 1999; Dweck & Elliott, 1983). Dweck's research claimed that students who are able to understand their thinking, change their mindset about academics, and learn in an "ambiance of growth," will have greater resiliency and success in school. If students are taught to think meta-cognitively, using this growth mindset, their ability to push through adversity and seek out new learning will grow (Bennett, 2010; Dweck, 2000).

Growth Mindset

- Believes the brain can grow. Accepts mistakes as part of growth
- Embraces challenges
- Persists in the face of setbacks
- Sees effort as the path to mastery
- Learns from criticism
- Find lessons from the success of others

Growth Mindset Result in School:

Student reaches higher levels of achievement (Dweck, 2002).

Fixed Mindset

- Believes a grade defines ability
- Avoids challenges
- Gives up easily
- Sees effort as fruitless
- Ignores useful negative feedback
- Feels threatened by the success of others

Fixed Mindset Result in School:

Student plateaus early and achieves less than full potential (Dweck, 2002).

Figure 1.1 Characteristics of Growth and Fixed Mindset

Statement of the Problem

Researchers (Auten, 2014; Bennett, 2010; Dweck, 2002; Pomerantz, Grolinick & Price, 2005) maintained that, although much has been discovered about the interventions that teach mindset in schools, an important direction for future research should be to understand how parents and teachers directly pass on their approach to the achievement of mindset and competence to children (Dweck, 2002). In addition, many researchers have theorized that the question of what shapes parents' and teachers' abilities to transfer to students the fulfillment of their needs, their independence, and their mindset has to do with the mindset of the adults themselves (Bennett, 2010; Pomerantz, Grolinick & Price, 2005).

Significance of the Study: Entity Theories and Influences

This quantitative study begins to fill a gap in the literature about the perceived influences of middle school student mindset that impacts learning. Pomerantz, Grolnick, and Price (2005) called for future research to focus on the practices that parents bear on children's competence and attitudes toward achievement: "An important direction for future research will be to integrate these multiple influences in understanding the process by which adults contribute to how children approach achievement" (p. 273). In addition, Dweck (2002) called for future research on the effect of messages from adults to students that change the development about mindset in various scenarios and in different age groups.

Understanding how to motivate young people is a question that weighs heavily on both educators and parents. In school, students must navigate through

more than simply academic achievement. As students are faced with pressures from peer relationships, varying cultural backgrounds, and positive and negative messages from many different forces, their mindsets begin to take on both positive and negative characteristics, which change their world view (Corrigan, 2003). While the concept of encouraging growth mindset in schools is well defined, the discussion about how middle school students perceive their mindset comes to them is a question that should be discovered, in order to find out how to better motivate them during their turbulent teen years (Dweck, 2006, 2009; Dweck & Blackwell, 2007).

Although there is much research on the topic of parental influence on child development (Miller, 1988), and about a parent's participation in their child's education (Drummond & Stipeck, 2004), and parental influence upon specific academic achievement (Aunoloa, Numi, Lerkkanen, & Rasku-Pottonen, 2003; Frome & Eccles, 1998; Peet, Powel, & Odonnel, 1997), few researchers have studied the impact of a parent's epistemological beliefs (tacit beliefs about their own knowledge) on a child's education (Ricco & Rodriguez, 2006), or on the perceptions students have of their parents' or teachers' epistemological beliefs. There is a gap in the literature that makes a clear connection between personal epistemology and adult influence on a child's mindset (Ricco & Rodriguez, 2006; Wentzel, 1998).

Previous research has regarded that parents and teachers can influence student achievement based on several factors, such as perseverance on academic tasks (Dweck, 1999), in conceptual learning (Qian & Pan, 2002) and through text comprehension (Kardash & Howell, 2000). However, many studies still lack the

ability to show the relationship between mindset theories and their transference or influence from adult to child. This is perhaps because it is difficult to know which variables are the most applicable (Molden & Dweck, 2006). Examining which messages from influencers will support a child's development of a growth mindset toward learning helps educators know what actions will support the best situation for learning growth.   Although Dweck (2002) has researched the correlation between achievement goal theories and intelligence theories in various age groups, the direct correlation of middle school students' general perception of mindset origin and its influencers remains to be seen.

In addition, "the presence of motivational cues in the classroom does not ensure that students will attend to them or interpret them as predicted; thus, only certain messages may be relevant to students" (Urdan & Turner, 2005, p.297). So, it is important to find out what students perceive is helpful for motivation.   Educators cannot make presumptions about the transmission progression from adults' habits or orientations to students' motivational orientations without first asking the students what they believe (2005).

While research suggests that entity theories, or mindsets, can be changed by outside influences (Dweck, 2000) and that these mindsets can change based on conscious effort or interventions in schools (Kamins & Dweck, 1999), the aim of this research was to discover the perceived influencers of mindset theories for young adults, in order to attempt to better understand how adults and peers can create a culture of growth at school and at home.

Purpose of the Study

The purpose of this research was to attempt to discover the perceived influences middle school children attribute to their mindsets, in order to find ways to better motivate them in school. Educators and parents care deeply about student success. Helping students understand their own mindsets and become aware of their individual approach to learning is foundational to metacognitive learning and conversations about student success in the classroom.

Research (Blackwell, et al., 2007; Dweck, 1999; Dweck & Elliot 1983) shows mindset does not have to remain fixed. In fact, interventions can help students become more aware of their thinking processes and approaches to learning. As a result, students will be able to train their minds to be persistent at acquiring new information even when it is a challenge to them. This awareness will help students change their psychological stance on the mindset continuum to be more growth focused. By understanding the perceived influences middle school children have about where mindsets come from, educators and parents can better create and target communication and expectations for growth.

Research Questions

Purpose.

This research was to discover the extent of perceived influencers that middle school children attribute to their mindsets, in order to find ways to target communication and better motivate them in school.

Quantitative Study of Student Perceptions

RQ1. When faced with challenges, what percentage of middle school students tends to have a growth or a fixed mindset?

RQ2: What is the perception of middle school students about the extent to which adults and peers influence their mindset?

Because research suggests that mindset is malleable and that schools should work to help students change their mindsets to become more growth-focused, it is beneficial to understand from a students' perspective where their mindset comes from. With this knowledge, schools can then begin to arrange interventions such as classes or educational workshops for teachers and parents that could bridge any anticipated chasm between the messages coming from school and home.

Definition of Terms

Metacognition-refers to a learner's higher-order thinking about the active control and awareness over the cognitive process engaged in learning.

Meta-learning-the theory which primarily involves the role of neurotransmitters in purposefully adjusting the way the brain thinks.

Implicit Personality Theories-personal constructions about a particular phenomenon that resides in the minds of individuals (Sternberg, 2001).

Self Theories-how people develop beliefs about themselves (Dweck, 1999).

Incremental Theorists-believe that intelligence can be increased through effort (Dweck, 1999).

Entity Theorists-believe that intelligence is unchangeable. Genetics is important in this theory (Dweck, 1999).

Growth Mindset-the state of mind on a mindset continuum, through which those with more of an incremental theory see challenges (Dweck, 1999).

Fixed Mindset-the state of mind on a mindset continuum, through which those with more of an entity theory see challenges (Dweck, 1999).

Limitations

While this research suggests that the data relating to middle school perceptions of influence are representative of most students in general, it should be considered that the study is limited to one middle school, in one city, in the Pacific Northwest. The findings may not necessarily pertain to students in another region of the country. The cultural backgrounds of students' perception of influence may not be generalizable in all regions. Internal validity of perceptions is based on a student's understanding of his/her perception of his/her background.

It should also be noted that these perceptions could change based on the social and emotional factors of the students' lives on the day of the survey. Measures were taken to protect the anonymity of all students who participated in the study. This helped reduce any concern that student's perceptions of influence harm their relationships or threaten them in any way.

The nature of the survey presented some limitations. The data were collected based on a student's perception of his/her mindset on the given day of the survey distribution. In addition, students generally have varying degrees of growth or fixed

mindset toward various subjects in their lives. For example, one student might find they have a growth mindset toward language arts and a fixed mindset when it comes to difficult math problems. Efforts were taken in the survey design to provide language that would guide students to think about their approach to challenges in their lives, and the exact topic of challenge will be left to the participant. It should be noted that participants were asked to think of mindset as it pertains to their past challenge, and the difference in this individual definition may not provide a completely accurate reflection of the student definition of mindset.

The survey was delivered electronically, using online data collection software called Qualtrics. While measures were taken to select an age group in which computer skills would be known, some students may have had difficulty with the knowledge of how to complete an online survey. However, measures were taken to provide a user-friendly platform in which ease-of-use was expected for children ages eight through 14. Fifty-nine students participated in the pilot study. Students in this pilot study were asked how difficult the survey was, which questions were difficult, and how long it took for them to take the survey. These questions helped determine if changes needed to be made to the survey before it was offered to the chosen population for the study.

Organization of the Remainder of the Study

This dissertation consists of five chapters. Chapter one includes a general introduction, background of the problem, and the significance of the research. Chapter two contains a review of the current literature on metacognition and

epistemology, as well as how mindset has become defined in social cognitive theory. It will also discuss how motivation and mindset affect student growth.   The third chapter is a description of the research methodology, as well as a narrative of the research design, general setting, and a plan for data collection and analysis procedures. The findings of this quantitative study are represented and discussed in chapter four. Finally, a discussion of the findings, a discovery of ancillary findings, and limitations and recommendations for future research complete chapter five.

Chapter Two: Literature Review

Theoretical Framework

In social cognitive theory (an umbrella term for understanding how students learn), researchers contend that individuals learn because of personal factors, behavior, and the environment (Bandura, 1996). Educators are interested in understanding how these factors can be manipulated in order to inspire students.

Within social cognitive theory, the study of personal epistemology (Hofer, 2002, 2004) focuses on the factors that identify choices of individuals and their developmental characteristics in cultural orientations and opinions about the nature of learning. A map of the relationship of social cognitive theory, personal epistemology, and implicit theories can be found in Figure 2.1. Research has shown that the epistemic beliefs of people can predict academic decisions and behaviors, such as persistence during the completion of academic tasks (Duckworth, 2007; Dweck, 1999), reading comprehension (Kardash & Howell, 2000; Schommer, 1990), and conceptual learning (Qian & Alverman, 2000; Qian & Pan, 2002; Ritchhart, Church, & Morrison, 2011). Because epistemology is so relevant in social cognitive research, particularly in education, one should consider also that adults' influence on personal epistemology of students should be measured.

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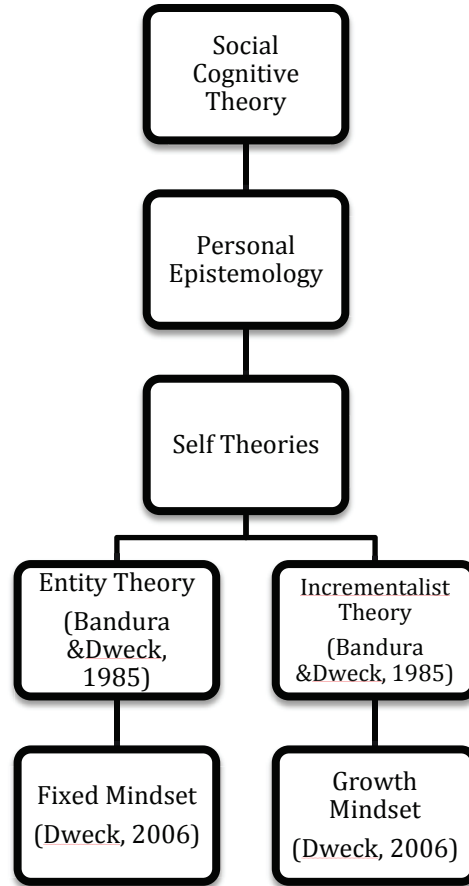
Figure 2.1 Evolution of Mindset Theories

Thinking About Thinking

Educators can easily discuss the kinds of learning and thinking that should take place in the general education classroom; however, it is another thing entirely to help students be able to talk about what is happening in their thought process during these activities. *Meta-learning* or *meta-cognition* is the "knowledge about the thinking strategies a student can use to change his/her own thinking in order to learn more deeply" (Zohar & David, 2008, p. 59).

If students understand how to listen to their thought processes, they can begin to learn how to make those processes grow. However, barrier domains at home and school, such as lack of self-esteem or a difficult home life, can sometimes inhibit a student's ability to grow. Occasionally, students lack the motivation to learn new information. In order for schools to develop competent citizens that can meet achievement benchmarks and thrive as individuals, students must first be aware of their thinking and be able to push themselves to persevere when challenges arise (Ahmavaara & Houston, 2007). This requires motivation, knowledge, and the ability to adapt thought processes.

In order to be metacognitive in school, students have to learn how to be "aware of their own cognitive resources in relation to the task demands, and then adjust, plan, monitor, and control those resources" (Biggs, 1987, p. 246). This action, of understanding and diagnosing one's own thinking processes, should be reinforced throughout a student's schooling career.

In 1978, Vygotsky claimed that children will only "grow into the intellectual life" of those who model intellect for them (p. 88). Vygotsky (1978) also suggested that unless teachers were passionate about what they were teaching, there would be no passion in the classroom.

Twenty years after Vygotsky's (1978) theory, Keene and Zimmermann (1997) maintained similar ideas about cognitive educational theory, but these researchers placed more emphasis on a teachers' ability to facilitate students toward managing their own thinking: "Until students can name a process of thinking, they can not

control it" (p. 7). Thus, it is the duty of teachers and educational leaders to create such an ambiance of metacognitive thinking. Educators and parents need to learn the ability to be able to facilitate this thinking process with students.

Since the 1970s, researchers and theorists have attempted a theoretical focus on the complexities of teaching and learning toward deep understanding, a concept that rises above the goal of simple knowledge retention (Bruner, 1973; Gardner, 1983, 1991; Skemp, 1976; Wiske, 1997). *Surface learning* urges students to focus on memorizing facts, usually through rote educational strategies; while *complex learning* focuses on developing deeper thinking through a more involved and active process (Church, Morrison & Ritchhart, 2011). This kind of deep, or complex, thinking is often the primary goal of educators (Keene, 2008). When educators reduce the amount of thinking they ask of their students, they reduce the amount of learning, as well (Ritchhart, Church, & Morrison, 2011). Literature on teacher development states that this conversion from a focus on teaching to that of learning is a central aspect of becoming an effective teacher (Hatch, 2006; Intrator, 2002, 2006; McDonald, 1992; Palmer, 1998). Students cannot and will not learn unless they have some sort of ownership over their own learning process. In other words, they must be able to understand and contemplate their own knowledge and thinking.

Thinking about learning processes is not a new idea. Benjamin Bloom (1956) identified a continuum of six learning objectives that grew in depth as students moved further into understanding. Bloom theorized that understanding grows in complexity from the lower order domains such as knowledge and comprehension, into the higher

order domains such as synthesis and evaluation. These learning objectives were described on a continuum model. Bloom suggested that a student's deep learning could only really occur in the higher levels of his taxonomy. Students should start with one level of understanding and move through each level into more complex levels of understanding.

Bloom's students, Anderson & Krathwohl (2001), later theorized that the stages of learning should use verbs rather than nouns. The revised stages of understanding identified remembering, understanding, applying, analyzing, evaluating, and creating. However, the idea that the stages were sequential remained in theory (Anderson, Bloom & Krathwohl, 2001). Understanding and remembering, or retaining, information remained lower level status entities, compared to the more in depth processes such as evaluating and creating. Though this theory moved teachers to think differently about teaching their lessons with more concrete descriptions of higher level thinking, Bloom's learning categories were simply theory, and still have not been ratified by scholarly research (Seaman, 2011).

In 1997, theories about thinking began to expand. Wiske (1997) argued that understanding is not a lower level stage of learning as previous theorists suggested. Instead, Wiske (1997) contended that understanding is "not a precursor to application, analysis, evaluating and creating, but a result of it" (p. 10). This idea was confirmed by Hiebert, et al. (1997) in his study about mathematics synthesis, and again by Ellin Keene (2008) in her study about reading strategies. Essentially, these theorists argued that Bloom's Taxonomy should be seen as a circular pattern instead of a continuum.

These challenges to Bloom's Taxonomy are the cornerstone to the latest movements in metacognitive theory. Each student approaches understanding in a different way because he/she brings different ideas, culture, and background to the learning process. This leaves teachers with many options when approaching metacognitive teaching strategies.

However, more recent theories suggest that students cannot begin to think about metacognition if they do not believe first that it is possible to do so. Thus, a primary goal of this research was to examine Carol Dweck's (2010) Implicit Theories of Intelligence, in order to understand whether or not theories of intelligence stem from the home culture and what messages at home are more suited to create an ambiance of growth.

Implicit Beliefs of Intelligence

The concept of growth mindset is perhaps the missing link in the models offered for teaching intrinsic motivation and metacognition, because of its emphasis on self-directed ownership of an individual's brain growth. In her research, Dr. Carol Dweck (2006, 2010) explained the concept that the brain can grow, and every person will have either a fixed or growth mindset (Dweck, 2006, p. 5). This theory has led to a major shift in theories about academic growth. Her research suggests that before students can learn, they must be aware of their attitude toward learning, or mindset.

Learners with a growth mindset begin learning with the premise that they can learn anything. Struggle and failure is encouraged, and the focus is more on the learning process than on an end result. Students are not encouraged for "looking

smart" (Dweck, 2006). Rather, they are rewarded for discussing their vulnerabilities within and during the growth process. In short, a growth mindset is a belief system, which proposes that a student's intelligence can be "grown or developed with persistence, effort, and a focus on learning" (Ricci, 2013, p. 3).

Conversely, a fixed mindset contains a belief system that assumes "a person has a predetermined amount of intelligence, skills, or talents," (Ricci, 2013, p. 3), which only offers empty labels for students and leaves little room for real growth. In a fixed mindset school, students believe they are "A" students or "C" students, or failures. If they have not already decided this about themselves, they find a label soon enough. This leaves little room for growth, when students give up easily because it is expected of them, or become consumed with looking smart at all costs. In addition, some students become risk adverse, avoiding classes or research topics that they may fail simply in order to survive in a fixed mindset world (Dweck, 2006).

In addition, Dweck and Leggett (1988) conducted a study of students in middle school who believed that they were born with a set intelligence level, or a fixed mindset, that could not change over time. In this study, students with a fixed mindset showed compelling and significant academic growth after they were taught that their brains were muscular and malleable or able to grow and change. Students in the study learned the difficult academic content, because they were taught to appreciate the learning process rather than the final product.

This poses a question as to what age students begin to feel their brains cannot accomplish more difficult tasks. In an informal study, Mary Cay Ricci (2013)

evaluated students' mindsets in each grade, from K-3rd grade. She found that 100% of students entered kindergarten with a growth mindset, but by the time they reached 3rd grade, only 58% of students still maintained a growth mindset. In fact, the percentage of students with a growth mindset became smaller with each consecutive year in school. If this study had continued, the chances of students with a growth mindset when entering middle school would be staggeringly low. Under more controlled conditions, such a study should be replicated in order to better understand the validity of these claims and the ramifications that exist for educators.

In a study by Donohoe, Topping, and Hannah (2012), an online interactive program, which aimed to encourage and teach students about growth mindset, showed that students who learned the difference between fixed and growth mindset showed a significant rise in their ability to change their mindset. They used *Dweck's Theories of Intelligence Scale* and *Prince-Embury's Resiliency Scales* to obtain their data (Donohoe, et al., 2012). Long-term effectiveness and sustainability of the study effects was not shown to be valid. However, other theorists have also shown that helping students change their mindset has aided in student ability to perceive growth and raise academic achievement (Baldridge, 2010; Brooks & Godstein, 2008).

Challenges, academic mistakes, social problems, support networks, and other problems are domains of the social realm, which are fundamentally part of the daily life of a student. In order to be able to overcome these challenges, students must have a sense of resiliency (the understanding that they overcome failure), agency (the understanding that they can master their own actions), and self-efficacy (the

understanding that they are competent) in order to succeed (Dweck, 2010). Pawlina

and Stafford (2011), asserted that the growth mindset theory has a subset of values:

critical thinking, problem solving, communication, collaboration, and creativity (the

4C's), which enable students to believe they can accomplish challenges both inside

and outside of school (p. 30). Educators can utilize these subset values of mindset in

order to help students better understand their own resiliency (Brooks, 2008).

It is clear from the available research that teaching students about having a

growth mindset is beneficial to their academic resiliency. In addition, if teachers can

help students identify and diagnose their own mindset, real growth can begin to occur

because students will be open to challenges and change (Dweck, 2010).

Motivation

Motivation is the foundation to academic success (Sternberg, 2005). Without

it, Sternberg (2005) suggests that a student may never make an effort to learn.

Motivation pushes metacognitive skills, which then create learning and thinking

skills. These combined efforts administer criticism or encouragement to the

metacognitive skills, which then enable one's level of expertise to increase. Without

this cycle completion, students do not enter deep learning (Sternberg, 1988, 2007).

See Figure 2.2 for a representation of this relationship.
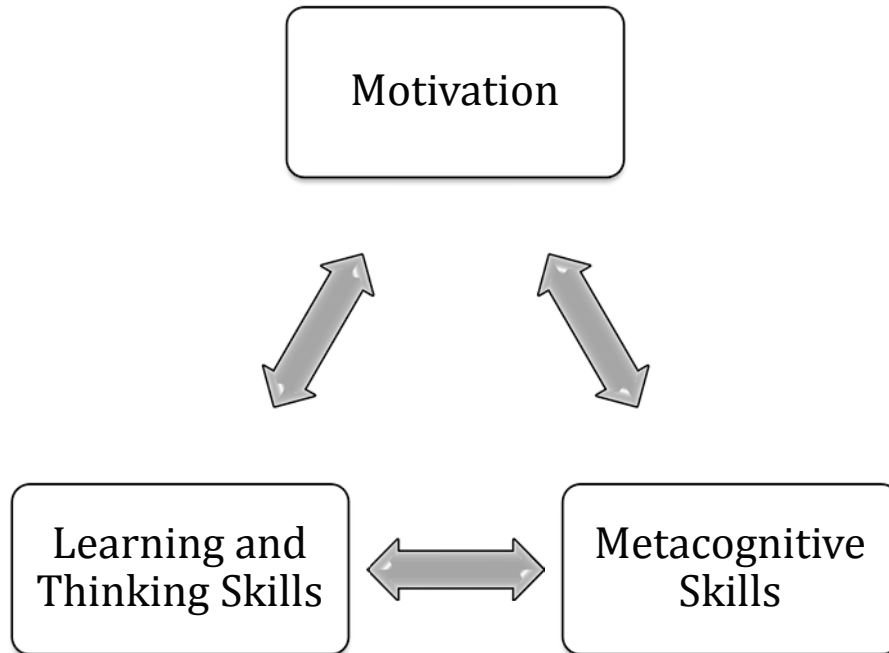
Figure 2.2 Relationship of Metacognitive Learning and Motivation

Research on motivation has been making its way in history since the late 1800s, when James (1890), wrote his article about how achievement could be connected to self-evaluation. Subsequent motivation research describes how achievement is affected by perseverance (Ach, 1910). Since then, a number of themes are revealed in the literature, covering such topics as test anxiety, competence, values, and implicit theories which make up a canon of "achievement motivation literature" (Elliot & Dweck, 2007).

Achievement motivation literature refers to various kinds of motivation. Achievement motivation, which refers to a desire to seek moderate challenges and risks (McClelland, 1985), should be separated from competence motivation (or self-

efficacy), which is the study of a person's beliefs about their own innate abilities to be able to solve problems (Bandura, 1996).

This kind of self-efficacy motivation comes to fruition through both extrinsic and intrinsic rewards (Sternberg & Lubart, 1996). In literature, motivation has been described as one of the major factors needed for school success (Lepper, Corpus & Iyengar, 2005; Sternberg, 2007; Sternberg & Lubart, 1996;). In fact, without motivation, a student would not try to learn content or take a test to show what he/she knows (Sternberg, 2007). In addition, students with higher intrinsic motivation tend to do better in their studies (Lepper, Corpus, & Iyengar, 2005). Harter's Competence Motivation Theory (1982) suggested that students who have success early in their school experience will continue to try and put forth effort, because their early success warrants high self-esteem, which propels them onward in their task. Students who fail early in the task actually suffer from loss of self-esteem, which causes them to discontinue the activity. Thus, when educators begin to understand how to explain and encourage intrinsic motivation in their students, they may be able to battle underachievement by offering early successes, which will lead to higher rates of self-esteem and academic success (Harter, 1981).

Harter's Competence Motivation Theory contends that students maintain four domains for self–esteem: cognitive competence, social competence, physical competence, and feelings of worth that are independent of any skills (Harter, 1988). It should also be noted that adolescents have constantly changing self-esteem in constantly changing situations as well. These adolescents tend to feel a greater sense

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of self-esteem where they feel they have more support (Harter, et al., 1997). Thus, understanding the areas in which teens have the most support should be the domain in which to focus change or interventions in motivation (Harter, et al., 1997).

Dweck and Elliott (1983, 1999, 2002) have shown that one of the major determinants of intrinsic motivation is mindset, or an individual's need to improve his/her intellect. In their research, Dweck and Elliott (1983) suggested that some students are entity theorists in regard to their intelligence. For example, entity theorists believe that the only way to be smart is to show their smartness. Mistakes are considered a weakness to an entity theorist. So, sometimes an entity theorist will choose to not turn in an assignment if it is not perfect, or perhaps he/she will not even try because thoughts of doubt prevail. This kind of mindset is described as a fixed mindset.

In contrast to entity theorists, Dweck and Elliott (1983) suggested that incremental theorists believe that in order to be smart, one should learn by increasing knowledge, and to do that, one must make mistakes. Incremental theorists are not afraid to make mistakes, and believe that mistakes can be useful. This is a growth mindset.

Dweck and her colleagues' research (Blackwell, 2007; Dweck, 2002; Sternberg, 2007) suggests that while entity and incremental theorists may perform the same in school, when both types of students run into a challenge, incremental theorists do better because they are more willing to push through their challenge and

seek mastery of new material. This, Dweck (2002) suggested, is the foundation of motivation.

Perseverance and Grit

Another theorist in motivation research is Angela Duckworth (2007), who developed the idea that students with perseverance, or grit, tend to do better in school. Duckworth (2007) created a program in which students and teachers insightfully reflect on their levels of grit, social intelligence, optimism, self-control, gratitude, and curiosity. While there was an initial concern about quantifying the value of character, Duckworth's program, which included grade reports, helped motivate students because of their understanding and ability to discuss their own personal accountability in the various areas of reflection (Duckworth, 2007).

Many programs and strategies offered by researchers have been proven to help students become more intrinsically motivated, simply because of their work at reflecting on their own motivational practices. As such, students would form a greater value of personal self-worth and become better able to navigate the social and emotional domains of the transitional school change (Duckworth, 2007; Hering, 2012). However, intrinsic value and character development are not the only areas of concern in the social and emotional transition for students, and it should be offered that self-ownership of learning could be the missing link.

Because of conclusions drawn from the available mindset research, assumptions can be made that students can enter into deeper learning once mindset instruction is an intentional part of learning. This research aims to show that growth

mindset training and messages at home and school could be a valuable influence on student achievement. Thus, it will be important to understand the factors that influence mindset.

Factors that affect Mindset and Motivation

Intelligence.

Some students have a greater ability and capacity to know academic competencies more quickly than others (Sternberg, 2005). Intelligence tests measure developing competencies, at given times, within a student's academic year. Students' motivation can change based on their intelligence levels in various subjects (Sternberg, 2005). Our measure for intelligence also plays a role in the level of student motivation. These measures can also change a student's mindset (Dweck, 2006).

In addition, cultures, race, goals, gender, and relationships affect a person's background, which consequently also affect his/her intelligence (Ceci & Roazzi, 1994). Thus, a measure for intelligence in one culture might be different than a measure for intelligence in another culture. Even the procedural knowledge of how to take an intelligence test could be varied. This intellectual kind of success or failure also contributes to a student's mindset (Sternberg, 2005). If a student has had success before, he/she will be more likely to believe that it can happen again, and thus, more adeptly take control over mindset (Dweck, 1999).

Intrinsic and extrinsic motivation.

Motivation of the present day student is based on psychological needs (Deci & Moller, 2005). For instance, research shows that when people experience achievement of their basic needs, they also show evidence of having better well-being and a healthier outlook. However, when satisfaction of those needs is bypassed, there are negative psychological effects (Deci & Moller, 2005; Grolnick, Ryan, & Deci, 1991). In fact, studies of various cultures internationally concur that when student needs of autonomy, competence, and relatedness are met, those students have greater psychological health (Deci & Moller, 2005; Harackiewicz, J. M., & Sansone, C., 2000).

Students tend to be intrinsically motivated when their psychological needs are met (Deci & Ryan, 2007). Thus, in order for a student to be motivated intrinsically, he/she must find an activity as interesting (Deci & Moller, 2005). Because interest is such a major component of intrinsic motivation, researchers have made the supposition that if students do not necessarily find an endeavor compelling or interesting, they will not be motivated to do it (Dweck, 1999; Deci & Miller, 2005). In such a situation, in order for the student to willingly participate in the activity, it would require some sort of extrinsic motivation. Additionally, the extrinsic motivation would have to be determined by the student (Deci & Moller, 2005). This would take an act of mindset change, in which students metacognitively adjust their thinking (Dweck, 1999).

The majority of research examining the relationship of extrinsic to intrinsic motivation seems to show that to be extrinsically motivated is to be "controlled and thus not autonomous" (Deci & Ryan, 2007, p. 227). However, several studies show that when a student is first extrinsically motivated, once he/she sees the outcome as positive, the motivation will become internal, and thus, intrinsic motivation will ensue for the next similar challenge, which actually changes mindset (Elliot, et al, 2000).

Gender.

Several studies have suggested that a distinct difference exists between the way that male and female students approach achievement (Hyde & Durik, 2005; Pomerantz, Grolnick, & Price, 2005). However, there are few studies that show any difference in gender and academic competence or motivation (Hyde & Durik, 2005). Boys and girls tend to have the same sense of motivation even when we look at various cultures. One study that measured general academic motivation in students of various cities (East and West Berlin, Berne, Los Angeles, Moscow, Prague and Tokyo) found that while the outlook of motivation overall was different from country to country, the differences in genders could not be found as significantly different (Stetsenko, Little, Gordeeva, Granshof, & Oettingen, 2000). Research addressing motivation beliefs in specific categories, however, does show a pattern that is more differentiated between genders. For instance, several studies have shown that boys report more motivation and competence in math and science, while girls were less motivated in these categories (Crain, 1996; Fredricks & Eccles, 2002; Hyde & Durik, 2005). These findings were also found to be true in a study of middle school females

and their opinions about math achievement. When the girls were taught how to have a growth mindset, their math scores grew (Dweck & Leggett, 1988).

Dweck (2000) related this phenomenon to "learned helplessness" (p. 123). In elementary school, girls are generally well-behaved and can write more quickly than boys. They become used to being praised for their "goodness." On the other hand, boys need more guidance in the early years, and are praised more for their effort. Dweck theorized that as math becomes more difficult in middle and high school years, girls do not value the effort praise in the same way that they value the goodness praise. Thus, math does not seem as valuable to them because they have not been trained to "value confusion" (p. 124).

Self-concept and stereotypes.

A good deal of research suggests that people who sense a deep feeling of attachment to, or association with, their gender group or ethnic group are at risk for feeling a stereotype threat in school (Aronson & Steele, 2005). Teachers, students, and parents have the capacity to send messages about or to students that can lower self-concept, create stereotypes, and thus, damage mindset (Aronson & Good, 2002; McKown & Weinstein, 2003). Intellectual groups are associated with success in school, which can affect levels of anxiety, expectations, effort, and cognitive load (Aronson & Salinas, 2001; Elliot & Church, 1997; O'Brien & Crandall, 2003).

Sometimes, stereotypes can cause students to avoid challenges. Aronson and Good (2001) found that Latinos avoided a reading test and girls avoided a math test more prevalently when they were threatened with stereotypes. In another study,

Stone (2002) found that athletes avoided practices they knew would be a threat to their stereotype. Finally, Pinel (1999) completed a study that found that women who knew they would face a stereotype threat avoided the domains in which women were stereotypically alleged to be inferior to men. These kinds of avoidance behaviors are called "self-handicapping" behaviors, in which a person interferes with his/her own possible outcomes in order to have a plausible excuse for failure (Aronson & Steele, 2005). Students who have the potential for stereotype-threatening circumstances may be naturally drawn only to subjects that contain peer groups with which they can feel successful (p. 449). As a result, missed opportunities may take precedence over a growth mindset (Aronson, et. al., 1999; Dweck, 1999). Dweck, (2000) also referred to this as "academic helplessness" (p.124).

Cultural frameworks.

      To this date, research suggests that there is a difference between the influence of parents on student mindsets in different cultures (Pomerantz, Grolnick, & Price, 2005). The "social-contextual forces" within varying cultures also play a role on academic achievement and motivation (Garcia Coll et al., 2003). Research also concludes that the culture in which parents and children reside determines not only how children respond to their parents' practices, but also "how parents parent" (Chen & Stevenson, 1989). In addition, the expectations from community members for the mindset of teachers can vary in different cultures as well, which sometimes can have a "same-as-teacher effect" on student mindsets (Auten, 2013; Pomerantz, Grolnick, & Price, 2005). Thus, if a teacher has a fixed mindset due to his/her cultural expectations, a student is more likely to also have a fixed mindset when challenges come into learning in that classroom (Dweck, 2000). Students with fixed mindsets believe that exerting effort to learn something must mean they have a low ability in that area. These students feel that if they can not get a perfect grade or score on something the first time, they must not be able to excel. In fact, students with a fixed mindset generally tend to believe that if they have ability, everything in class will come easily the first time (Dweck, 2006). This kind of thinking is detrimental to learning because it focuses on measurements as a spotlight on deficiencies instead of as areas of growth. Learning environments and home cultures that are set up to reinforce these feelings enforce a fixed mindset for students. Students in

environments that foster fixed thinking are more likely to withdraw from learning because of discouragement and are more likely to consider cheating (Dweck, 2006).

Economic status.

Studies also suggest that parents' expectations for children depend on the type of neighborhood in which they live (Baldwin, Baldwin, & Cole, 1990). Consequently, this affects motivation and mindset. Children from low-socioeconomic status (SES) backgrounds generally have more obstacles to overcome in academics, when compared to students from high-SES backgrounds. Behavior problems have been shown to be higher in low-SES children (Boyle & Lipman, 2002; Brooks-Gunn et al., 1993). This changes the ambiance and barriers within the classroom, because often teachers have negative associations with low-SES children (Boyle & Lipman, 2002). Students can tend to take on the attitudes about learning that their at-home cultures provide.

Family stress is another factor that could challenge a student's mindset. The "family stress model" in other research suggests that income loss, low income, and unemployment give way to family financial strain, which ultimately affects parental health and parenting behavior (Conger & Elder, 1997; Elder & Caspi, 1989; McLoyd, 1990). However, even students in the lowest level of poverty can be taught how to have a growth mindset (Dweck, 2002).

Relationships.

Student relationships affect student mindset in various ways. Research in the classroom reveals that students' willingness to exert effort academically is affected by

social motives. These motives include the desire to please the teacher (Wentzel, 1999), to please parents (Fuligni, 1997), and to work with friends on a project (Ryan, 2001). A teacher's social support can also change the dynamic of student motivation (Wentzel, 1999). These social-motivational factors all affect mindset (Urdan & Turner, 2005).

Peer Influences.

Relationships with peers are one of the most important factors of development in childhood and adolescence (Wentzel, 2005). Positive peer relationships provide beliefs about the self; emotional well-being; and values for positive social behavior, such as the completion of academic tasks (Rubin, Bukowski, & Parker, 1998; Wentzel, 2003). The social domain prevails in middle school years, which causes social relationships to affect students' feelings of self-worth more so than in the elementary years (Lawrence & Charbonneau, 2009; Lawrence & Crocker, 2009). In fact, as students begin to pull away from adult relationships, particularly in adolescence, peer relationships begin to have more influence on mindset (Wentzel, 2005). Any research efforts to discern the influence of peer relationships on academic motivation should be cognizant to evaluate not only the conditions and types of relationships that students form together, but also to understand developmental issues among students (Brown, 1989). However, research does show that the role of peers in motivating academic accomplishments is likely to be incredibly critical for mindset development and motivation during the middle and high school years (Wentzel, 2005).

Adult communication and feedback.

Feedback from adults was a major factor in determining student's orientations toward success in another study of 5th graders and their reaction to failure (Kamins & Dweck, 1999). In this study, two groups of students received different kinds of feedback. One group received feedback based on their ability reflected importance on their performance, while the other group of students received feedback based on their intelligence. The students who were given intelligence-based feedback chose only the tasks that would continue to make them look intelligent. Students who were praised for intelligence refused to try anything unknown. The kind of feedback adults give to students has been shown to be incredibly important toward their perception of their ability to learn. This is a particularly interesting factor when labeling comes into play in education. Gifted children, for example, may be under extreme pressure to continue to defend their title, and thus, not pursue new endeavors for fear of failing.

Parents.

A significant amount of research exists to support the thinking that parents influence how students approach achievement. Research on the subject can be divided into three parts: behavioral (actions that parents do), cognitive (how smart parents are), and affective (what kinds of feelings parents give to their children) (Pomerantz, Grolnick, & Price, 2005). A central assumption in the research, and possibly a limitation, is that parents are working toward helping to meet their child's psychological needs as their main goal. These healthy psychological needs include the feeling of *competency* (Elliot & Dweck, 2005); the feeling of *autonomy*

(deCharms, 1968; Pomerantz, Grolnick, & Price, 2005); the feeling of *relationship to others* (Brown, 1989); and the feeling of *being purposeful,* or engaged in activities that are *meaningful and valuable* (Ruff & Singer, 1998)*.* Researchers claim that when these psychological needs are satiated, children will embrace a positive accession toward achievement. Many of these psychological needs are met at home (Deci & Ryan, 1985, 2000). However, not all parents are the same. Parenting styles, as well as parent cognition, are also important factors in setting the stage for growth mindset at home (Elliot & Dweck, 2005).

Dweck (2000) studied pre-school students in order to discover where children's mindsets begin. The study focused on how children solve puzzles using either a fixed or growth mindset. Dweck (2000) based her study on role-playing, puzzle-solving actions with parents and their children. She found that the children who gave up quickly felt helpless in the face of failure when they could not solve the puzzle. These children believed their parents would judge them harshly because they failed. Dweck (2000) calls this reaction a helpless response. Students who experienced this type of failure were more apt to never try the puzzle again because of their fear of failure. However, students who were praised for trying hard were more apt to try more.

Parenting styles.

It should be noted that parenting style also affects a student's school achievement and mindset (Hoang, 2007). Each parenting style, whether autonomous or authoritative in nature, contains "subgroups of style that include decision-making,

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communication, attitudes, and exploratory behaviors" (Grolnick & Ryan, 1989; Hoang, 2007; Steinberg, Lamborn, Dornbusch, & Darling, 1992). All parents are different, which affects a student's impressions about his/her influence of mindset. Baumrind (1967) introduced three categories of parenting, after interviewing parents of preschoolers in her study, which most researchers still use to typecast parents: authoritarian, permissive, and authoritative. The authoritarian parent demands obedience and respect from his/her child. The permissive parent enforces few rules. The authoritative parent enforces rules but stresses constructive learning as a part of the process and is more democratic in that it honors and respects the opinion of the child (Grolnick & Ryan, 1989). Baumrind's (1967) study suggested an outcome that the authoritative style of parenting fostered the most maturity and self-esteem in children. This style of parenting also tended to show students with the most independence and cognitive development (Baumrind, 1967). Because of Baumrind's (1967) conclusions, later researchers have investigated and found some evidence that there is a relationship between parenting styles and children's achievement and motivation (Ginsburg & Bronstein, 1993; Gonzalez, Willems, & Holbein, 2005; Grolnick & Ryan, 1989; Grolnick, Ryan, & Deci, 1991; Hoang, 2007). This research suggests that there is a solid link between the authoritative parenting style and autonomy (Grolnick & Ryan, 1989); mastery goal orientation (Gonzalez, Willems, & Holbein, 2005); intrinsic motivation (Ginsburg & Bronstein, 1993); academic performance, perceived autonomy, and perceived competence (Grolnick, Ryan, & Deci, 1991); and motivational attitudes and beliefs (Hoang, 2007).

Hoang's (2007) study found that if students had parents who were either extremely authoritarian or extremely permissive, the students were less likely to be motivated to complete their homework or pursue their goals. The study also found that the involvement level of the parent was extremely important for motivational goals in students (Hoang, 2007). This research bears the conclusion that parenting style, level of involvement, sense of structure, autonomy, and product or person focus in conversation has much to do with the successful implementation of growth mindset messages in the home (Dweck & Leggett, 1988; Pomerantz, Grolnick, & Price, 2005).

It should also be noted that a number of researchers argue that parenting is determined in part by children's characteristics (Pomerantz, Grolnick, & Price, 2005; Scarr, 1992). For example, a student who is having a hard time in school might receive more attention or parental involvement on his/her academics than one who is not having any problems (Dweck & Leggett, 1988). This involvement could affect mindset, depending on the type of involvement that is received.

Teachers.

It is difficult to evaluate social and cognitive motivation within the classroom. As such, most of the research on this topic (Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000) has been conducted at the college level (Urdan & Turner, 2005). It is for this reason that this current dissertation focuses on students in the middle level classroom.

However, the research available suggests strategies that teachers should use to establish an ambiance of motivation for students in their classrooms. Ames (1992) surmised that teachers should construct assignments that have personal meaning for students, and provide students choices and voices whenever possible. Midgley and Urdan (1992) suggested encouraging understanding and challenges of competencies, as well as cooperative learning in order to motivate students.

In addition, Duff and McKinstry (2007) have researched student approaches to learning (SAL). In SAL, Duff and McKinstry (2007) proposed that there are three approaches to learning. The first approach, "deep learning," focuses on the intention to completely understand the learning of certain principals and concepts. The second approach to learning can be summarized by its title "surface learning," which focuses on memorization and is often paired with feelings of anxiety from students. Finally, the third category of SAL covers "strategic learning," which is described as being goal oriented (Ravenscroft, Waymir, & West, 2012). In strategic learning, students focus on achieving high grades and comparing their results to their peers. While much of the research on SAL is qualitative, research suggests that formulating curriculum to emphasize deep learning is, in fact, the most successful form of improving academic performance (Duff & McKinstry, 2007). In their discussions for future research, Duff and McKinstry suggested that mindset theory plays a major role in the successfulness of deep learning. Students who are aware of their attitude or mindsets about learning can metacognitively diagnose whether or not they are learning the academic content, which leads to deep learning.

Inquiry-based learning and strengths-based education are also mentioned in the research as educational practices that are more successful when paired with mindset interventions (Lopez & Louis, 2009; Markham, 2015). In inquiry-based learning, a teacher must create an inquiry-friendly culture by helping students listen, observe, and create. Markham (2015) suggested that this process begins with the teacher as a guide. In fact, a the premise for inquiry-based learning is that the relationship with the teacher must come first, then the discovery of mindset as a part of optimism, divergent thinking as a part of being open, appreciation as a part of failure, flexibility as a part of metacognition, and being purposeful as a part of giving meaning to the educational process (Markham, 2015). This focus on mindset and metacognition can only take place when the teacher has the "inquiry-friendly" personality to guide students through the process.

Strengths-based education is another popular practice that encourages the teaching of mindset. A strengths-based approach presumes that all students come to the classroom with certain resources that they can mobilize in order to succeed (Lopez & Louis, 2009). While the focus of strengths-based education is on intentionally and systematically discovering and using one's gifts in order to problem solve, researchers support the importance of including mindset messages as a part of the education of self (Lopez & Louis, 2009). In fact, highlighting a student's positive traits without also highlighting the growth process can actually be counterintuitive to the strengths-based process. When students strengths are affirmed, under-motivation

or a fixed mindset can occur if students are not also taught the importance of understanding their mindset and focus on outcomes of growth (Louis, 2008).

Much of the research proposes that when students believe there is a larger significance placed on mastery goals above process goals in the classroom, they are more apt to embrace a personal philosophy that uses mastery goal orientations toward their learning (Anderman & Anderman, 1999; Urdan & Midgley, 2003). As such, teachers set the stage for student convictions about the value of academic achievement.

Perceived control is a very important facet in the conversation of motivation and mindset in the classroom. Dweck (1999) suggested that when students conclude that their academic success is dependent on factors that they can control, they are more motivated. Thus, they can generally attain academic success at higher levels than when they feel a lack of control over their learning situation (Pintrich, 2004; Weiner, 1986). Students who perceive a greater feeling of control are associated with increased motivation (Urdan & Turner, 2005). Even in DeCharms' (1968) early research, this premise is echoed: "It can be difficult to feel competent when one feels like a 'pawn' rather than an 'originator' of the behavior" (p. 10).

In order to help students find this sense of control they have over their own learning, teachers must work to change students' sense of control (Pintrich & Schunk, 2002). Dweck (1999) discussed that teachers should put more emphasis on process goals and factors, such as effort and individual growth, instead of focusing on the end result, or the product (Dweck, 1999).

Teacher mindset.

Teacher mindset is also an incredibly important part of creating the culture of mindset in the classroom (Dweck, 2000). Teachers' beliefs in regard to mindset, whether growth or fixed, indicate their own competence or successfulness in teaching (Ashton & Webb, 1986; Midgely et al., 1989). In addition, teacher mindset indicates defined expectation levels for students (Weinstein, 2002), which can largely influence the communication and practices implemented in the classroom (Urdan & Turner, 2005). Weinstein (2002) discovered that the experiences of even young children create different treatment and different expectations from various teachers. When students experience low expectations from teachers, they generally develop lower expectations of their own ability to complete a task (Weinstein, 2002).

Teachers' attitudes play a major role in student growth by creating learning atmospheres that can compel students to desire to learn, obtain the willingness to work diligently, and remain committed to overcome obstacles in order to meet their challenges in class. Auten (2013), in her qualitative study, suggested that teachers with a fixed mindset tend to foster a fixed mindset environment for learning. However, the study also found that the use of in-depth professional development for community college teachers actually changed the outcome of mindset culture for students, school-wide (Auten, 2013).

While it is clear that a number of factors affect student engagement and motivation, such as intelligence; intrinsic and extrinsic motivation; and economic status; influences through messaging from both peers and adults have an impact on

academic achievement. Dweck (2000) suggested that the entity theories, or mindsets, can be changed by outside influences that affect motivation. In addition, research suggests these mindsets can change based on conscious effort or interventions in schools (Kamins & Dweck, 1999). The aim of this research was to discover the perceived influencers of mindset for young adults, in order to better understand how parents, teachers, and peers can create a culture of growth at school and at home.

Chapter Three: Methodology

Introduction

This study used a quantitative approach to discover the extent of perceived influencers that middle school children attribute to their mindsets, in order to find ways to create change within the motivation interventions at school and at home.

Research Method and Design

For this quantitative study, a cross-sectional survey was employed to collect student data. This kind of study was utilized because the design is highly flexible and convenient to cover many kinds of questions with fewer variables (Muijs, 2011). In regard to this particular method, student data were easily kept anonymous. Standardized questions were used to make the data easier to evaluate within the Qualtrics program using the Pearson Correlation (Muijs, 2011). Students used traditional rating scales, such as Likert scales, to measure how much the subject agrees or disagrees with the survey statements. The survey questions attempted to determine the perceptions of middle school students about where their mindset comes from when they are faced with challenges. The survey attempted to show what middle school students' perceptions are, in order to understand how to better provide growth language and interventions at home and school.

Research Questions

The goal of this research was to ask and answer the following questions:

RQ1: When faced with challenges, what percentage of middle school students tends to have a growth or a fixed mindset?

RQ2: What is the perception of middle school students about the extent to which adults and peers influence their mindset?

Because research suggests that mindset is malleable and that schools should work to help students change their mindsets to become more growth-focused, schools should provide interventions such as educational workshops for teachers and parents, which could bridge the gap between the messages coming from school and home. This research attempts to help define the influences of mindset that students perceive are most beneficial for encouraging growth mindset.

Hypotheses

As research suggests, both school and parental influences impact achievement and personalities. As such, an assumption could be made that there is a correlation between the influence of home and school cultures and a student's approach to mindset as well. Through the use of a survey, this research attempts to discover the child-perceived communication and modeling parents and teachers give students about those theories, in order to understand whether or not children perceive that self-theories of intelligence tend to stem from the adults and/or peers in their lives. The research also attempts to explore where middle school students perceive their influencers of mindset come from.

The major aims of this research were to find a statistically significant reasoning for the following hypotheses:

H1o: There is no statistically significant difference between the number of students who perceive they have a fixed or growth mindset.

H1a: There is a statistically significant difference between the number of

students who perceive they have a fixed or growth mindset.

H2o: There is no statistically significant relationship between student mindset

and the influence of adults and peers.

H2a: There is a statistically significant relationship between student mindset

and the influence of adults and peers.

Because research suggests that mindset is malleable, interventions for parents and

teachers suggesting and modeling ways to create growth mindset messages in the

home culture could be a good solution for students to become more motivated in

school.

Sample

The research was conducted at a middle school in a mid-Willamette Valley

suburb of a mid-sized town in Oregon. The town of 51,000 people is mostly blue-

collar, with a population that is 87% Caucasian, 11% Hispanic, and 0.7% African

American (U.S. Census, 2014). The middle school contains third through eighth

grades, and it is the only middle school in the school district that also houses upper-

primary students in addition to the standard 6-8th grades. This study used student

participation in an online survey. The population of students was invited to provide

aggregate data about student perception of the influences of adult transference of

mindset included all 570 fourth through eighth grade students during the 2014-2015

school year. Passive consent forms (Appendix D) were sent home to parents in a

newsletter provided by the researcher. This consent form informed parents of the

survey procedure and educated them about how the information will help the school and future research. Parents responded only if they did not wish for their child to participate in the study. In addition, students had the option to "opt out" of the survey at any point while they were taking the survey.

Vogt (2007) suggested that the sample sizes for proposals should be computed using a standard formula. According to the *Survey Systems, Sample Size Calculator*, with a population of 570 students, 320 surveys were expected to be necessary in order to have a confidence level of 95%, +/-3% (Survey Systems, 2015). Because 497 students submitted complete data, according to the Survey System Calculator, the confidence level was 99%, +-3%. (N=497) (Survey Systems, 2015).

Of the 570 available students, twelve parents returned the "opt out" forms detached from the newsletter and some students self-opted out of the survey. There were 497 students who participated fully in the study on the day of the survey. Two students were absent, and 59 students did not finish the survey, so their data were discarded. Thus, the aggregate data, which informed the researcher about the student perception of influences on mindsets, had an adequate number of participants. Those who participated in this research ranged in age from eight years old to 15 years old. (M age=12, SD age=1.5; 238 girls, 254 boys, five unknown; 35% White, 1% Asian, 3% Black, 9% Hispanic, 24% Other, 18% No Answer). There were 61 students whose data were not consistent, or they were absent, and who were excluded from the analysis. The five students with unknown gender were excluded from the data about

student mindset and gender. However, because all the rest of their data were complete, their answers were included in the rest of the data sets.

Setting

Data were collected in June, 2015. Because children were recruited for this research, permission was first obtained through the Internal Review Board (IRB) process. After permission was granted from the IRB, it was also obtained from the school district superintendent. Participants were recruited through letters home, in late May. At school, in the computer lab, and with their homeroom classes, students who received passive permission took the child survey at times scheduled by the school principal and counselor.

Instrumentation and Measures

Data were collected through the administration of specific questionnaires, which were combined into one online survey for students. The order of the online measures presented was varied to prevent order effects. The quantitative study evaluated the relationship between the outcome of student theory of intelligence and age, as well as his/her perception of the influences of mindset messages from both home and school.

The survey questions consisted of four combined self-report questionnaires, which students completed in 20 minutes in an online format:

1. Background Information Questionnaire: This questionnaire included identifiers which were helpful in sorting information and understanding any

categories which might require future research, such as gender, grade, and ethnic background of the student (Appendix A)

2. Child Version of the Theory of Intelligence Scale (Dweck, Chiu, & Hong, 1995) (Appendix B)

3. Goal Choice Questionnaire (Dweck & Leggett, 1988) (Appendix B)

4. Scale of Mindset Influencers (Appendix C)

Measures

Background information.

At the beginning of the online survey, students were asked to provide basic demographic information such as gender, grade, and ethnic background of the student. These questions can be found in Appendix A.

Theory of intelligence scale.

The first measure used in the survey was the Theory of Intelligence Scale (Dweck, Chiu, & Hong, 1995). This scale consists of three questions regarding students' opinions of their own mindset, or implicit theories. This scale contains three statements, such as "My intelligence is something about me that I can't change very much." These questions are assigned a five-point Likert scale, with options ranging from not at all true to really true. The scores were averaged so that higher scores indicated greater agreement with the fixed mindset or entity theory of intelligence. In previous studies, this measure had high internal reliability (a = .95), (Dweck, Chiu, & Hong, 1995; Erdley & Dweck, 1993; Levy, Stroessner, & Dweck, 1998). In these previous studies, researchers found that

using questions that focused on fixed mindset attitudes actually received a more reliable result than mixing both fixed and growth mindset messages, when measuring students' tendency toward one mindset over another. The reason for this is that the growth mindset statements were too appealing and would skew the results (Dweck, 2000). The fixed mindset-only scale is preferable for children because it is more reliable over time within a survey. By power of suggestion, children tend to shift toward a growth mindset in their responses. So, using the three questions provided is the most reliable method of finding students' initial and foundational belief about mindset (Dweck, 2000). This measure can be found in Carol Dweck's (2000) book, *Self Theories*. Permission was granted to use this survey for teaching and research purposes only.

Goal choice measure.

Dweck and Leggett (1988) found that when learning goals and performance goals are compared, there is a clear relation to students' theories of intelligence. When students prefer tasks that will demonstrate a high ability, they tend to have more of a fixed mindset. Whereas, students who prefer tasks that will demonstrate taking risks in order to learn tend to have more of a growth mindset. Studies have shown that when the Theory of Intelligence Scale along with the Goal Choice Measure were given to participants, the overall results were more reliable (a = .95) (Dweck & Leggett, 1988; Elliott & Dweck, 1988; Mueller & Dweck, 1998; Stone, 1998). This measure can be found in Carol Dweck's (2000) book, *Self Theories*. Permission was granted to use this survey for

teaching and research purposes only. Given the number of complications that could be found in the educational setting, an effort was made to use the fewest possible items while still maintaining high reliability. In this effort to minimize frustration, only a few statements were used in this section that ask students to choose what kind of tasks they would rather complete.

For example, "If you had a choice to work on a task in class, which kind of task would you like to work on most? Mark only one answer:

a. Problems that aren't too hard, so I don't get many wrong.

b. Problems that I'll learn a lot from, even if I won't look smart.

c. Problems that are pretty easy, so I'll do well.

d. Problems that I'm pretty good at, so I can show I'm smart" (Grant & Dweck, 2003).

This measure was developed after pulling the most reliable statements from previous surveys (Grant & Dweck, 2003). As a result, a high internal reliability (a = .95) for the measures was found. This measure is suitable for ages 10 and older. It is important to note that the learning goal requires the student to "overcome performance concerns for the sake of learning" (Dweck, 2000, p. 185). This prevents students from choosing a task simply because it might be more socially acceptable. This measure contains three performance goal choices and one learning goal choice, in order to further offset the potential issues with a student's pressure to answer based on social desirability (Dweck, 2000).

Survey of mindset influencers.

The researcher created *The Survey of Mindset Influencers* in order to measure student perception of mindset influencers. This survey was adapted from the question topics in the *Parent Communication and Modeling Survey* (Bennett, 2010), which compares students' perceptions of how frequently their parents communicate messages about learning goals and mindset. *The Survey of Mindset Influencers* has adapted the *Parent Communication and Modeling Survey* (Bennett, 2010) by using fewer questions and changing the wording of the survey questions to ask students to choose influencers such as adults at home, adults at school, other adults, positive (or friendly) peers, negative (or mean) peers, and siblings about the messages they receive at home and school about challenges in their lives. Permission was granted to adapt the survey and use it for educational purposes (personal communication, Kinshasa A. Bennett, March 2015).

In the survey used for the present research, students were asked to consider which influencers had the most effect on them. Then, these answers were pitted against mindset questions in order to compare student mindset and influencers. In addition, students were also invited to share if they had never heard such a message from the adults or peers in their lives. In the survey, adults are described as adults at home, adults at school, and other adults. Peers are described as positive (or friendly) peers, negative (or mean) peers, and siblings. Survey questions about adult influences are separated from the survey questions about peers. The survey questions can be

found in Appendix B. A pilot test was administered to evaluate the reliability and validity of this adapted version of the survey.

Pilot Test

The Child Version of the Theory of Intelligence Scale (Dweck, Chiu, & Hong, 1995) and the Goal Choice Questionnaire (Dweck & Leggett, 1988) used in this survey, have an internal consistency of at least 95% (+/-3) in previous research (Appendix B). However, the Survey of Mindset Influencers (Appendix C) was created for this research and has never been tested. Thus, a link to the pilot study was emailed to 52 participants in Grades four through eight, in order to determine reliability and validity for both the Survey of Mindset Influencers and the use of these surveys together in one questionnaire. For an alignment of test instruments and survey questions with research questions, see Appendix B. This pilot test was administered to 52 students who not only responded to the survey, but also answered the following three additional field test questions:

1. How difficult was this survey to complete? (Very Difficult, Somewhat Difficult, Easy.)

2. Is there anything that could be done to make this survey easier to respond to?

3. Approximately how long did it take to complete this survey?

After results were correlated, it was discovered in the open-ended responses that some questions seemed repetitive to students. As a result, the location of these

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questions was embedded differently in the survey, in order to seem less repetitive.

Most students found the questions to be easy to comprehend. It was discovered that

some 4th graders felt the question about ethnicity was difficult, because they did not

know what the word meant. As a result, efforts were made to explain to students that

they could skip any question if they did not understand it (Appendix B). The average

student spent 15-20 minutes taking this survey. After adjustments to the pilot test

were made, the three pilot field test questions were removed and a new link for the

survey with an empty data set was provided (Appendix C). Results of the pilot test

showed that 21% of students had a fixed mindset, while 71% of students had a growth

mindset. Seven percent of students in the pilot study gave conflicting data, which left

them in the indeterminate category. Mindset choices and mindset goal choices were

directly correlated (n=52). The pilot study data were found to be consistent 92% of

the time and consequently found to be reliable.

Data Collection

After the IRB process was completed and the field test was reviewed for

validity and reliability, and modified, the survey was administered.

The quantitative survey data needed for this study were collected using an

online survey designed in Qualtrics by the researcher. The survey consisted of three

separate questionnaires, which were merged together into one survey to provide ease

of use. This merge also allowed for a focus on the research questions and less

confusion for the 497 out of 570 possible student participants, in fourth through

eighth grade, who were invited to participate. The survey was offered in English and Spanish in order to meet the language needs of all students.

After permissions from the district administration and from parents were received, students were given a time during their Physical Education classes to go to the two computer labs to take the survey that was hosted on a website. Students were given the link to the website on each computer's desktop. Instructions were read aloud to the students by the researcher before they began (Appendix A). Students could choose to opt out at any time before or during the survey. The survey took approximately 20 minutes, but students had as much time as they needed to complete the survey.

Survey data were gathered and analyzed within Qualtrics. Data collection was carefully monitored to make sure there was enough reliable data for the study. There were 497 students who participated in the study out of a population of 570. This achieved a 99% confidence level (+/-3%) (Survey Calculator). Several site visits were made to ensure that the school felt confident about the process and secure about the success of the survey process for every child.

Data Analysis

After a pilot was sent to 52 participants, adjustments were made to the survey. Only one adjustment was made to the survey, by randomizing the question order so that no two alike questions were next to each other. Then, once the survey was found to be valid, the survey was offered to all 570 participants. Data from 497 students were collected.

To begin, the survey data were audited for frequency of missing data, to ensure that none of the questions were unreliable. If random or missing information was present, those data were replaced within the series mean. Pearson Product Moment Correlations and mean comparisons between student mindset variables and student perception of influence variables were analyzed in order to find any compelling associations (Vogt, 2007). Finally, an analysis of background information also took place in order to see if these variables needed to be given further analyses in future studies.

In this study, the possible correlation between student mindset theories and messages from influencers was found. In ancillary analyses, the following questions were examined: When faced with challenges, what percentage of middle school students tends to have a growth or a fixed mindset? What is the perception of middle school students about the extent to which adults and peers influence their mindset?

Limitation and Delimitations

Surveys are not as well suited to explaining the reasons for the information given, so they are somewhat limited. The survey was delivered electronically, and some students may have had difficulty performing the basic tasks required to use a computer. Another limitation to using a survey is that context clues may be lost in the translation of the analysis. Surveys tend to focus more on the samples' opinions more that on actual fact. So understanding actual behaviors may have been difficult (Muijis, p. 39). A definition of the words "parent" and "teacher" or "adult at home"

and "adult at school" could illustrate different meanings for different students, and should only be thought of as representatives of those terms for students.

The scope of the student survey sample is limited to one school in one town in Oregon. The school is not very ethnically diverse, with a minority population that is only 13%. In addition, socio-economic status is also a limitation for this study. While the school has students from various socio-economic backgrounds, 44% of the school is economically disadvantaged. This may not be representative of every school. Thus, it should be considered that this sample is only one small picture of the cultures and perceptions of middle school students and may not be representative of the entire United States of America.

Ethical Considerations

No research was attempted until the IRB process was completed. The Belmont Report (1979) was established to create boundaries for researchers that would help them maintain respect for persons, beneficence, and justice for test subjects. Researchers must be diligent about creating environments with minimal risk for all people involved or affected by the research focus. In order to do this, it was important to maintain first the IRB process, and then obtain informed consent, assessment of risk and benefits, and a proper selection of test subjects (Belmont, 1979).

Parental consent was a necessary part of obtaining the data. Young students who are told to take a survey in the computer lab are not old enough to give voluntary compliance, and will naturally obey their teacher without giving this a thought

(Hicks, 2014). It was important to be sure parents had proper knowledge of this survey as well as the opportunity and procedure for their children to opt out.

Surveys were written at the appropriate reading level for the students who took them, and they were written in such a way as to be as unimposing as possible to reduce the risk of causing stress to the students (Hicks, 2014). Participation was voluntary, data were held confidentially, and no identifiable information was connected to survey results. The school counselor worked with the researcher to ensure that teachers did not place any unnecessary pressure on students to participate. Steps were taken to make the survey easy to read and comfortable for students, so that they had a positive experience.

This section has outlined the research setting, the sample, the instrumentation and the collection of data for quantitative research, which begins to discover the extent to which the perceived influencers that middle school children attribute to where mindsets come from. A better understanding of these student perceptions will help educators and parents create and target communication and expectations that encourage a growth mindset.

Chapter Four: Results

This quantitative study evaluated the relationship between the outcome of student theory of intelligence, or mindset, as well as the perception of the influences of mindset messages from both adults and peers.

The quantitative survey data needed for this study were collected using an online survey designed in Qualtrics by the researcher. The survey consisted of three separate questionnaires, which were merged together into one online survey to provide ease of use, focus on the research questions, and minimal confusion for the 497 out of 570 students who participated. The students attended a pre K-8 school, but due to the complexity of the survey questions, only students in fourth through eighth grade were invited to participate.

Before the survey was given, several site visits were made by the researcher to ensure that the school felt confident about the process and secure about the success of the survey process for every child. After permission from the district administration and from parents was received, students were given a time during their Physical Education classes during the last week of the school year to go to the school's two computer labs to take the survey that was hosted on a website designed by the researcher. This website led students to the Qualtrics site where the survey was hosted, with versions in both English and Spanish.

Students were given the link to the website, found as an icon on each computer's desktop. Instructions were read aloud to the students by the researcher, or

by a teacher, using the script in Appendix A, before they began. Students could choose to opt out at any time before or during the survey. Of the 570 available students, twelve parents returned the "opt out" forms detached from the newsletter and some students self-opted out of the survey. There were 497 total students who participated fully in the study on the day of the survey. Two students were absent, and 59 students did not finish the survey, so their data were thrown out. The survey took approximately 20 minutes, but students had as much time as they needed to complete the survey.

Survey data were gathered and analyzed within Qualtrics. Data collection was carefully monitored to make sure there were enough reliable data for the study. A total of 497 students participated in the study out of a population of 570. This achieved a 99% confidence level (+/-3%) (Survey Calculator).

All analyses were conducted using Qualtrics and data calculations were computed using both Qualtrics and Microsoft Excel. First, an examination of the correlation among the variables (Figure 4.1) gave way for a clear path to understanding the descriptive statistics provided by the data. In the present research, each particular hypothesis was examined in sequence, which led the researcher also toward subsequent ancillary questions, which will be presented and discussed in the next chapter. As significant patterns emerged within the data analyses, results were further compared in this chapter, which would seek to prove or disprove the null hypotheses.

The research set out to answer the following questions about student perceptions of mindset:

RQ1: When faced with challenges, what percentage of middle school students tends to have a growth or a fixed mindset?

RQ2: What is the perception of middle school students about the extent to which adults and peers influence their mindset?

The proposed study used a quantitative approach to discover the extent of perceived influencers that middle school children attribute to their mindsets, in order to find ways to create changes to current motivation interventions at school and at home.
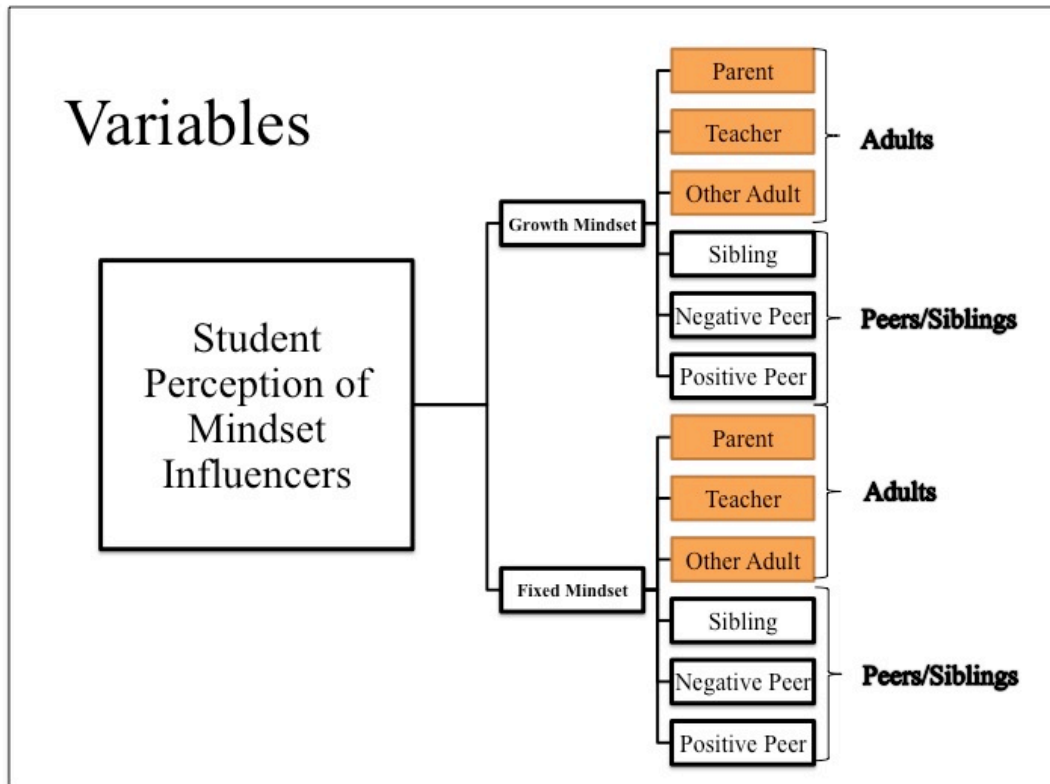
Figure 4.1 Variables

The Relationship Between Student Entity Theories: Growth and Fixed Mindset

As shown in Figure 4.2, this research found a statistically significant difference ($p<0.00001$) between the number of students who perceive they have a fixed or a growth mindset (H1a). Survey results reflected the degree to which participants reported their feelings about their own mindset, using both the Theory of Intelligence Scale (Dweck, Chiu, & Hong, 1995), and the Goal Choice Measure (Dweck & Leggett, 1988; Elliott & Dweck, 1988; Mueller & Dweck, 1998; Stone, 1998). Scores for the three mindset questions were averaged so that higher scores indicated greater agreement with the fixed mindset, and lower scores reflected a growth mindset.

For example, the first measure used in the survey was the Theory of Intelligence Scale (Dweck, Chiu, & Hong, 1995). This scale consisted of two questions regarding students' opinions of their own mindset, or implicit theories. This scale contained two statements: "My intelligence is something about me that I can't change very much" and "I can learn new things, but I can't really change my basic intelligence." These questions were assigned a five-point Likert scale, with options ranging from not at all true to really true. The scores were averaged so that higher scores indicated greater agreement with the fixed mindset or entity theory of intelligence.

In addition, the Goal Choice Measure was used to help determine mindset. Studies have shown that when the Theory of Intelligence Scale along with the Goal Choice Measure are given to participants, the overall results are more reliable (a = .95) (Dweck & Leggett, 1988; Elliott & Dweck, 1988; Mueller & Dweck, 1998; Stone, 1998). Consequently, scores from all three questions were averaged to determine student mindset. Students who "agreed" or "really agreed" with fixed mindset statements and also chose fixed mindset goals in the goal choice measure were given "fixed mindset" status. Their scores for all three questions were greater than ten. Students who "disagreed" or "slightly disagreed" with fixed mindset statements and who chose goal choice measures for growth mindset were given "growth mindset" status. These students' scores for all three questions were less than eight. Any student whose opinion shifted between opposing statements, or who did not answer all three questions had a score in the 8-10 range, and these students were

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lumped into the "indeterminate" category because their scores did not show enough

agreement with the statements to determine mindset (Elliot & Dweck, 1998).

Results, as found in Figure 4.2, show the degree to which participants reported

a growth mindset (N=497, 63%) and fixed mindset (N=497, 21%). Some students

did not answer all of the questions, which left them in the indeterminate category

(N=497, 16%). These data were unexpected, particularly when compared to other

research showing 40% of the population to have growth mindsets, 40% to have fixed

mindsets, and 20% to be indeterminate (Dweck, 2006). One reason for this variance

in data might be the effect of the school culture or geographical culture in which this

survey was given.

Overall Student Mindset

	Growth	Fixed	Indeterminate
■ Students	312	103	82
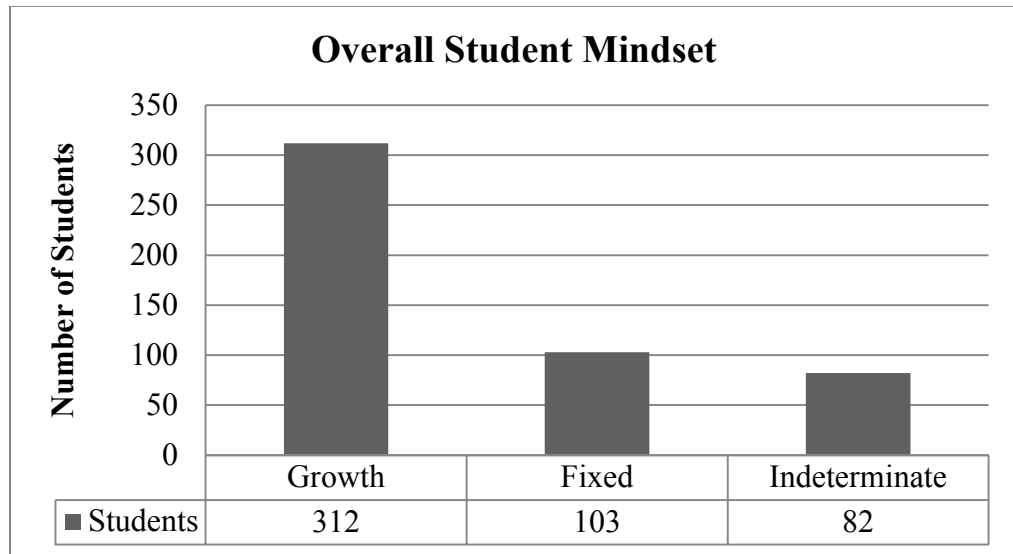
Figure 4.2 Overall Student Mindset

Table 4.1 reflects the mean score and standard deviation for each of the

mindset categories. The proportion, mean and standard deviation of each of the

constructs measured for mindset reflect that more students have a growth mindset

(63%) than a fixed mindset (21%).

Table 4.1 Student Mindset Mean and Standard Deviation

Student Mindset Type	Quantity	Mean score	Standard Deviation
Growth	312	5.62	1.35
Fixed	103	10.89	1.52

The Relationship Between Student Mindset and Human Influence

Influencers of mindset.

Once mindset was determined, it was necessary to find patterns between

student mindset and student perception of influence. The survey contained types of

messages that students evaluated as to where they had heard various growth or fixed

mindset messages. One survey question, however, aimed to ask students directly to

choose one influencer that affected their mindsets, from a list of possible variables.

Results from this question (Figure 4.3), show that most students believe that much of

their influence comes from adults at home (66%). Students also perceived other

influencers to have additional affect on their mindsets: adults at school (8%), other

adults (4%), positive or friendly peers (14%), negative or mean peers (1%), and

siblings (6%). This same pattern of influence can be found throughout the data.

However, some differences emerged when students with growth and fixed mindsets

were compared on their opinions about various influencers.

Student Perception of Mindset Influencers
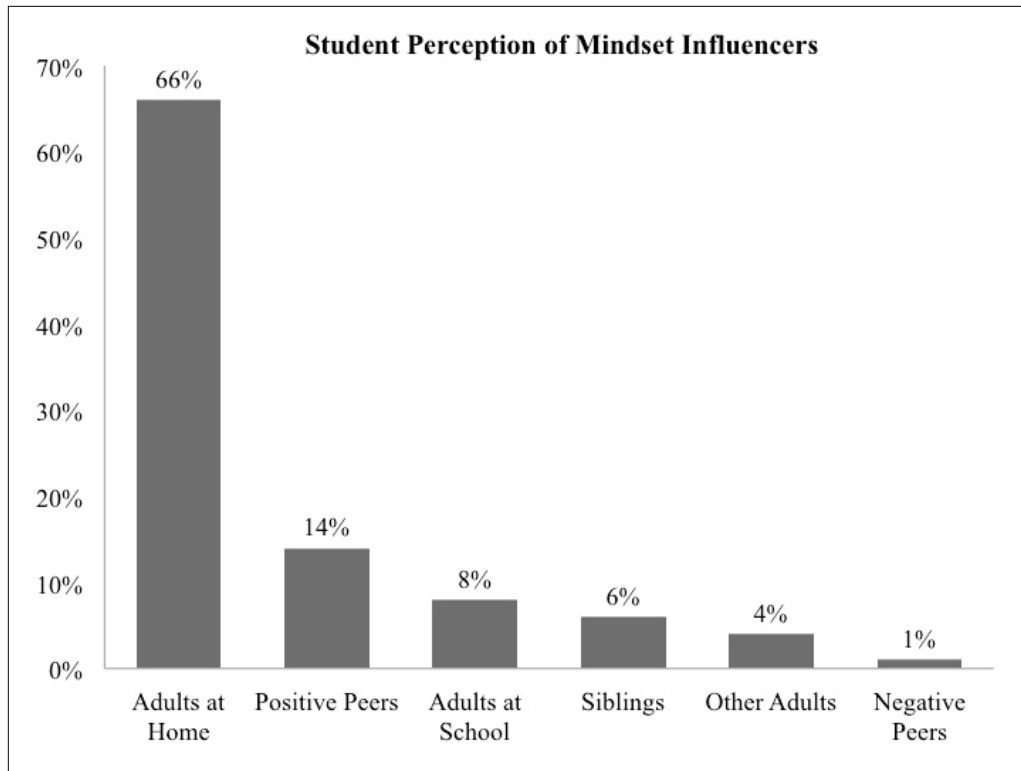
Figure 4.3 Student Perception of Influencers

While it is clear middle school students believe that adults at home influence them the most, the question remained about whether or not there is a significant difference between student mindset and perceived influencers (H2o, H2a). Several descriptive statistics were used in order to find the patterns to attempt an answer this question.

First, a Pearson Correlation helped determine the patterns among the variables. Initial analyses were conducted between students' perceptions based on messages they received from different human influencers, adults and peers. Students surveyed were separated into categories of either having a growth mindset or a fixed mindset based on their answers to three of the survey questions derived from the

Implicit Theories of Intelligence Scale, (Dweck, Chiu, & Hong, 1995) and the Goal

Choice Measure (Dweck & Leggettt, 1988; Elliott & Dweck, 1988). As Table 4.2 and

4.3 show, multiple correlations can be found between the variables (Figure 4.1).

These variables, when compared, correlated both growth and fixed messages coming

from adults (adults at home, adults at school, other adults) and peers (positive/friendly

peers, negative/mean peers, and siblings.) Both categories for influence also included

an option for students who have never heard the growth or fixed mindset message

from any adult or peer. Thus, a Pearson Correlation analysis was an appropriate

method for analyzing the relationships among the variables.

Pearson Correlations: Influencers for Students with Fixed Mindsets

Adult influences on fixed mindsets.

Growth messages coming from adults at home (r=-0.53) and adults at school

(r=-0.59) negatively correlated with growth messages that were not heard at all from

any adults for students with fixed mindsets. This correlation verifies that students

actually did hear growth messages from home and school. The same correlation was

found for fixed mindset students who heard fixed mindset messages at home (r=-

0.62) and school (r=-0.64). These students only marked that they heard messages

from adults at home and school and did not mark that they had not heard the

messages. A moderate correlation reveals that fixed mindset students who received

fixed mindset messages from adults at home also received fixed messages from adults

at school (r=0.30). When compared to growth mindset students (r=0.28) a strong

correlation is shown for fixed mindset students (r=0.65) for messages unheard from any adult.

As expected, the correlation for fixed mindset students receiving fixed mindset messages coming from adults at home and school (r=.30) was higher than the correlation for growth mindset messages coming from adults at home and school (r=.23).

Peer influences on fixed mindsets.

Data for fixed mindset students showed a strong correlation between growth messages they did not hear from peers and adults (r=0.65). For these fixed mindset students, a strong correlation can be found between the influence of growth mindset messages from positive peers and growth mindset messages from adults at home (r=0.44) and adults at school (r=0.37). This indicates that students with fixed mindsets hear many growth mindset messages. For this group, growth mindset messages from siblings correlated moderately with growth mindset messages from parents (r=0.31). Perhaps most unexpectedly, growth messages from peers strongly correlated with fixed messages from positive peers (r=0.60), negative peers (r=0.59), and siblings (r=0.61). This may suggest that students with fixed mindsets believe they receive both fixed and growth messages from peers. In fact, these data could indicate that students with fixed mindsets hear both growth and fixed mindset messages, but they are not necessarily influenced strongly by the messages they hear from peers.

Pearson Correlations: Influencers for Students with Growth Mindsets

Adult influences on growth mindsets.

There was a negative correlation between the growth messages students did not hear from adults at all and the growth messages they received from adults at home (r=-0.58). This correlation reflects that students were consistent about messages they received or did not receive at home. Similarly, there was a negative correlation between fixed messages from adults that students did not hear and fixed messages from adults at home (r=-0.68). A moderately positive correlation was found for growth mindset students between growth messages from adults at school and growth messages from adults at home (r=0.28).

Unexpectedly, growth messages from adults at home and fixed messages from adults at home had a positive correlation for the growth mindset population (r=0.32). Additionally, growth messages from adults at school and fixed messages from adults at school had a positive correlation of (r=0.33). Finally, the correlation between fixed messages from adults at home and fixed messages from adults at school for growth mindset students was higher for growth mindset students(r=0.43) than for fixed mindset students (r=0.30).

Peer influences on growth mindsets.

For students with growth mindsets, positive peers giving growth messages correlated to growth messages from adults at school (r=0.38). In addition, students with growth mindsets indicated that fixed mindsets from other adults strongly correlated to fixed messages from negative peers (r=0.28) and siblings (r=0.33).

In general, the Pearson Correlation indicates that when there are growth messages from adults at home there is generally a positive correlation to other growth messages from other influencers. There is also a negative correlation for not hearing growth messages from those same influencers.

Table 4.2 Pearson Correlation: Influencers for Students with Fixed Mindsets

Types of Messages	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Growth Messages From Adults at Home	--															
2. Growth Messages From Adults at School	0.23	--														
3. Growth Messages From Adults Other	0.16	0.19	--													
4. Growth Messages From Adults Did not Hear	-0.53	-0.59	-0.19	--												
5. Fixed Messages From Adults at Home	0.58	0.23	0.08	-0.40	--											
6. Fixed Messages From Adults at School	0.16	0.48	0.09	-0.43	0.30	--										
7. Fixed Messages From Adults Other	0.16	0.18	0.60	-0.23	0.10	0.13	--									
8. Fixed Messages From Adults Did not Hear	-0.33	-0.28	-0.03	0.65	-0.62	-0.64	-0.22	--								
9. Growth Messages From Positive Peers	0.44	0.37	0.16	-0.43	0.44	0.25	0.08	-0.31	--							
10. Growth Messages From Negative Peers	0.14	0.16	0.16	-0.24	0.12	0.15	0.31	-0.18	0.05	--						
11. Growth Messages From Sibiling	0.31	0.22	0.17	-0.28	0.22	0.12	0.07	-0.15	0.26	0.06	--					
12. Growth Messages From Peers Did not Hear	-0.36	-0.36	-0.11	0.65	-0.24	-0.30	-0.11	0.41	-0.57	-0.37	-0.24	--				
13. Fixed Messages From Positive Peers	0.43	0.23	0.19	-0.46	0.49	0.40	0.29	-0.51	0.60	0.28	0.17	-0.43	--			
14. Fixed Messages From Negative Peers	0.15	0.25	0.24	-0.17	0.17	0.25	0.33	-0.17	0.16	0.59	0.05	-0.20	0.19	--		
15. Fixed Messages From Sibiling	0.22	0.31	0.21	-0.29	0.13	0.25	0.20	-0.22	0.17	0.13	0.61	-0.08	0.16	0.24	--	
16. Fixed Messages From Peers Did not Hear	-0.30	-0.34	-0.17	0.63	-0.31	-0.44	-0.32	0.59	-0.35	-0.26	-0.08	0.68	-0.56	-0.40	-0.24	--

Key:									
-0.70	-0.40	-0.30	-0.20	-0.01	0.01	0.20	0.30	0.40	0.70
Very Strong Negative Relationship	Strong Negative Relationship	Moderate Negative Relationship	Weak Negative Realtionship	No Relationship	No Relationship	Weak Positive Relationship	Moderate Positive Relationship	Strong Positive Relationship	Very Strong Positive Relationship

Table 4.3 Pearson Correlation: Influencers for Students with Growth Mindsets

Types of Messages	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Growth Messages From Adults at Home	--															
2. Growth Messages From Adults at School	0.28	--														
3. Growth Messages From Adults Other	0.21	0.22	--													
4. Growth Messages From Adults Did not Hear	-0.58	-0.42	-0.24	--												
5. Fixed Messages From Adults at Home	0.32	0.05	-0.04	-0.19	--											
6. Fixed Messages From Adults at School	0.05	0.33	0.03	-0.17	0.43	--										
7. Fixed Messages From Adults Other	0.15	0.17	0.44	-0.17	0.23	0.32	--									
8. Fixed Messages From Adults Did not Hear	-0.07	-0.03	0.07	0.28	-0.68	-0.65	-0.42	--								
9. Growth Messages From Positive Peers	0.29	0.38	0.25	-0.32	0.12	0.12	0.16	-0.13	--							
10. Growth Messages From Negative Peers	0.06	0.13	0.19	-0.12	0.12	0.19	0.26	-0.22	0.21	--						
11. Growth Messages From Sibiling	0.19	0.25	0.34	-0.16	0.01	0.05	0.25	-0.02	0.29	0.21	--					
12. Growth Messages From Peers Did not Hear	-0.17	-0.31	-0.20	0.34	-0.18	-0.18	-0.22	0.29	-0.59	-0.47	-0.34	--				
13. Fixed Messages From Positive Peers	0.22	0.31	0.17	-0.21	0.21	0.18	0.18	-0.21	0.53	0.23	0.14	-0.40	--			
14. Fixed Messages From Negative Peers	0.07	0.18	0.26	-0.15	0.14	0.17	0.28	-0.20	0.26	0.53	0.19	-0.39	0.19	--		
15. Fixed Messages From Sibiling	0.12	0.20	0.27	-0.11	0.09	0.10	0.33	-0.12	0.22	0.31	0.54	-0.26	0.23	0.24	--	
16. Fixed Messages From Peers Did not Hear	-0.13	-0.24	-0.14	0.25	-0.25	-0.24	-0.24	0.34	-0.28	-0.37	-0.10	0.63	-0.49	-0.64	-0.35	--

Key:

-0.70	-0.40	-0.30	-0.20	-0.01	0.01	0.20	0.30	0.40	0.70
Very Strong Negative Relationship	Strong Negative Relationship	Moderate Negative Relationship	Weak Negative Realtionship	No Relationship	No Relationship	Weak Positive Relationship	Moderate Positive Relationship	Strong Positive Relationship	Very Strong Positive Relationship

The Perceptions of Students with a Fixed Mindset on Adult Influencers

Descriptive statistics further explain the correlation between students with fixed mindset and the perception of influence from adults at home and school. Figures 4.4 and 4.5 reflect that students with fixed mindsets perceive that more growth mindset messages that influence them come from adults at home (55%) and school (55%) than do fixed mindset messages from adults at home (37%) and school (28%). Students did not hear many of the fixed mindset messages from any adults

(42%). Students who tend to have fixed mindsets believe that parents and teachers do have an influence on them with growth mindset messages.

However, these students also tend to think that adults at home are giving them more fixed mindset messages than are their teachers at school. Overall, the data reveal that students with a fixed mindset tend to hear the same kinds of messages from home and from school.
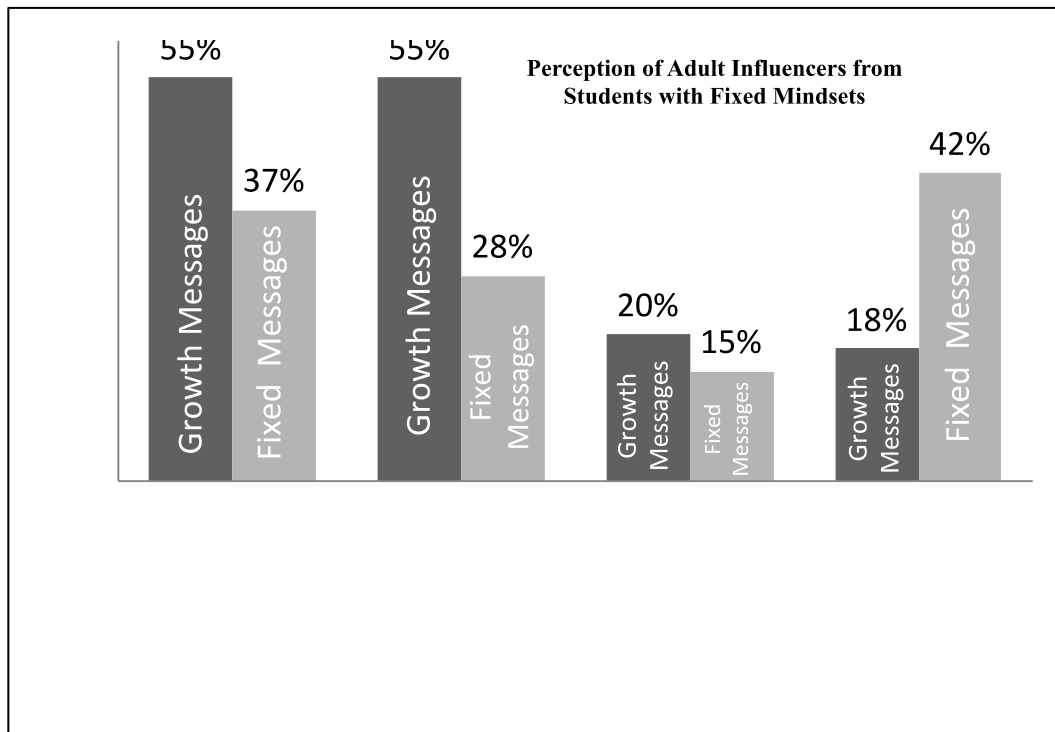
Figure 4.4 Perception of Adult Influence on Students with Fixed Mindsets

The Perceptions of Students with a Fixed Mindset on Peer Influencers

As Figures 4.5 and 4.6 describe, students who tend to have fixed mindsets believe that positive peers at school influence them with growth mindset messages (62%). However, they also tend to think that negative peers send them more fixed

messages (29%) than positive peers (22%) or siblings (17%). This group also had not

heard (42%) of the fixed mindset messages from peers.

Figure 4.5 Perception of Peer Influence on Students with Fixed Mindsets

The Perception of Students with a Growth Mindset on Adult Influencers

The data reveal that there is a statistically significant difference between the

student perceptions of which kinds of mindset messages exert the most influence.

However, both groups agree that more growth messages come from home and school

than fixed messages. Students who tend to have growth mindsets perceive that

parents (71%) and teachers (62%) influence them with growth mindset messages.

This rate is higher than the rate for fixed mindset students, who perceive that they

hear the same growth messages from parents and teachers only 55% of the time.

Students with growth mindsets perceive that their parents have more influence on them than any other adults. Finally, students with growth mindsets do not often hear fixed mindset messages from home (26%) and school (21%). In fact, many of fixed mindset messages were not heard from any adult (60%) for this growth mindset group of students.
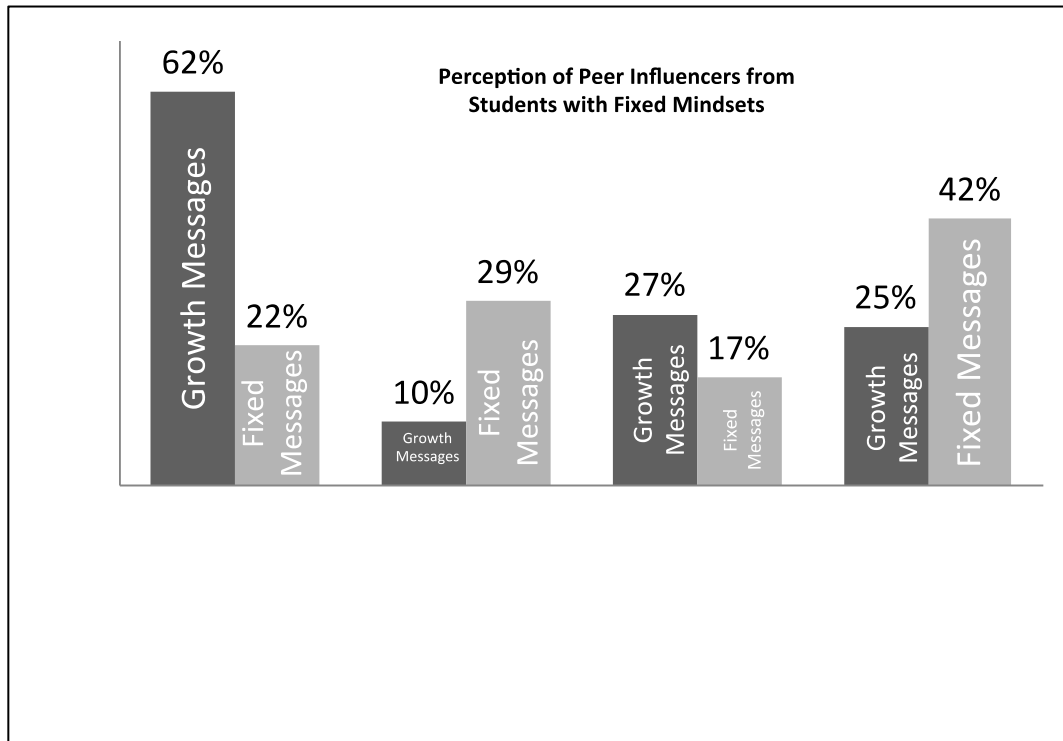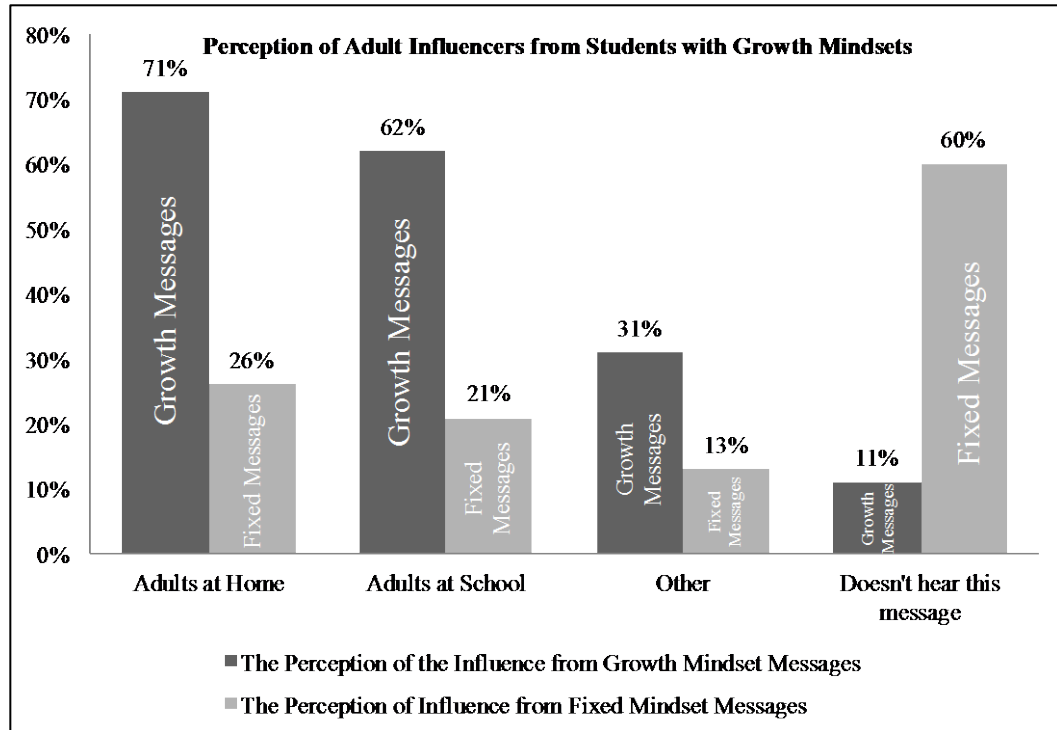

Figure 4.6 Perception of Adult Influencers from Students with Growth Mindsets

The Perceptions of Students with a Growth Mindset on Peer Influencers

The data focusing on students with growth mindsets revealed that these students perceive that positive peers (70%) influence them with growth mindset messages more than any other peers. In addition, students with growth mindsets perceive negative peers influence them with fixed mindset messages by 34%.

Students with growth mindsets perceive that their siblings impart a greater deal of influence with growth mindset messages (42%) than with fixed mindset messages (12%).
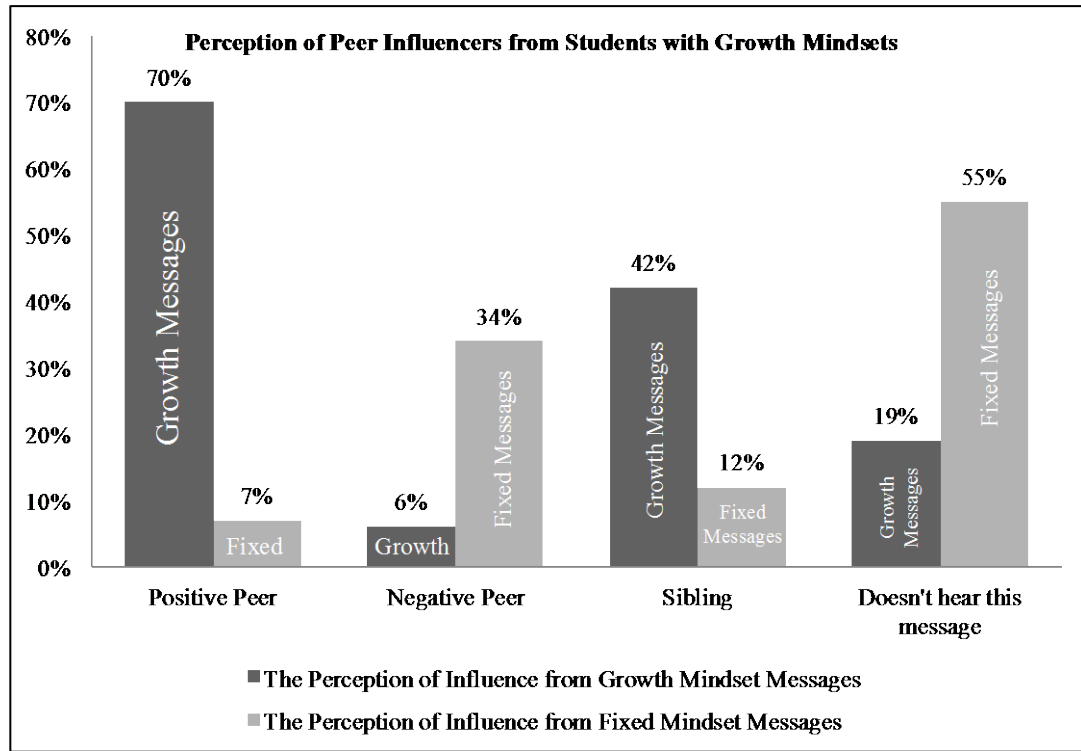
Figure 4.7 Perception of Peer Influencers from Students with Growth Mindsets

While it is clear that there is a statistically significant difference between students with growth and fixed mindsets, it is also clear that finding an exact answer to the question of who influences adolescent mindsets remains somewhat complex in nature for several reasons, which will be discussed in the next chapter. In addition, the next chapter will discuss some of the limitations of the study, as well as recommendations for future research.

Chapter Five: Discussion

Overview of the Research

The most important goal of this research was to examine middle school students' perceptions of the influences of their mindset, in order to provide information to schools about an approach to mindset education and intervention in schools. This research tested first whether a significant number of students tended to have a growth or fixed mindset. Patterns emerged that were consistent with the hypotheses, that mindset could be determined to be statistically significant in student populations (H1a). This is consistent with previous research (Dweck, Chiu, & Hong, 1995; Erdley & Dweck, 1993; Levy, Stroessner, & Dweck, 1998).

A supplemental analysis was tested to examine messages from adults and peers that may or may not influence student mindset. In addition, consistent with the supplemental hypotheses, patterns emerged to reflect that mindset does correlate with student perception of influence. Data from this research show that there is a statistically significant relationship between student mindset and the influence of adults and peers (H2a).

This research provides a new perspective on how parents and educators might use messages differently, in order to guide students toward a growth mindset when they face challenges. Findings indicated a positive relationship between students reporting a growth mindset and hearing growth mindset messages mostly from adults at home (71%) and from positive peers (70%). Students with fixed mindsets indicated influence from the growth mindset messages equally from both adults at

home (55%) and adults at school (55%). This indicates that students with fixed mindsets have developed fixed mindsets in spite of the fact that they are receiving messages from adults at home and school that are attempting to give them growth mindset. This could mean that either students with fixed mindsets are less persuaded by growth mindset messages, or that students with fixed mindsets perceive growth mindset messages differently than students with growth mindsets. This leads to more questions about whether or not some students are immune to influence. It also suggests an investigation as to whether the survey adequately provided a clear picture of what might influence fixed mindset students.

Data for both groups indicated that adults at home and adults at school are influencing students with more growth mindset messages than fixed mindset messages. But adults at home seem to have the most influence (Growth Mindset Group, 71%; Fixed Mindset Group, 55%).

It should be noted that students with growth mindsets were influenced with growth mindset messages by siblings fifteen percent more than those with fixed mindsets. Conversely, siblings influenced the fixed mindset students five percent more with fixed mindset messages. In addition, both groups of students with fixed and growth mindsets reported hearing more fixed mindset messages from negative (or mean) peers (Fixed Mindset Group, 29%; Growth Mindset Group, 34%) than any other peer group.

Multiple analyses supported a statistically significant difference between students with a growth and fixed mindset (H1a). In addition, the analyses support

that there is a statistically significant relationship between student mindset and the influence of adults and peers (H2a).

Ancillary Findings

Ancillary findings revealed that students also felt their mindsets were influenced by other factors. Results from this research do not support age, grade, gender, or ethnicity as a predictor of mindset. Figure 5.1 indicates that there was no statistically significant difference between mindset and age, which does not align with the research of Ricci (2013), stating that students' mindsets become more fixed as they get older. While this sample size was only 497 students and the grade range was 4th-8th grade, current data does not support Ricci's (2013) research.

However, these data only cover grades four through eight. It would be important for future research to study and compare these results over the scope of several grades in order to determine whether there might be a difference between elementary students vs. high school students, for example. In addition, it should be noted that the students in this study were attending a K-8 school. While the students surveyed were in the upper Grades four through eight, results could vary in a school that contained Kindergarten through fifth grades or in an upper-level school with sixth through eighth grades. Future research should also take the transition years between elementary school and middle school into consideration, as student individualization and self-concept changes greatly during this transition (Hering, 2012). It would be interesting to understand whether or not this transition affects student mindset.

Student Mindset by Age

	8 years n=2	9 years n=19	10 years n=95	11 years n=106	12 years n=105	13 years n=91	14 years n=69	15 years n=6	No Answer n=4
Growth	0.0%	68.4%	67.4%	60.4%	63.8%	61.5%	66.7%	33.3%	0.0%
Fixed	0.0%	15.8%	22.1%	22.6%	21.0%	18.7%	23.2%	0.0%	0.0%
Indeterminate	100.0%	15.8%	10.5%	17.0%	15.2%	19.8%	10.1%	66.7%	100.0%
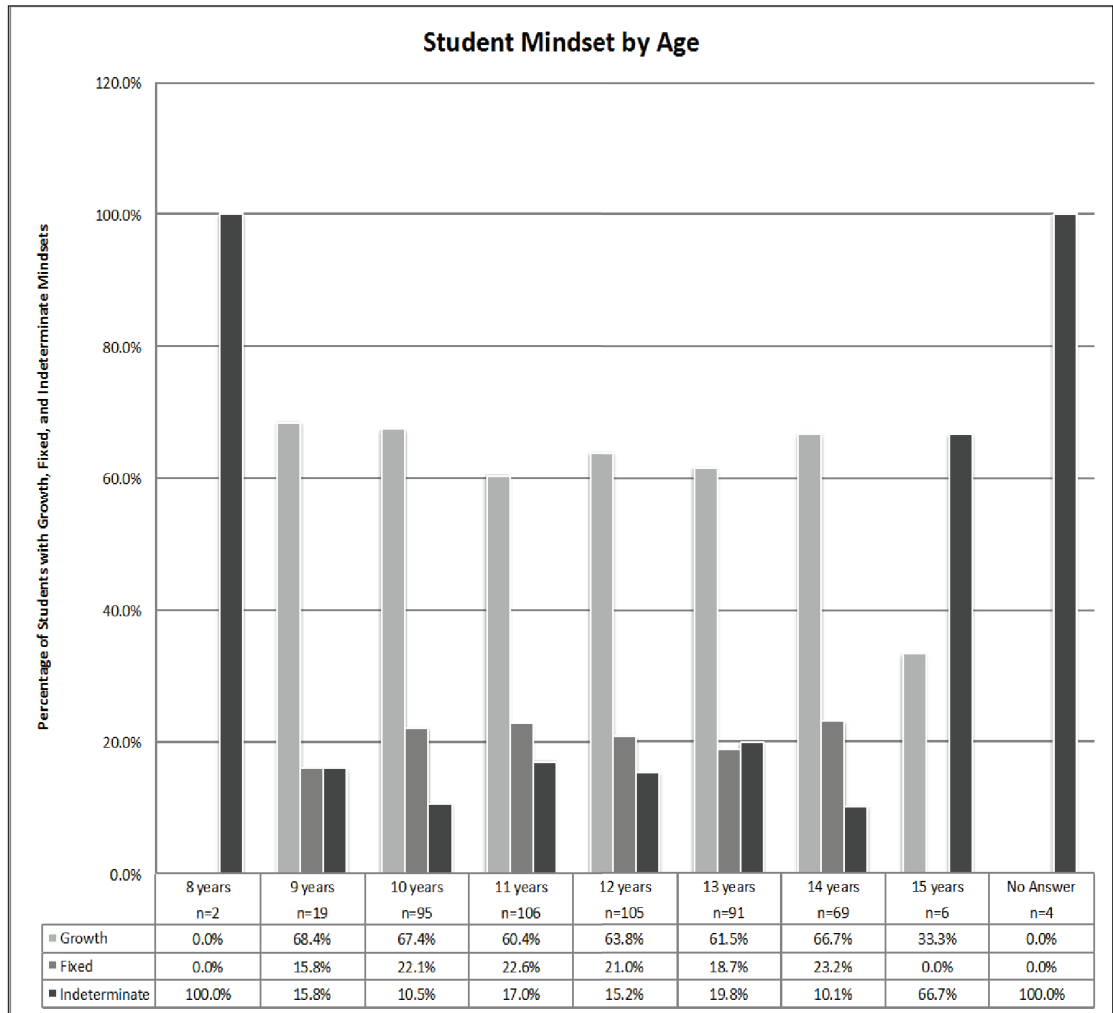
Figure 5.1 Mindset by Age

Students sorted by grade seemed to follow the same pattern. In each grade

level, the same ratio of growth mindset and fixed mindset students remained

relatively close between the age and grade variables (Figure 5.2).

Mindset by Grade

	4th grade n=102	5th grade n=102	6th grade n=106	7th grade n=94	8th grade n=85
Growth	65.7%	61.8%	65.1%	61.7%	64.7%
Fixed	23.5%	19.6%	22.6%	18.1%	21.2%
Interterminante	10.8%	18.6%	12.3%	20.2%	14.1%
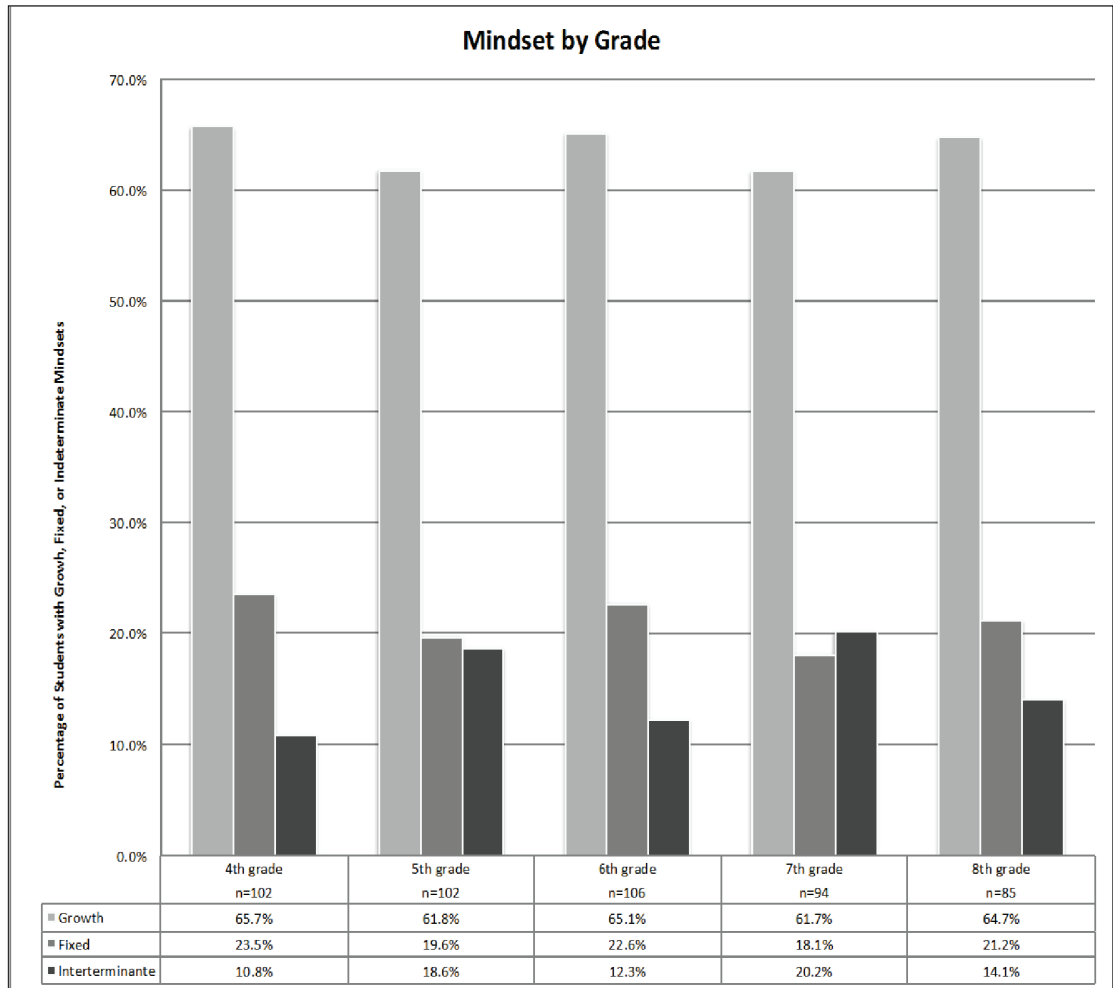
Figure 5.2 Mindset by Grade

As confirmed in similar research stating that neither cognitive ability, gender, ethnicity, nor a person's education can determine a person's mindset (Dweck, 1998, 1999, 2000), these data support that there is no difference between mindset when compared to gender. Both boys and girls nearly identically reported the tendency to have a growth mindset or fixed mindset with the same ratio (Figure 5.2). In addition, ethnicity did not play a statistically significant role in determining mindset (Figure 5.3).

Mindset by Gender

	Male n=254	Female n=238
Growth	62.6%	64.3%
Fixed	20.1%	21.8%
Indeterminante	17.3%	13.9%

Figure 5.3 Mindset by Gender

Mindset by Ethnicity

	Caucasian n=175	African American n=14	Hispanic n=44	Asian n=7	Native American n=52	Other n=117
Growth	65.7%	78.6%	61.4%	71.4%	61.5%	65.8%
Fixed	20.6%	14.3%	22.7%	14.3%	21.2%	19.7%
Indeterminate	13.7%	7.1%	15.9%	14.3%	17.3%	14.5%
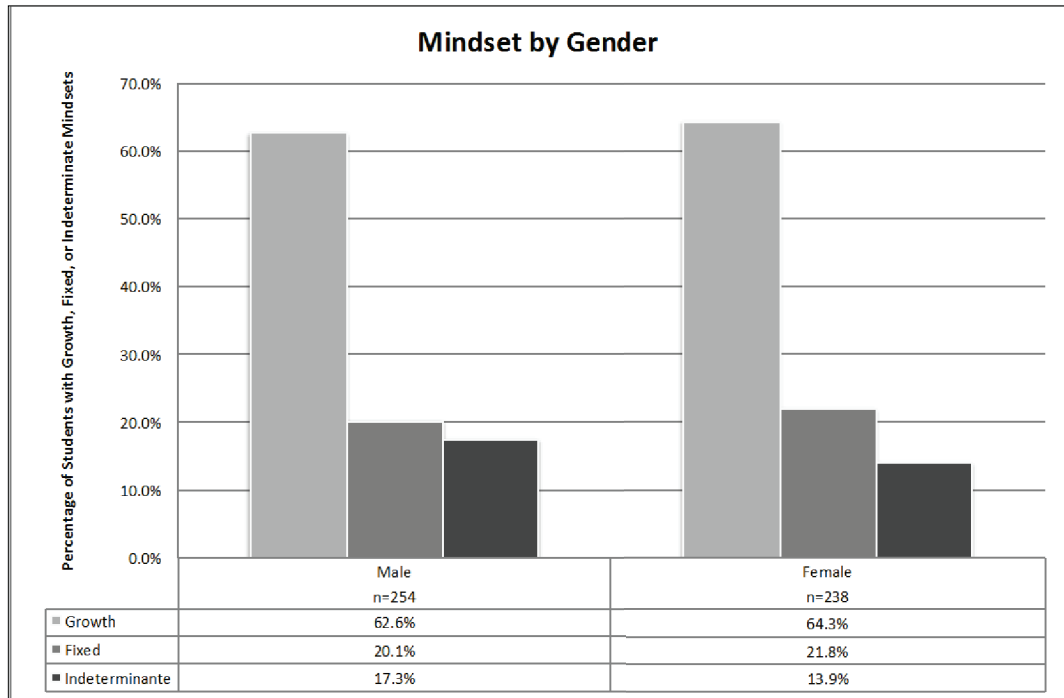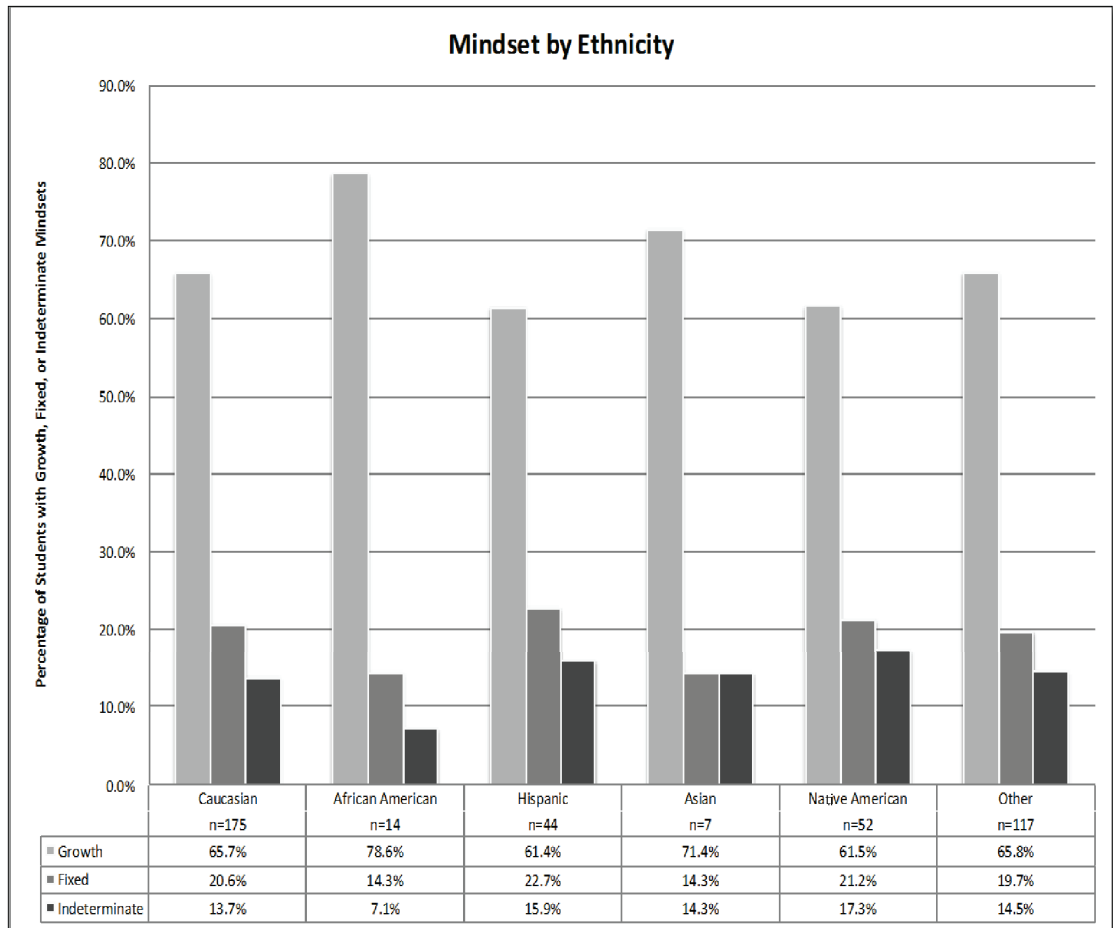
Figure 5.4 Mindset by Ethnicity

One study in the research measured general academic motivation in students of various cities (East and West Berlin, Berne, Los Angeles, Moscow, Prague and Tokyo) finding that the outlook of motivation overall was different from country to country but differences in genders could not be found as significantly different (Stetsenko, Little, Gordeeva, Granshof, & Oettingen, 2000). However, this study found that patterns amongst gender and culture groups followed relatively the same patterns. The Hispanic group had a higher population of students with fixed mindsets

(22.7%), however the African-American group had the highest population of growth mindset students (78.6%).

When Do You Feel Smart?

This study attempted to understand student mindsets and the influencers of those mindsets from the perspective of students in 4th through 8th grade. A statistically significant difference was found between students who had a fixed mindset, believing that their intelligence is unchangeable and there is nothing they can do about it, and students who had a growth mindset, believing that the process through challenges, however difficult, would lead to growth. Survey questions also led students to examine whether or not they heard growth or fixed mindset messages from various human influencers. An attempt was made to use qualitative questions to supplement the research findings and clarify the validity of the chosen list of influencers. While it could be assumed that adults at home, adults at school, other adults, peers and siblings could influence student mindset, the desire to thoroughly investigate the perception of influence led this research to also ask: 1) What makes you feel smart? and 2)What non-human things influence you?

According to research, (Dweck, 2006; Erlinger, 2008; Ravenscroft, et. al., 2012) students operating with a fixed mindset are expected to answer such questions indicating that they would focus on exam scores and would compare themselves to the scores or accomplishments of their peers. These students tend to believe that effort, attention, and time will not increase their skill. These students also focus on

tasks that are easier, because success is guaranteed and self-esteem is based on success (Dweck, 2006).

Students with growth mindsets are process-focused. These students are less likely to put forth less effort because of failed outcomes. These students think of failure as the need to try harder, and they believe that the hard work will make it easier for them to succeed (Dweck, 2006; Ravenscroft, et al., 2012).

The data highlight the perceptions of student influencers. When students were asked what makes them feel smart, their answers revealed overwhelmingly that students feel most smart when their report card or test scores show them that they are smart. It can be assumed by this that most students value grades quite highly. They also mostly rely on outside indicators such as grades or comments from teachers or parents to make them feel smart (Figure 5.5). Of the 428 students who responded to this question, fewer responses seem to indicate growth mindset than expected. Responses such as "Learning new information" (1.4%), "Talking about Difficult Concepts,"(0.004%), "Problem Solving" (0.007%), "Learn something new or get a difficult answer right" (15.9%) and "When you do your best or work hard" (12.8%), indicated a growth mindset. Growth mindset responses consisted of 66/428 of the total responses (15.4%). The rest of the responses, such as "When I get all of the answers right on the first try" (5.6%), "When someone tells me I'm good at something or better than my peers" (13.7%), and "Test scores and good grades" (31.3%) indicated a larger portion of fixed mindset responses, consisting of 362/428 of the total responses (84.6%).

These data shed light on an interesting influencer for students. Grades and test scores are extremely important to students' feelings of success (Figure 5.5). This information sheds light on the fact that the vast majority of students have mindsets that fall somewhere in a location on the continuum between growth and fixed mindsets, in which grades and tests also have a high significance. Still, society places value in a growth mindset: that learning new information, growing in skills, and doing your hardest work are to be celebrated. However, the very way that we measure success begs to ask the question as to whether or not the awarding of letter grades promotes a growth mindset. An ideal world would present a system in which grades reveal growth. The U.S. is moving in this direction, as is indicated by the growing number of states seeking NCLB waivers from AYP to implement growth measures in their assessment systems (Erpenbach, 2014). But in many situations, grades seem to reveal whether or not a student has met a fixed benchmark instead of a growth benchmark. This could cause some students to give-up too easily in the face of obstacles because they feel they cannot make the grade. In addition, some highly gifted students may only achieve just enough to make the grade and do no more, simply because they are not being asked to do more. Another issue with grades as a fixed goal could be that while parents believe they need to protect their children from failure, perhaps the more important goal should be to teach students how to interpret failure and grow in spite of it. If this is the case, educators must evaluate, re-define, and communicate the meaning of grades as a measurement in school. These re-defined grades must evaluate and reflect a continuum of growth from grade level to

grade level, rather than a fixed summation of learning over the course of only one

year.
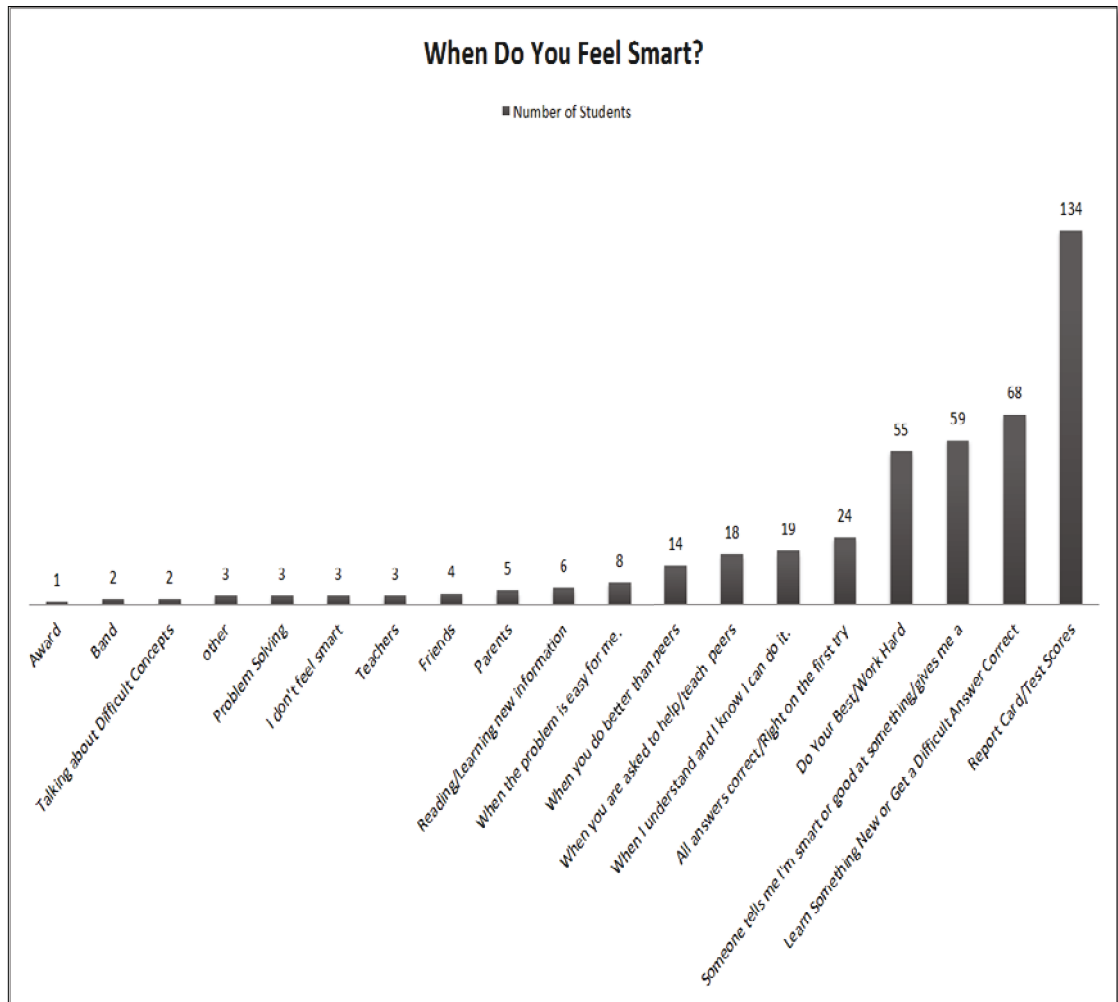
Figure 5.5 When Do You Feel Smart

Non-Human Influencers

Another open-ended question in the survey sought to better understand if there

might be any outlying influencers of mindset that were not human influencers. The

survey asked students to respond about any non-human influencers of mindset that

might have encouraged them to try harder when they faced adversity. The data point

toward an analysis suggesting that mindset can also be influenced by TV, Books, and, perhaps more generally, the knowledge of the stories of people who have overcome difficult situations. These data lead to suggestions about the ways in which teachers can help students begin to visualize their growth mindsets more effectively in schools (Figure 5.6).

Non-Human Influencers

	Text Message	Hope of College	Awards/ Rewards	Video Games	Poster	Faith/ Religion	Test/ Grade	Pets	Music	Internet/ Youtube	Experience	Books	Movie/ TV
Number of Students:	1	1	2	2	2	4	7	11	12	13	14	36	74
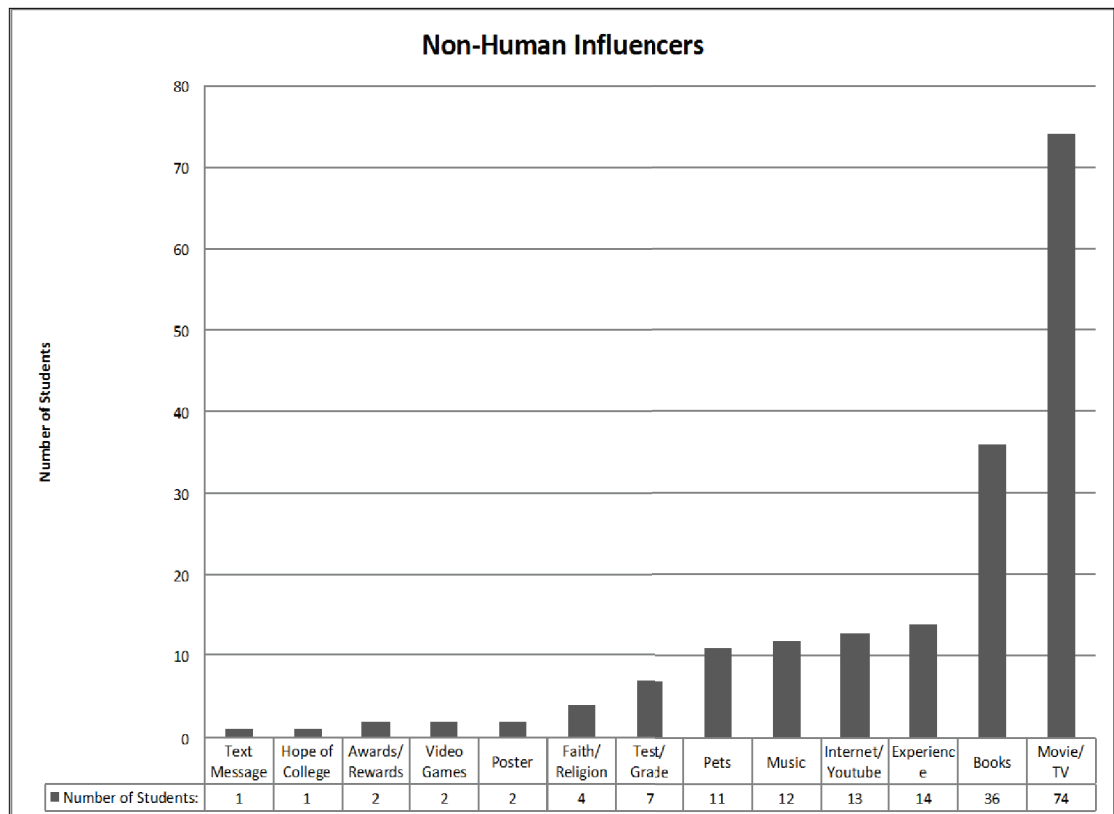
Figure 5.6 Non-Human Influencers of Mindset

Implications for Schools and Recommendations for Educators

The research available suggests strategies that teachers should use to establish an ambiance of motivation for students in their classrooms. DeCharms' (1968) early

research stated, "It can be difficult to feel competent when one feels like a 'pawn' rather than an 'origin' of the behavior" (DeCharms, 1968, p. 10).

In order to help students find this sense of control they have over their own learning, teachers must work to change students' sense of control (Pintrich & Schunk, 2002). Dweck (1999) discussed that teachers should put more emphasis on process goals and factors, such as effort and individual growth, instead of focusing on the end result, or the product (Dweck, 1999).

Because this research suggests that middle school students with either a growth or fixed mindset believe their strongest influencers are parents, most of the effort must focus upon education for parents. While school districts might invest heavily in programs that help teachers make changes in classrooms, this research suggests that it might be more important for schools to provide programs that focus on growth mindset changes in the home culture as well.

Limitations and Recommendations for Future Research

This study was an exploration of middle school students' perceptions about who influences their mindsets, and was meant to clarify a focus for effective mindset interventions at school and at home. First, attempting to understand each student's thought process about goals and intelligence was foundational for this exploration. Secondly, the study inspected each student's perception about growth mindset messages and fixed mindset messages received from various adults and peers. A comparison was made between student mindset and the messages received from influencers, in order to determine which influencers affect mindset.

This study contributes to the current research about mindset theory and middle school student perceptions through the following findings: (a) replicating the findings that there is a significant difference between students with growth and fixed mindsets (Blackwell, Trzesniewski, & Dweck, 2000); and (b) examining the relationship between mindset and student perceptions of influence in messages from adults at home, adults at school, other adults, positive (or friendly) peers, negative (or mean) peers, and siblings.

While the data in this research suggest that parents, teachers, and peers tend to have the most influence on a student's mindset, questions still exist about the nature of mindset itself. Other research maintains that mindset falls onto a continuum for each person (Dweck, 1999). More research is needed in order to understand the very nature of mindset in order to fully understand its influence. For example, it would be important to understand whether there is a difference between a student's mindset in math topics vs. language arts topics, or in sports, or while playing an instrument. Because of the nature of the survey, it was necessary to make claims based on natural overall tendencies of each student, which could have limited the results.

In addition, it would be interesting to find out if students had different mindsets based on teacher personalities each year. This survey was limited to "adults at home" and "adults at school." So students had to lump all of the adults together that influence them differently and choose one of them to represent the category they were thinking of. A qualitative study could better lend itself to the nature of asking

where students think their mindset comes from, because these particular categories could have been better defined.

Another area for research could focus on how students with varied academic successes perceive where mindset comes from. For example, students who achieve academics easily may have more of a growth mindset than those for which school is difficult. Or, perhaps the opposite is true, and the highly intelligent students tend to have a more fixed mindset, because they are not as used to having to try hard to achieve in school. This study was limited because it did not consider academic achievement as a factor. Mindset should also be compared to personality traits and parenting styles when considering influence in future research.

Finally, research argues that growth mindset interventions that teach students that their brain is a muscle that can grow actually change academic achievement. However, the long-term affects are unknown (Blackwell, Trzesniewski, and Dweck, 2007). The research from this study suggests that those kinds of growth mindset interventions, when paralleled at home, could be the cultural shift needed to create a longstanding effect. Future research should explore what happens when the experimental group is hearing the same growth mindset messages at school and at home.

Conclusion

Research shows that a growth mindset helps students become problem solvers when they face adversity in learning. Perhaps more importantly, the research also indicates that intelligence theories can be taught in schools and that these kinds of

lessons actually raise achievement for students. Learning how these beliefs are constructed and transmitted helps us identify ways for parents and educators to work together to promote resilience in learning.

Students in the 21st century must be able to navigate life while using adaptive behaviors. When they face challenges, they must already have the tools they will need to persevere through learning difficult concepts, instead of giving up. When grading systems are used that put a cap on student learning, not only is a school culture of fixed mindset thinking created, but inadvertently, students are taught to quit learning once they arrive at a certain grade. Learning how to think with a growth mindset is a skill that must be taught in school. However, this study has shown that parents must also send the same mindset influencing messages at home. Because peers and siblings also influence mindset, adults should also find ways to guide children to encourage each other toward growth. Educators and parents must redefine the way academic goals are talked about in order to help students meet and surpass expectations. Finally, development interventions on the topic of mindset education should be provided not only for educators, but for parents and peers as well.

Understanding students' perceptions of mindset influence lends insight into how parents and teachers can create more supportive learning environments at home and at school. When teachers and parents can work together with common language to teach students how to persevere and value growth, students will ultimately experience more success in life.

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Appendix A

Teacher and Researcher Scripted Instructions

1. Ask students to click on the survey link on their desktops.

2. Say: "We are doing a study to look at how students think about challenges in their lives.

   This is not a test, and we won't tell anyone your answers on the survey! You will not be asked to write your name on the survey. There are no right or wrong answers.

   You can ask questions any time you want to, and we will do our best to answer them. Do your best to answer honestly. If you do not want to take this survey, feel free to just read your book. You don't have to do it.

   When you finish the survey, feel free to read your book until _____. (say the time.) If you do not finish the survey, you can choose to either stay and finish it, or leave with your class at the end of this period.

If you want to be in this study, and you understand the rules above, click the NEXT button. Thanks!

Appendix B

Survey Questions

Background Data

1. What is your age?

2. What is your gender?

3. What grade are you in?

4. What is your ethnicity?
   - Caucasian
   - African American
   - Hispanic
   - Native American
   - Other
   - No Answer

Survey of Mindset Influencers

We all have adults that influence how we think. If you agree with these thoughts, who do you think
influences you most to think that way? (You can choose more than one answer if you need to.)
Choices offered:
   - Adults at home
   - Adults at School
   - Other Adults
   - I don't hear this message from any of these adults.

5. Trying hard will lead to success.

6. Getting good grades in school is the most important thing.

7. When I get a bad grade, I should work harder.

8. My talent is reflected by my grades.

9. Learning is the most important thing to do to be successful in school.

10. I'm smart when I do well on homework assignments, and I'm not smart when I don't do well.

11. Being smart is the most important factor that decides how well I will do in life.

12. Doing well in school is due to how much effort I put in.

13. When I get a bad grade, it shows I'm not smart.

Implicit Theories of Intelligence Scale, (Dweck, Chiu, & Hong, 1995).

How true is this statement for you:
  14. I have a certain amount of intelligence and I really can't do much to change it.
  (Not at all True to Really True)

Survey of Mindset Influencers

We all have adults that influence how we think. If you agree with these thoughts, who do you think
influences you most to think that way? (You can choose more than one answer if you need to.)
Choices offered:
  - Adults at home
  - Adults at School
  - Other Adults
  - I don't hear this message from any of these adults.

15. Everyone could be smart if they just work hard and try.
16. I should just focus on the things I'm good at because then I can be more successful.

17. I shouldn't try the hard things because I probably can't do them anyway.

18. Some people are just not going to be the smartest because their parents are not very smart. It's in the genes.

19. Intelligence is shown by effort.

20. If I work hard, I can achieve anything.

Implicit Theories of Intelligence Scale, (Dweck, Chiu, & Hong, 1995).

How true is this statement for you:

21. I can learn new things, but I can't really change my basic intelligence. (Not at all True to Really True)

Goal Choice Measure (Dweck & Leggettt, 1988; Elliott & Dweck, 1988).

If you had a choice to work on a task in class, which kind of task would you like to work on most? Mark only one answer:

22. If you had a choice to work on a task in class, which kind of task would you like to work on most? Mark only one answer:
- Problems that aren't too hard, so I don't get many wrong.
- Problems that I'll learn a lot from, even if I won't look smart.
- Problems that are pretty easy, so I'll do well.
- Problems that I'm pretty good at, so I can show I'm smart.

Sometimes it's more than adults who tell us messages about our intelligence or challenges in school.
Kids at school and siblings sometimes influence our thinking in different ways, too. Read the statements below, and think about who influences you the most to think that way.
(You can choose more than one answer if you need to.)
Choices offered:
- Positive or Friendly Peers
- Negative or Mean Peers
- Brother or Sister
- I don't hear this message from any peers or siblings.

23. I need to work hard so I can learn new things

24. When I get a bad grade, it's because I'm not smart.

25. I should just do the easy work so I can get a good grade.

26. Everyone can be smart if they just work hard and try.

27. When I get a bad grade, I should quit the class.

28. When something I'm studying is difficult, I try harder.

If you are getting different messages about your intelligence from adults, peers at school, and siblings, who are you MOST LIKELY to listen to?
29. If you are getting different messages about your intelligence from adults, peers at school, and siblings, who are you most likely to listen to?
- Adults at home
- Adults at school
- Other adults
- Positive or Friendly Peers
- Negative or Mean Peers
- Brother or Sister

30. Sometimes students feel smart in school and sometimes they don't. When do you feel smart? (Open-Ended Answer)

31. Everyone receives messages about their intelligence from other people. Sometimes, we also hear messages about our intelligence from other non-human sources, like TV shows, magazine articles, advertisements, books or the internet. Please use the box below to give an example of something non-human (besides an adult sibling or a peer) that has influenced you to either work hard in school or to quit something that was difficult. What was it? How did it influence you? What was the message? (Open-Ended Answer)

Appendix C

Alignment of Test Instruments with Variables and Test Number Items

Test	Question	Characteristic	Research Question
Scale of Mindset Influencers Adults G	5. Trying hard will lead to success.	Adult Influence/ GROWTH	RQ2
Scale of Mindset Influencers Adults F	6. Getting good grades in school is the most important thing.	Adult Influence/ FIXED	RQ2
Scale of Mindset Influencers Adults G	7. When I get a bad grade, I should work harder	Adult Influence/ GROWTH	RQ2
Scale of Mindset Influencers Adults F	8. My talent is reflected by my grades.	Adult Influence/FIXED	RQ2
Scale of Mindset Influencers Adults G	9. Learning is the most important thing to do to be successful in school.	Adult Influence/GROWTH	RQ2
Scale of Mindset Influencers Adults F	10. I'm smart when I do well on homework assignments, and I'm not smart when I don't do well.	Adult Influence/FIXED	RQ2
Scale of Mindset Influencers Adults F	11. Being smart is the most important factor that decides how well I will do in life.	Adult Influence/ FIXED	RQ2
Scale of Mindset Influencers Adults G	12. Doing well in school is due to how much effort I put in.	Adult Influence/ GROWTH	RQ2
Scale of Mindset Influencers Adults F	13. When I get a bad grade, it shows I'm not smart.	Adult Influence/FIXED	RQ2

Implicit Theories of Intelligence Scale, (Dweck,, Chiu, & Hong, 1995).	14. I have a certain amount of intelligence and I really can't do much to change it.	Fixed Mindset	RQ 1
Scale of Mindset Influencers Adults G	15. Everyone could be smart if they just work hard and try.	Adult Influence/GROWTH	RQ2
Scale of Mindset Influencers Adults F	16. I should just focus on the things I'm good at because then I can be more successful.	Adult Influence/FIXED	RQ2
Scale of Mindset Influencers Adults F	17. I shouldn't try the hard things because I probably can't do them anyway.	Adult Influence/FIXED	RQ2
Scale of Mindset Influencers Adults F	18. Some people are just not going to be the smartest because their parents are not very smart. It's in the genes.	Adult Influence/FIXED	RQ2
Scale of Mindset Influencers Adults G	19. Intelligence is shown by effort.	Adult Influence/GROWTH	RQ2
Scale of Mindset Influencers Adults G	20. If I work hard, I can achieve anything.	Adult Influence/GROWTH	RQ2
Implicit Theories of Intelligence Scale, (Dweck,, Chiu, & Hong, 1995).	21. I can learn new things, but I can't really change my basic intelligence.	Fixed Mindset	RQ 1

Goal Choice Measure (Dweck & Leggettt, 1988; Elliott & Dweck, 1988).	22. If you had a choice to work on a task in class, which kind of task would you like to work on most? Mark only one answer:
	   a. Problems that aren't too hard, so I don't get many wrong.
	   b. Problems that I'll learn a lot from, even if I won't look smart.
	   c. Problems that are pretty easy, so I'll do well.
	   d. Problems that I'm pretty good at, so I can show I'm smart.
		a. FIXED
		b. GROWTH
		c. FIXED
		d. FIXED
			RQ1

Scale of Mindset Influencers, Peers/Siblings: Positive Peers/ Negative Peers/ Brother or Sister/ I don't agree with this statement. G	23. I need to work hard so I can learn new things	Peer Influence: Growth	RQ2
Scale of Mindset Influencers, Peers/Siblings:	24. When I get a bad grade, it's because I'm not smart.	Peer Influence: Fixed	RQ2

Scale of Mindset Influencers, Peers/Siblings:	25. I should just do the easy work so I can get a good grade.	Peer Influence: Fixed	RQ2
Scale of Mindset Influencers, Peers/Siblings:	26. Everyone can be smart if they just work hard and try.	Peer Influence: Growth	RQ2
Scale of Mindset Influencers, Peers/Siblings:	27. When I get a bad grade, I should quit trying.	Peer Influence: Fixed	RQ2
Scale of Mindset Influencers, Peers/Siblings:	28. When something I'm studying is difficult, I should try harder.	Peer Influence: Growth	RQ2
Scale of Mindset Influencers, Peers/Siblings:	29. If you are getting different messages about your intelligence from adults, peers at school, and siblings, who are you most likely to listen to?	Influence Choice: Adults at home, adults at school, other adults, positive/friendly peers, negative/mean peers, brother or sister	RQ2
Dweck, (p. 42, 2000). Scale of Mindset Influencers, School Success	30. Sometimes students feel smart in school and sometimes they don't. When do you feel smart?	Open-Ended, Perception of Influence	RQ2

Scale of Mindset Influencers, Technology	31. Everyone receives messages about their intelligence from other people. Sometimes, we also hear messages about our intelligence from other non-human sources, like TV shows, magazine articles, advertisements, books or the internet. Please use the box below to give an example of something non-human (besides an adult sibling or a peer) that has influenced you to either work hard in school or to quit something that was difficult. What was it? How did it influence you? What was the message?	Open-Ended, Perception of Influence	RQ2

Online Survey Link:

https://bethel.qualtrics.com/SE/?SID=SV_blw2OgzPyBXYxHT

Appendix D

Passive Consent Letter to Parents

May 26, 2015

Dear Parent:

Our school will be participating in the "Students' Perceptions of Learning Challenges Survey" for students in 4th – 8th grades on June 4th and 5th, 2015.

The purpose of the survey will be to collect school-wide data about student perceptions of growth and fixed mindsets, as well as students' thoughts about what might influence the way they think about challenges.

Consistent, reliable and comparable data will enable area school districts to identify the kinds of messages about resilience that are effective for students in grades 4-8. This will help both teachers and parents understand how we may be able to better construct messages for students that will help them have a growth perspective about school.

The researcher, Jodi Dodd, is a former teacher from Calapooia Middle School, and is currently an educator in West Linn/Wilsonville School District, in Oregon, as well as a doctoral student in Educational Leadership at Bethel University, in Minnesota. She is passionate about finding out what motivates kids to learn, and she plans to teach a few workshops for parents and teachers at Timber Ridge next year, explaining her data to us from this research.

The survey is anonymous and voluntary. **There will be no identifying information on the survey.** Your child's grade will not depend on answering the questions. While it would be an unanticipated response, if any part of the survey is uncomfortable for your child he/she can choose to skip any portion of the survey at anytime and will not have to participate.

Your student will benefit from this survey to the extent that we can identify those programs that have the greatest chance of success at helping students persevere in the midst of academic challenges in school.

If you have any questions, or need more information, please email
Jodi Dodd: jodidodd@gmail.com or
Principal Jodi Dedera: jodi.dedera@albany.k12.or.us

If for any reason you **do not wish** your son or daughter to participate in the survey, please sign this form and return it by June 1, 2015.

I **do not wish** for my student to participate in the 15-minute online survey about fixed and growth mindset at school on June 5th or 6th, 2015

Student's Name (please print): _____

Student's Homeroom Teacher/Grade: _____

Date:_____ Parent signature: _____

Appendix E

Data Sets

Total Sample, Mindsets

	AGE	Grade
All Students combined		
Count	493	489
Mean	11.8	3.9
Standard Deviation	1.5	1.4
Median	12	4
Mode	11	4
Students with Fixed Mindset		
Count	103	103
Mean	11.7	3.9
Standard Deviation	1.4	1.4
Median	12	4
Mode	11	4
Students with Growth Mindset		
Count	312	312
Mean	11.8	3.9
Standard Deviation	1.5	1.4
Median	12	4
Mode	12	4
Students with Indeterminate Mindset		
Count	78	74
Mean	11.9	4.0
Standard Deviation	1.6	1.3
Median	12	4
Mode	13	5