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Elementary Students' Self-Concept and Value Towards Reading and Math

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ELEMENTARY STUDENTS' SELF-CONCEPT
AND VALUE TOWARDS READING AND
MATH

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ABSTRACT

Prior research has documented a general decline in children’s learning value and self-concept (i.e., expectation for success), beginning in the first years of school. Students who demonstrated patterns of low academic value and low academic self-concept often tend to perform poorly in school (Gans, Kenny, & Ghany, 2003). In the present thesis work, the author further investigated children’s self-concept (i.e., expectation for success) and task-values by asking students to rate themselves in math and reading, compared to the others in their class. Student ratings were then compared with teacher report to determine if student overestimation predicts his or her self-concept and value in both reading and math.

This is a quantitative study, based on a sample \( n = 173 \) of students within four counties in the southeastern United States. The subsequent quantitative data analysis was conducted by utilizing correlational analyses, regression analyses, and path analyses. The key findings include: (1) Self-concept of reading was correlated with value for reading and self-concept of math was correlated with value for math; (2) age and overestimation for both reading and math were negatively correlated; (3) Age was significant in predicting reading self-concept; (4) age regressed on reading value through self-concept demonstrated \textit{indirect-only mediation}; (5) overestimation to math value through self-concept indicated \textit{indirect-only mediation}; (6) the interaction of age x overestimation in predicating math value through self-concept demonstrated \textit{indirect-only mediation}. 
CHAPTER 1
INTRODUCTION

Prior studies have documented a general decline in children’s learning value and self-concept (i.e., expectation for success), beginning in the first years of school where this steady decline has been seen to appear around the third grade (Harter, 1981; Jacobs et al., 2002; Wigfield et al., 1997). For example, Wigfield et al., (1997) reported that students’ self-concept beliefs and intrinsic values in both math and reading declined from grades one through six while Jacobs et al. (2002) demonstrated a similar decline following students in grades one through twelve. Furthermore, Spinath and Spinath (2005) conducted a longitudinal study following first graders every six months for two years and indicated that students’ general learning value and general academic self-concept (i.e., expectation for success) decreased over the school years. Other studies have indicated similar findings (Archambault, Eccles, & Vida, 2010; Eccles et al., 1998; Eccles et al., 1993; Jacobs, et al., 2002; Wigfield et al., 1997). For example, in their longitudinal study, Archambault et al., (2010) examined the literacy self-concept and subjective task value of 655 students in grades one, two and four. After following the students for eight years the authors concluded that, for all children, literacy subjective task values and literacy self-concept decreased with age.

Students who demonstrated patterns of low academic value and low levels of academic self-concept often display low performance (Gans, Kenny, & Ghany, 2003). Nurmi and Aunola (2005) examined the task-value and self-concept of 211 children aged six and seven years old. The children were examined four times, twice in the first grade and twice in the second grade. At each measurement point the students were assessed on their self-concept and value in reading and math and on their performance in both subjects. The authors reported that lack of math value
contributed to slow math skill development. Children who reported low math value at time two
demonstrated less progress in math performance from time two to time three, compared to their peers who demonstrated high value.

Those students who are behind early in their school career may continue to be behind and thus have difficulty catching up as they progress through school (McClelland, Acock, & Morrison, 2006). Declines in learning-related beliefs and behaviors can sometimes lead to failure in school as well as school dropout (Eccles et al., 1991). Janosz et al. (2008) conducted a three-year longitudinal study with 13,300 students aged 12 to 16 years old. The authors were interested in understanding developmental patterns of the relationship between school engagement and drop out risk. The students were assessed on their school engagement and official records were sought from the school on students’ registration status. Students who were no longer attending a public or private school by the end of the study or who never obtained a high school diploma were identified as school dropouts. As expected, students who reported low levels of engagement at the beginning of adolescence were more likely to be identified as a school dropout. Furthermore, those students who indicated a high level of engagement from ages 12 to 16 had fewer occurrences of dropout.

Researchers believe the average decline in student value can in part be explained by environmental changes that children experience as they go through school (Archambault et al., 2010; Nicholls & Miller, 1984; Stipek, 1984; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991), while other authors have theorized that certain educational contexts and the practices used by teachers may not be meeting the needs of students (Ames & Archer, 1988; Spinath & Spinath, 2005; Thoonen et al., 2011). For example, teachers who focus on performance-oriented instruction, over mastery-oriented learning, tend to focus on ability differences among students.
Mastery-oriented instruction often is correlated with positive learning environments where all students can feel a sense of task mastery and ultimately feel successful even upon needing improvements (Anderman et al., 2001; Weiner, 1979). On the contrary, performance-oriented instruction tends to emphasize competitive instructional methods that could potentially lead students to compare their abilities with their peers (Urdan, Midgley, & Anderman, 1998). As a result and to protect their self-concept, students then may begin to withdraw from activities that could lead to failure (Eccles et al., 1998).

Theorists interested in person-environment fit (Hunt, 1975; Mitchell, 1969) and stage-environment fit (Eccles & Midgley, 1989) would argue that a poor fit between an individual student and his or her environment might explain some of these negative consequences of value. According to Hunt (1975), Mitchell (1969), and Eccles and Midgley (1989), it is important for the environment to fit the needs of each individual child in order to avoid negative behavioral consequences. Thus, value might need the same fit as behavior.

A classroom environment that is not well tuned to the needs of students could influence their identification with school and ultimately their academic value (Thoonen et al., 2011). A study conducted by Connor, Morrison, and Katch (2004) reported that within the subject domain of reading, students benefited from individualized instruction that was tailored to meet their individual needs. Connor and colleagues have found that children demonstrating different pre-existing skill levels will respond differently to the same type of reading instruction. More recently, Connor, Ponitz, Phillips, Travis, Glasney and Morrison (2010) examined the effect of individualized student instruction (ISI) on 445 first graders’ self-regulation. Compared to a business-as-usual group, the authors found that the ISI was associated with improved self-regulation, for students with lower initial self-regulation.
It seems important that instruction fit the needs of each individual child in order for students to benefit from instruction and thus avoid negative consequences of motivation. Instruction designed to fit the differences of each individual child could enhance the necessary skills a student needs to acquire that are necessary to learn (Bronfenbrenner & Morris, 2006). Furthermore, this may be beneficial in helping students to become more mastery-focused and less focused on comparing themselves with their peers; however, this hypothesis warrants future studies and is beyond the scope of this study.

A variety of factors are found to contribute to a student’s learning value, such as, teacher-child interactions (Pianta, La Paro, & Hamre, 2008), classroom organization (Emmer & Stough, 2001), instructional support for learning (Franke, Kazemi, & Battey, 2007) and peer groups (Ruble, 1983). Researchers have been interested in better understanding the social environment in which children are embedded, as it is theorized to play a substantial role in children’s development (Stipek & MacIver, 1989; Ames, 1992). Within a given day, students spend the majority of their time interacting with similar others and thus use their peers as a source of reference for developing their sense of self.

In addition to some of the environmental factors, we are still unsure as to when children begin to distinguish their self-concept from their attitudes about value as they pertain to different subject domains. We further need to understand if children begin with a more general learning value and self-concept that applies to all school situations (Eccles, 2005). Thus, despite the substantial literature on student value, it is safe to say that the factors underlying these developmental changes are not well understood at this time and it seems particularly important to investigate such changes.
The current study seeks to further investigate children’s self-concept (i.e., expectation for success) and task-values by asking students to rate themselves in math and reading, compared to the others in their class. Student ratings will then be compared with teacher report to determine if student overestimation predicts his or her self-concept and value. Student overestimation (of abilities) can be defined as having an enhanced view of the self, such as having overly positive perceptions of personal abilities compared to actual ability (Kistner, David & Repper, 2007).

The primary variables in this study include value, self-concept and student overestimation. According to Eccles et al., (1983) academic motivation includes four value aspects: “Attainment value (the importance of doing well on a task), utility value (the value of the task for reaching future goals) interest value (the enjoyment one receives for engaging in an activity) and cost (the negative aspects in engaging in an activity, such as anxiety)” (p.89). These four value aspects can be summed to include an individual’s motivation, which plays an important role in predicting activity choice (e.g., Eccles, 1984a, 1984b; Eccles et al., 1983, 1989,1993; Eccles, Adler, & Meece, 1984; Eccles & Harold, 1991; Feather, 1982, 1988; Wigfield & Eccles, 1992). The term motivation implies that an individual has a choice in engaging in an activity or certain domain. Because the children in this study are of such a young age they are not given much choice in the activities they choose to participate in at school. They are however, likely to hold judgment about what is or isn’t important to them by demonstrating a liking for something. This in turn could represent value, an aspect of motivation. Therefore, the construct of value will be used as a proxy of motivation for the population represented in this study.

Self-concept is defined as having a collection of beliefs about oneself that are related to a variety of elements, such as academic performance (Shavelson, Hubner & Stanton, 1976).
Student overestimation can be defined as having an enhanced view of the self, such as having overly positive perceptions of personal abilities compared to actual ability (Kistner et al., 2007). On the contrary, underestimation can be defined as having a negative view of an individual’s skills toward an academic subject, such as having overly negative perceptions of personal abilities compared to actual ability. The specific research questions are:

What are the bivariate correlations among age, student overestimation, self-concept and value for both reading and math?

(1) What are the correlations between students’ ratings of their self-concept and value for both reading and math?

(2) Are age and student overestimation correlated?

(3) (a) Do age and student overestimation predict self-concept?

(b) Is there an interaction between age and student overestimation in predicting self-concept?

(4) (a) Do age and student overestimation predict value?

(b) Is there an interaction between age and student overestimation in predicting value?

(5) Does academic self-concept mediate the relation between age, age x overestimation interaction, overestimation and value?
CHAPTER 2
LITERATURE REVIEW

The following chapter will provide a thorough literature review and more detail on all of the variables relevant to the conceptual framework identified in this chapter. A brief literature review of, self-concept, student overestimation of self-concept and teacher ratings is presented in chapter two. The methodology for this study including participants, measures of value and self-concept, and procedures is presented in Chapter three.

Value

Learning value has been conceptualized in many different ways and there has been a tradition of motivational research as it pertains to task value. For example, Atkinson (1964) introduced his *expectancy-value theory* and proposed that expectancy involved an individual’s expectancy for success and value dealt with reasons for engaging in a particular activity. Shortly after, Weiner (1985) introduced his *attribution theory* suggesting that an individual’s attributions for achievement outcomes determine strivings for success and are the basis for motivation. Moreover, he proposed that value is the way in which individuals interpret their achievement outcomes in ways that can drive value towards action.

A more recent theory includes the *achievement goal theory*, which suggests that it is the goals in which individuals set, that directs value towards achievement tasks (Ames & Archer, 1988). For example, Ames and Archer (1988) found that students who demonstrated more mastery goals within a classroom reported using effective study strategies, engaged in more challenging tasks, and had an overall positive attitude toward their class.
Students’ task value is similar to *intrinsic motivation* and plays a positive role in learning (Ryan & Deci, 2000). For example, a student who demonstrates task value will likely display more effort and will persist longer during difficult tasks. On the contrary, a student who lacks academic value will likely withdraw from the task, demonstrating little effort and persistence, particularly during challenging tasks (Viljaranta, et al., 2009).

Different motivational theories, including *expectancy-value theory* and *attribution theory*, along with *self-efficacy theory* (Bandura, 1986, 1989), and *self-worth theory* (Covington’s, 1984) suggest that it is an individual’s self-perceptions of his or her abilities that influence his or her value towards achievement behavior. Although there are multiple motivational theories presented in the literature, I will mostly focus on those that are related to *expectancy-value theory*. I will provide theoretical support for this theory below.

Theorists have suggested that an individual’s *subjective task values* play a vital role in predicting activity choice (e.g., Eccles, 1984a, 1984b; Eccles et al., 1983, 1989; Eccles et al., 1993; Wigfield & Eccles, 1992). According to Eccles et al. (1983) academic value includes four value aspects: “*Attainment value* (the importance of doing well on a task), *utility value* (the value of the task for reaching future goals) and *interest value* (the enjoyment one receives for engaging in an activity) and *cost* (the negative aspects in engaging in an activity, such as anxiety)” (p.89). Further, Eccles et al. (1983) defined expectancies for success as “individuals’ beliefs about how well they will do on future tasks, either in the nearby or long-term future” (p.81).

Within their expectancy-value model of achievement-related activity choices, Eccles and associates suggested expectancies and values are what directly influence performance, persistence, and task choice (Eccles & Wigfield, 2002). In a reciprocal manner, expectancies and values are thought to be influenced by an individual’s self-concept (i.e., expectation for success)
where all these variables are thought to be influenced by a variety of factors, including an individual’s interpretation of previous achievement outcomes and his or her beliefs about other people’s expectations for them (Eccles & Wigfield, 2002).

Eccles and colleagues have provided support for their expectancy-value theory, demonstrating the importance of self-concept beliefs (i.e., expectation for success) and task-values, which are critical to future achievement outcomes, within a given subject area (Jacobs et al., 2002). An individual’s self-concept, task values and expectations for success has been seen to influence achievement in a variety of domains within a variety of studies, providing support for their theoretical model (Eccles, 1987; Eccles, et al., 1993; Jacobs et al., 2002; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991).

**Value and Achievement**

Value plays an important role in students’ academics. Students who have reported more academic value have demonstrated greater conceptual learning, better memory (Grolnick & Ryan, 1987) enjoyment of schoolwork, higher satisfaction with school (Vallerand et al., 1989) and high levels of academic achievement (Eccles, Wigfield, & Schiefele, 1998).

A correlation has been demonstrated between having high levels of task value and more academic achievement (Eccles, Wigfield, & Schiefele, 1998). For example, high levels of math value are associated with strong math performance; (Aunola et al., 2006; Viljaranta et al., 2009) and high levels of reading value are correlated with reading performance (Wigfield et al., 1997). Furthermore, Guthrie, Wigfield, Metsala, and Cox, (1999) conducted a study with students in grades three, five, eight and ten to determine the relationship among reading value, reading achievement and text comprehension. The authors indicated that reading value significantly
predicted reading amount. Amount of reading then predicted text comprehension even after controlling for prior achievement.

An important topic within the study of motivation (learning value) has been the relationship between subjective-task value and achievement as several studies have indicated a high correlation between both constructs (Guay, Marsh, & Boivin, 2003; Marsh, Trautwein, Lüdtke, Köller, & Baumert, 2005). Researchers who study value now agree that it is important to study academic subjects separately, as value appears to be domain specific. However, the age at which subjective-task value begins to become differentiated is not well understood at this time. Although we do know that students’ value develops differently across content areas (Eccles et al., 1998; Nurmi & Aunola, 2005; Wigfield et al., 1997).

**Value and Gender**

Although not a topic for this particular paper, the emergence of gender-differences in learning value has been an important topic within motivational research (Jacobs et al., 2002; Nurmi & Aunola, 2005; Wigfield et al., 1997). Several studies have demonstrated gender differences towards language arts value. Eccles et al., (1993) indicated that first grade girls had a higher value towards language arts but no gender differences were concluded for math value. More recently, Viliaranta et al., (2009) conducted a study to determine kindergarten children’s language arts and math value. The authors indicated similar findings suggesting that girls had a higher value towards language arts and that no gender differences were found towards math value.

Both the Eccles et al., (1993) and Viliaranta et al., (2009) study complement other studies in two ways. Firstly, as girls progress through school they continue to have a higher value
towards the subject matter of language arts (Baker & Wigfield, 1999; Jacobs et al., 2002; Wigfield et al., 1997). Secondly, no gender differences towards math were found among younger children. This supports findings from other studies indicating no gender differences for value towards math (Jacobs et al., 2002; Wigfield et al., 1997).

Value and Self-concept

Motivation can be seen as a complicated system of cognitions having multiple dimensions (Bong, 1996). Eccles’ model of expectancy-value (Eccles et al., 1983) suggests that perceived self-concept beliefs influence subjective task values within a given domain, which influences their expectancies for success, which in turn, then influence achievement outcomes. Thus, if children believe they are capable of completing a particular task, and they expect a positive outcome, they are more likely to engage in and value that task. Furthermore, it seems likely that students who come to value and engage in tasks will develop a greater sense of a positive self-concept of abilities, and thus an expectancy to succeed (Eccles, 2005; see Deci & Ryan, 1985; Eccles et al., 1983; Harter, 1983). This reciprocal association has been evidenced in a number of prior studies, supporting a positive relationship between self-concept and task-values (Achambault et al., 2010; Eccles & Wigfield, 1995; Jacobs et al., 2002; Spinath & Spinath, 2005). For example, the largest longitudinal studies pertaining to this reciprocal relationship are by Eccles and her associates, the Michigan Childhood and Beyond Longitudinal Project, where the research provided support for increasing associations between self-concept and intrinsic values from grades one through six (see Wigfield et al., 1997) and grades one through twelve (Jacobs et al., 2002).
Self-concept beliefs can be considered as a key component of value because of their validity in predicting effort, task choice and persistence (Metallidou & Vlachou, 2007). Thus, in order to understand student value and its influence on student learning it seems important to take into account other aspects of value, such as students’ self-concept beliefs. Bandura (1977) suggested that an individual’s efficacy beliefs influenced activity choice and their drive for action. For example, when students believe they are competent within a specific domain of study, they may be more likely to be engaged within the subject matter (Bandura, 1997; Schunk & Zimmerman, 1997). In supporting this claim, several studies have looked at the relationship between academic self-concept and reading ability, concluding that students who hold low reading self-concepts tend to withdraw from reading tasks that are perceived as too challenging (Guthrie et al., 2007; Zimmerman, 2000). Furthermore, self-concept has been seen as a mediating variable between value and reading comprehension (Solheim, 2011).

**Self-concept**

Within motivational research, one central dimension has been an individual’s beliefs about his or her abilities. These beliefs are often referred to as *self-concept* (i.e., expectations for success). Self-concept is defined as having a collection of beliefs about oneself that are related to a variety of elements, such as academic performance (Shavelson, Hubner, & Stanton, 1976). Later, Bandura coined the term *self-efficacy* to refer to individuals’ judgments and perceptions of their capabilities of achieving and accomplishing at a specific task (Bandura, 1997). Both the constructs of self-concept and self-efficacy are closely related, however, there are several key distinctions that differentiate between the two. Self-concept “indicates fairly stable perceptions of the self that are based on past performance whereas self-efficacy represents future-oriented
conceptions of the self’s potential” (Bong & Skaalvik, 2003, p.3). Self-efficacy represents individuals’ expectations of their achievement level in given situations whereas self-concept represents one’s general perceptions of one’s abilities in given domains of action (Bong & Skaalvik, 2003). Thus, for the purpose of this study it seemed more appropriate to use the construct of self-concept due to the students being of such a young age and thus may have a hard time in assessing their future abilities in specific situations.

Eccles’ et al. (1983) expectancy-value model proposed that academic self-concept plays a central role in the development of value. Support has been found for her theory indicating that having a high self-concept is associated with high value, achievement and persistence (Eccles et al., 1998; Schunk, 1991). Thus, due to the importance of an individual’s self-concept this construct has received a great deal of research attention especially within the fields of education and child development. One important area of research has been how this construct develops and changes over time.

Skaalvik (1997) identified four antecedents to the development of self-concept, *frames of reference, causal attributions, reflected appraisals from significant others, mastery experiences,* and *psychological centrality.* Self-concept is often influenced by frames of reference for which individuals’ judge their own traits and achievements. A good example of a frame of reference is social comparison, where an individual compares his or her abilities with the abilities of classroom peers. Moreover, types of causal attributions (prior ability, task difficulty, and luck etc.) developed from prior successes and failures influence self-concept. A student who has had a history of failing at challenging tasks may have a low self-concept and wish to protect themself and withdraw from tasks that could lead to potential failure. On the contrary, a student who has
demonstrated a history of positive ability, positive feedback and luck etc. may have a higher self-concept and thus be more likely to engage in future challenging tasks.

Third, the concept of reflected appraisals from significant others refers to how people come to view themselves based on how they believe others view them. For example, if Susan believes that the entire class thinks she isn’t that good in math, Susan is more likely to believe this as truth, that she is not good at math.

The fourth antecedent involves mastery experiences, including an individual’s self-schemas that are created from prior experiences in a particular subject matter. Prior experiences are then processed by these self-schemas (Markus & Nurius, 1986), which is slightly different from causal attributions. Last, and influenced from work by Rosenberg (1979), psychological centrality includes self-assessments of qualities that are perceived as psychologically central by the individual.

Marsh (1986) proposed the frame of reference model, theorizing that math and language arts self-concepts are formed through the basis of two frames of reference – an internal and an external frame of reference. The internal frame of reference is when an individual compares his or her math skills with his or her language arts skills. The external frame of reference is when a student compares his or her math and language arts skills with the math and language arts skills of the others in their class. In support of Marsh’s theory (1986) studies have found evidence for both the internal and external frames of reference and their influence on the development of self-concept (Bong, 1998; Marsh, 1990).
Self-concept and Value

It has been assumed that self-concept beliefs influence his or her task value. For example, in her expectancy-value model of achievement Eccles (1983) suggested that students’ task-values are influenced by their self-concept beliefs in a reciprocal manner. According to Eccles’ (1983) theory, students who hold positive self-concept beliefs are more likely to demonstrate a high level of persistence and effort that could result in a high level of achievement. Thus, a number of prior studies have demonstrated this association (Eccles et al., 1993; Jacobs et al., 2002; Nurmi & Aunola, 2005; Spinath & Spinath, 2005; Wigfield et al., 1997).

Nurmi and Aunola (2005) conducted a longitudinal study that examined 211 six- and seven-year-old children’s task-value and self-concept towards reading, writing and math. The children were examined twice. Once in their first year of school and again in their second year of school. The authors used a person-oriented approach, which is a focus on individuals as opposed to a variable-oriented approach that tends to focus on relationships between variables (Bergman & Magnusson, 1991). One major advantage to this approach is that it provides the option of identifying different groups of individuals, based on different patterns of criteria they possess.

The results from the Nurmi and Aunola (2005) study indicated that students who indicated a low math self-concept were more likely to represent the low math value group, after previous math achievement was controlled. The same was found for the subject matter of reading. Spinath and Spinath (2005) conducted a similar study that examined the link between students’ value and self-concept. Using a cross-sequential design, the authors followed 789 first and second grade students for two years. The results indicated that both self-concept and value decreased across the school years. In addition, value and self-concept were shown to be moderately to strongly correlated with each other.
These studies along with others (Eccles et al., 1993; Jacobs et al., 2002; Wigfield et al., 1997) support Eccles’ theory suggesting that students’ task-values are influenced by their self-concept beliefs (e.g., high self-efficacy, positive beliefs about competence). Similarly, other theorists from the tradition of social-cognitive theory have also found support suggesting that children tend to be motivated to the extent that they feel capable (Bandura, 1982, 1997; Covington, 1984, Weiner, 1985).

Self-concept and Achievement

Individual beliefs that students develop about their academic skills can play a crucial role in their academic success (Pajares & Valiante, 1999). How students view themselves and their academic capabilities helps determine what they do with the skills they possess and the knowledge they gain in school. As a result, school success is partially determined by an individual’s self-concept and their beliefs about what they think they can accomplish (Pajares & Valiante, 1999).

Calsyn and Kenny (1977) introduced both the self-enhancement and skill-development models. The model of self-enhancement was introduced in order to explain how the self-concept is developed, based off of school achievement. The skill-development model explains self-concept as being a consequence of school achievement. Other theorists, (e.g., Bandura, 1997; Eccles et al., 1998; Marsh et al., 2005) have suggested that achievement and academic self-concept develop a reciprocal relationship across time. Prior studies have found evidence in support of this relationship between these two variables.

Guay, Marsh and Boivin (2003) tested the causal ordering between academic self-concept and achievement. Students in the study were assessed in grades two, three, and four from ten
different elementary schools and included in three measurement waves. Children completed the perceived academic competence subscale of the French version of the *Self-Perceptions Profile for Children* (Boivin, Vitaro, & Gagnon, 1992). In order to assess academic achievement, the respective teachers rated students’ achievement in reading, writing, and math. Using structural equation models the authors indicated a reciprocal-effects model that found support for both models first introduced by Calsyn and Kenny (1977). That is, achievement influenced self-concept and academic self-concept influenced achievement outcomes.

Research has also demonstrated the relationship of children’s academic self-concept with word recognition and reading comprehension skills. For example, Chapman, Tunmer, and Prochnow (2000) followed 60 kindergarten children across three years. Children’s academic self-concept was assessed with their pre-reading skills, including phonological sensitivity and letter-name knowledge. By comparing group mean differences the study concluded that children who reported low academic self-concepts performed more poorly on reading tasks than children with average to high academic self-concepts. Reading also predicted high and low academic self-concept group membership. Archambault et al., (2010) conducted a longitudinal study that followed 655 students for eight years, starting in first, second and fourth grades. The authors concluded that children who reported negative self-concept beliefs over time indicated low levels of academic achievement compared to children who maintained slightly higher self-concepts over time.

**Gender and Self-concept**

Gender differences for academic self-concept have been an important topic within motivational research. Prior research documented that gender differences in reading and math
self-concept begin in early adolescence and then widen throughout the adolescent years (Eccles et al., 1984; Eccles, 1987). However, more recent research has indicated that such gender differences in self-concept and value begin earlier, in elementary school (Eccles et al., 1993; Jacobs et al., 2002; Nurmi & Aunola 2005; Viliaranta et al., 2009; Wigfield et al., 1997).

Inconsistent findings have been reported on the relationship between gender and self-concept related to academic skills; these constructs have been seen to differ among females and males. For example, girls have previously reported more positive self-concepts within verbal domains (Baker & Wigfield, 1999; Eccles, 1993; Jacobs & Eccles, 1992; Kush & Watkins, 1996; Wigfield et al., 1997) whereas boys have reported having higher self-concepts about their abilities in the areas of mathematics (Eccles et al., 1993; Eccles, O’Neill, & Wigfield, 2005; Fredricks & Eccles, 2002; Linn & Hyde, 1989; Marsh & Yeung, 1998). To support these findings, McKenna, Kear, and Ellsworth (1995) conducted a study with a stratified national sample to examine the reading attitudes of 18,185 students in first through sixth grade. Using the *Elementary Reading Attitude Survey* the authors indicated that girls held more positive attitudes toward reading than boys, within all grade levels.

Jacobs et al. (2002) conducted a longitudinal study with 761 children across first through twelfth grade and reported gender differences in self-concept and task values for reading and mathematics. Girls and boys in the first grade began with similar self-concept beliefs and value regarding reading. However, gender differences increased with age, with older girls having slightly higher self-concept and task values towards the subject matter of reading. On the contrary, there were no gender differences found for math value but instead were found only for math self-concept. Boys began school with higher self-concepts toward math although such differences in math self-concept decreased with age, indicating that girls’ and boys’ math self-
concepts gradually become more similar as children progress through school. These findings complement prior studies suggesting that gender differences in the subject matter of math appear to level off as children begin to enter middle and high school (Eccles et al., 1989; Wigfield et al., 1997; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991).

**Development of Self-concept**

Given the predictive role of students’ academic self-concept and its influence on value (Deci & Ryan, 1987; Jacobs et al., 2002; Spinath & Spinath, 2005; Wigfield & Eccles, 1992) an interest for researchers has been an evaluation of how these constructs develop and change as children progress through school. However, several key issues regarding this area of research still exist; for example, researchers are still unsure as to how the self-concept develops, how it influences student value and how it changes over time. It is therefore important to understand how and exactly when self-concept becomes distinct across the school years (Eccles et al., 1993).

Inconsistent findings have been found on the topic of how and when children begin to distinguish their self-concept beliefs among different subject domains. For example, Harter (1983) initially proposed that children’s self-concepts start off more global and become more distinct with age. In support of this, other studies have also found that preschoolers and young elementary students begin with a rather global self-concept (Harter & Pike, 1984; Nicholls & Miller, 1984; Stipek, 1984). Later research, however, indicated that kindergarten children (Marsh et al., 1991) and children in first grade (Marsh, 1989; Wigfield et al., 1997) demonstrate clearly differentiated task-specific self-concept towards different school activities. Moreover, using an exploratory factor analysis method, Eccles et al. (1993) indicated that first graders had differentiated self-concepts for distinct academic subjects and that children’s self-concept and
subjective task values formed separate factors. More recently, Nurmi and Aunola (2005) indicated that children’s self-concept and task value within disparate school subjects starts to become differentiated early on, beginning at six to seven years of age. However, a subsequent study suggested that kindergarten children’s subject-specific value in math and literacy is undifferentiated (Viljaranta et al., 2009). Although this study’s findings support the Jacobs et al. (2002) study in suggesting that children’s task value is rather global at the beginning of the school years it does have some limitations to consider. First, Viljaranta et al. (2009) point out that during Finnish Kindergarten less emphasis is invested in learning math as compared to learning literacy. As a result, children may not be able to differentiate the two subjects in Kindergarten. Second, the sample size in their study was relatively small (N = 139) which could be problematic in detecting statistically significant effects.

To conclude, as Eccles (2005) mentions, we are still unsure as to when children begin to distinguish their self-concept as they pertain to different subject domains. Research is needed to clarify whether children begin with a more general learning self-concept that applies to all school situations and if this general belief becomes differentiated as children age or if it remains more general over time. Furthermore, additional research is needed in understanding when children distinguish between their self-concept and value. Thus, the factors underlying these developmental changes are not well understood at this time and it seems particularly important to investigate these patterns of developmental change. A clearer picture of these phenomena will help educators to better understand the extent to which such factors are influenced by characteristics of the school environment.
Overestimation of Self-concept

Eccles et al. (1983) proposed that students’ self-concept and values are partly influenced by parents’ and teachers’ judgments of their capabilities. As children progress through elementary school the relation between student and teacher judgments starts to become stronger. As children receive more feedback on their performances they become more accurate in their self-concept beliefs (Eccles, Blumenfeld, & Wigfield 1984; Nicholls, 1979; Stipek & Mac Iver, 1989; Wigfield, 1994; Wigfield et al., 1997). The construct of student self-accuracy can be defined as having an “accurate perception of own attainment relative to that of others” (Nicholls, 1979, p. 95).

The theory of social comparison processes (Festinger, 1954) posits that individuals compare and assess their abilities to similar others. Through this social comparison process individuals are able to arrive at a better understanding of their capabilities and make judgments as to their abilities at various tasks.

More recently, Marsh (1986) proposed the internal/external frame of reference model, theorizing that math and language arts self-concepts are formed through the basis of two frames of reference – an internal and an external frame of reference. The internal frame of reference is when an individual compares his or her math skills with his or her language arts skills. The external frame of reference is when a student compares his or her math and language arts skills with the math and language arts skills of the others in their class. Marsh (1986) suggested that students use both frames of reference to develop their self-concept within each domain.

Children in the early elementary years have been shown to hold overly positive perceptions of their academic ability, compared to their actual skill levels (Parsons & Ruble, 1977; Stipek & MacIver, 1989). However, as children progress through elementary school, their
self-concept beliefs tend to become more realistic (Kistner, David & Repper, 2007; Stipek & Mac Iver, 1989; Wigfield & Eccles, 2000). According to prior research, children’s self-concepts start to become more negative around the third grade (Jacobs et al., 2002; Stipek & Mac Iver, 1989; Wigfield et al., 1997). Still, some children may continue to have enhanced views of their academic abilities. Having overly high academic self-concepts could potentially influence their learning value.

Bandura (1997) suggested that overly positive beliefs about the self could be a sign of successful development that can help promote emotional well-being and goal attainment. Several studies have supported Bandura’s theory, indicating that student overestimation is associated with positive emotions and higher levels of self-worth. (Harter, 1985; Kistner et al., 2007).

Harter (1985) conducted a study with elementary students’ self-ratings of academic competence (a construct very similar to self-concept), compared to teacher ratings of children’s academic competence. The author reported that those children who overestimated their academic competence relative to the teacher reports also reported high global self-esteem while students who underestimated themselves reported lower global self-esteem. Similarly, self-esteem research indicates that children who overestimate their academic competence tend to demonstrate a higher global self-esteem, compared to children who underestimate or accurately estimate their competence (Harter, 1995; Phillips & Zimmerman, 1990).

Cole et al. (1999) conducted a study with 807 third and sixth graders assessing their academic competence, feelings of depression, and symptoms of anxiety, every six months for three years. Teachers rated each of the students’ academic competence. The authors reported that students who underestimated their academic competence, compared to teacher reports,
demonstrated more depression and anxiety. In contrast, McGrath and Repetti (2002) conducted a study with students in grades four through six and indicated that underestimation of social and academic competence did not predict an increase in depression scores. However, high self-reported depression scores predicted change in negative self-perceptions and greater underestimation of competence.

Connell and Llardi (1987) reported that when students overestimated their academic competence they demonstrated higher levels of anxiety than children who underestimated themselves. However, Cole et al. (1999) examined Connell and Llardi’s (1987) study more closely and concluded that their analysis may not have accurately answered their intended research questions and thus, their findings may not have been very meaningful.

In their own work, Cole et al. (1998) conducted a longitudinal study with students in grades three through eight documenting the relation between self-perceptions and depression. Student’s self-perceived competence in the areas of academic, athletic, social, conduct, and appearance were compared with peers’ and teachers’ perceptions. Underestimation of self-perceived competence of physical appearance and behavioral conduct predicted change in depression scores in only the seventh grade. Furthermore, the seventh graders who perceived themselves as unattractive and less well behaved demonstrated an increase in depression scores.

Little research has been done assessing the accuracy of children’s academic self-concept and its influence on learning value. Urhahne et al. (2010) conducted a study with 235 fourth grade students and their 14 math teachers assessing student achievement, value and affect. More specifically, students completed a 36-item mathematics achievement test, while both teachers and students completed questionnaires regarding expectancy for success, level of aspiration, academic self-concept, learning value, and test anxiety. Teachers rated each individual student’s
math and test performance potential and five learning value traits. The authors compared each student’s achievement test and value instrument for congruence with teacher reports. For the teachers to gauge students’ math value and math self-concept, they were asked to rate each individual child’s value and self-concept, in comparison to students of the same age by using a Likert-type scale ranging from one to five. Scores on the 36-item mathematics achievement test was then compared to their teacher’s one-question rating of student performance.

Urhahne et al. (2010) indicated that students in the fourth grade who underestimated their self-concept, compared to their teacher, did not perceive themselves as academically able. Furthermore, they also reported that many students in the fourth grade who underestimated their learning value did not actually demonstrate lower learning value compared with teacher report. However, the Urhahne et al. (2010) study, along with several others (e.g., Marsh & Craven, 1991; Praetorius, Greb, Dickh‘auser, & Lipowsky, 2010; Spinath & Spinath, 2005) have reported low to moderate correlations between teacher judgment and student perception for academic self-concept, indicating that teachers may not be good at precisely judging students’ self-concept beliefs. In addition, it has been shown that correlations between teacher judgment and student perception for learning value and test anxiety are quite low, indicating that teachers also may not be good at precisely judging students’ value characteristics (Spinath & Spinath, 2005; Urhahne et al., 2010). Thus, in support of prior research indicating teachers as being poor raters of student value and self-concept but accurate raters in predicting a student’s academic skills (Algozzine & Ysseldyke, 1986; Frentz, Greshman, & Elliot, 1991; Jussim, Eccles, & Madon, 1996) this study will ask teachers to rate students’ math and reading skills, compared to other children of the same grade level. The students will then be asked a similar question, by asking them to rate themselves in both reading and math, compared to their classroom peers. Both the student and
teacher report will be compared in order to determine the individual student’s degree of overestimation of their own skills, and whether this aids in predicting self-concept and value.

**Teacher Rating**

Teachers spend the majority of their time interacting with students and thus are a reliable group for identifying children who may be experiencing problems related to academics (Gresham, Macmillan, & Bocian, 1997; Jussim, Eccles, & Madon, 1996; Kenny & Chekaluk, 1993). Teacher-rated assessments are often an efficient way to gather information about a child’s ability because such assessments tend to be low cost and generally do not require a large amount of time (Cabell, Justice, Zucker & Kilday, 2009).

Studies including a variety of screening methods have supported teacher ratings as being a reliable predictor of a student’s achievement level (Algozzine & Ysseldyke, 1986; Frentz, Greshman, & Elliot, 1991; Jussim, Eccles, & Madon, 1996). For example, Teisl, Mazzocco, and Myers (2001) conducted a study to assess the predictive value of kindergarten teachers’ ratings of their students for later first-grade academic achievement. The study included 234 kindergarten students and their respective teachers. The teachers rated the students on math and reading performance and amount of learning relative to classroom peers. The following year, when the students were in the first grade, the researchers compared the teachers’ ratings on math and reading performance with student reading and math outcome measures. The authors indicated that teachers’ ratings were significantly correlated with students’ scores on the outcome measures. Furthermore, they concluded that similar teacher ratings should be used in the future to determine if children should receive screening measures to help identify students at risk for learning disabilities.
Cabell et al. (2009) conducted a study with 209 pre-school age children and their 44 teachers to determine the predictive validity of teacher report for evaluating children’s emergent literacy skills. The teachers rated each child’s emergent literacy skill on a 4-point Likert-type scale using an abbreviated version of the Clinical Evaluation of Language Fundamentals Preschool—Second Edition Pre-Literacy Rating Scale (CELF Preschool–2 PLRS; Wiig, Secord, & Semel, 2004). The children then completed direct assessments on emergent writing and alphabet knowledge. The authors reported moderate to strong positive correlations between teacher ratings and the children’s direct assessments. The study indicated that teacher reports are a valid evaluation of children’s emergent literacy skills.

Summary and Purpose for the Present Study

Prior studies have reported a decline in students’ subject-specific value, such as intrinsic value, to decline with age across culturally different classroom settings (Anderman & Midgley, 1997; Eccles et al, 1993; Spinath & Spinath, 2005; Stipek & MacIver, 1989; Wigfield et al., 1997). The overall general decline in learning value is often paralleled by a decline in self-concept, at least at the beginning of the school years (Jacobs et al., 2002; Spinath & Spinath, 2005; Wigfield et al., 1997). Thus, due to their parallel nature, the importance of change in one over the other could be overestimated if studied in isolation (Jacobs et al., 2002). Therefore, although both self-concept and value are related they are distinct constructs that should be studied together, when studying child development. The direction of influence for this study is specified to be from self-concept to subjective-task values.

The early elementary school time window seems ideal for an investigation into the development of both value and self-concept and of their relationship. Prior studies indicate that
third grade seems to be a moment of downward transition for student’s self-appraisals and value thus observing this grade level and those just preceding it would allow for a focused investigation of if, when and how these declines in value and self-concept occur.

No prior studies have addressed these three variables (i.e., value, self-concept, overestimation) in combination in this early age group. Therefore, this is the primary contribution of the proposed study. This study seeks to understand if student self-rating, compared to teacher ratings, predicts self-concept and value. To the best of my knowledge no prior studies have included teacher rating with the other self-concept, self-rated student value inquires that will be used for this study. The hypothesized model is presented in Figure 1 and the research questions are following:

What are the bivariate correlations among age, student overestimation, self-concept and value for both reading and math?

(1) What are the correlations between students’ ratings of their self-concept and value for both reading and math?

**H1:** Based on prior studies, student value seems to be correlated with self-concept while students who feel competent in their beliefs tend to be more motivated to learn (Bandura, 1993; Deci & Ryan, 1985; Eccles & Wigfield, 1995; Spinath & Spinath, 2005). Therefore, I hypothesize that learning value and self-concept beliefs will be positively correlated with one another, across content areas.

(2) Are age and student overestimation correlated?

**H2:** Based on prior research, several longitudinal studies have demonstrated that students’ self-concept and value tend to diminish as children progress through school (Eccles, Wigfield, & Schiefele, 1998; Jacobs et al., 2002; Stipek & Mac Iver, 1989;
Wigfield et al., 1997) as a result of students becoming more realistic in their self-concept. This decrease can in part be explained by class settings focusing more on performance and thus, peer comparison (Ames, 1992; Eccles, Lord, & Midgley, 1991). Therefore, I hypothesize that there is a negative correlation between age and student overestimation, as students get older they are more likely to underestimate instead of overestimate their self-concept and value in self-reports.

(3) Do age and student overestimation predict self-concept?

**H3a:** Prior studies have demonstrated student overestimation to be associated with positive emotional factors and higher levels of self-worth, etc. (Harter, 1985; Kistner et al., 2007) while students who underestimate themselves has been seen to correlate with depression and anxiety (Cole et al., 1998; McGrath & Repetti 2002). Little work has been done on student overestimation of self-concept; however, Urhahne et al. (2010) reported that students in the fourth grade who underestimated their self-concept, compared to their teacher’s estimation, did not perceive themselves as academically able. However, this study, along with others, have reported moderately low correlations between teacher judgment and student perception for academic self-concept, indicating that teachers may not be good indicators of precisely judging students’ self-concept beliefs (Marsh & Craven, 1991; Praetorius, Greb, Dickh`auser, & Lipowsky, 2010; Spinath & Spinath, 2005; Urhahne et al., 2010). Therefore, based on the little we know, it seems hard to draw a hypothesis from prior research; thus this question does not have a hypothesis and is exploratory in nature.

(b) Is there an interaction between age and student overestimation in predicting self-concept?
H3b: This question is exploratory in nature but based on prior research suggesting that self-concept tends to diminish with age (Eccles et al., 1993; Jacobs et al., 2002; Wigfield et al., 1997) it seems likely that age and overestimation will interact and influence self-concept.

(4a) Do age and student overestimation predict value?

H4a: Little work has been done on student overestimation and value, although Urhahne et al. (2010) indicated that students in the fourth grade who underestimated their learning value, compared to their teacher, did not demonstrate lower learning value. However, this study, along with others have indicated that correlations between teacher judgment and student perception for learning value and test anxiety are considerably low, indicating that teachers may not be good indicators of precisely judging students’ value characteristics (Spinath & Spinath, 2005; Urhahne et al., 2010). Therefore, based on the little we know, it seems hard to draw a hypothesis from prior research; thus this question does not have a hypothesis and is exploratory in nature.

(b) Is there an interaction between age and student overestimation in predicting value?

H4b: This question is exploratory in nature but based on prior research suggesting that value tends to go down with age (Eccles, et al., 1993; Jacobs et al., 2002; Wigfield et al., 1997) it seems likely that age and overestimation will interact and influence value.

(5) Does academic self-concept mediate the relation between age, age x overestimation interaction, overestimation and value?

H5: Different motivational theories, including expectancy-value theory and attribution theory, along with self-efficacy theory (Bandura, 1986, 1989), and self-
worth theory (Covington’s, 1984) suggest that it is an individual’s self-perceptions of his or her abilities that influence his or her value towards achievement behavior. Eccles et al. (1983) suggested that perceived self-concept beliefs impact subjective task values within a given domain, which then influence achievement outcomes. Thus, if children believe they are capable of a particular task, they are more likely to engage in and value that task. This association has been evidenced in a number of prior studies, demonstrating a positive relationship between self-concept beliefs and task-values (Achambault, Eccles & Vida, 2010; Eccles & Wigfield, 1995; Jacobs et al., 2002; Spinath & Spinath, 2005; Wigfield & Guthrie, 1997). Therefore, in understanding what we know already about this association, I hypothesize that academic self-concept mediates the relation between age, age x overestimation interaction, overestimation and value.

Figure 1. Hypothesized model of mediated and moderated relations with value.
Power Analysis

In order to determine sample size for a path analysis the degrees of freedom (df) were calculated where df equals the number of observations minus the number of parameters estimated. The number of observations equals the number of observed variances and covariances and is represented by the formula: \( v(v+1)/2 \) where \( v \) = number of observed variables. The parameters include variances for all exogenous variables (including observed and unobserved), any covariances between exogenous variables (observed and unobserved), and direct effects on endogenous variables. The variance of each exogenous variable should be counted as a one and each recursive path should be counted as a one except for path coefficients that are fixed to a constant.

The following parameters were estimated for the proposed path model (see Figure 1), all direct paths = 7, number of variances = 3, number of covariances = 3, and the number of disturbances = 2, totaling 15. The observations included 5 observed variables, 5 \((5+1)/2 = 15\) and the df = 15-15 = 0. Kline (1998) suggests that when df are zero the model is said to be identified. A sample of 100-200 is considered medium while anything greater than 200 is considered large but recommended. Based on Kline’s assumptions, it is best to have 10 participants for every parameter. This study has 15 parameters thus 15 x 10 = 150, although Kline suggests going over 150 to approximately 170 participants. An additional consideration for this study design was to have approximately equal numbers of participants in each grade/age range. A total of 174 participants were acquired for this research study.
**Participants**

A total of 10 schools and 28 teachers participated in this study. Classrooms represented private not-for-profit and for-profit schools in four counties within northern and central Florida. Schools represented different socio-economic statuses (SES), ranging from low (6,400 for tuition, per year) to high (42,000 per year) Public schools were excluded from recruitment due to logistical feasibility. Students who were considered cognitively impaired (e.g., students with moderate or severe cognitive disabilities such as moderate to severe autism) or those attending self-enclosed classrooms rather than regular elementary classrooms were also excluded from this study due to having a different classroom context. The exclusion extended to children who had uncorrected visual or hearing impairments, as special services were not provided in administering the instruments.

A total of 175 consents were received for this research study, however, one was from a student in kindergarten. Therefore, data were not collected for this student. A total of 174 students were interviewed for this study. There were 52 first graders (22 males), 61 second graders (31 females), and 61 third graders (26 males). One case, in the first grade was dropped because the validity of the data was questionable. The student clearly was not paying attention and was thus looking the other way when pointing to his answers; therefore, this child’s assessment was dropped from the data set. The final sample included 173 students. For the entire sample, 45.1% were male and 54.9% were female. The ethnicity for the entire sample included, 22% black, 65.9% white, 5.8% Hispanic, 2.3% Asian, and 4% other. A breakdown of the ethnicity for each grade is as follows; in first grade 35.29% were black, 58.82% white, 3.92% Hispanic and 1.97% other. Second grade included 16.39% black students, 65.57% white students, 8.20% Hispanic students, 4.92% Asian students and 4.92% other students. Third grade
had a total of 16.39% black students, 72.13% white students, 4.92% Hispanic students, 1.64 Asian and 4.92% other students. In third grade there were 44.77% males, 55.23% females; second grade included 50.26% males and 49.74% females; first grade included 43.77% males and 56.23% females. The student age range for the entire sample was from 69 months to 125 months.

Because the children in this study are of a young age, considerable care was taken to ensure that the children understood the questions being asked of them. The measures were piloted on approximately 6 children, two in each grade level where each measure was read aloud to each individual child, in an interview setting. To determine the test-retest reliability of the instruments, 22 of the students were randomly chosen across the three grades for an additional round of testing.

Measures

Parent Demographic Questions

Initially I was interested in asking the parents some demographic questions related to parents’ highest educational attainment, household income level and ethnicity. However, these questions soon became problematic for recruitment and were therefore dropped from the research study.

Self-concept and Subject-task Value Measures

Children were asked to respond to questions relating to their self-concept of academic success and value in the academic subjects of mathematics and reading. Both measures focus on children’s self-concept and their value for activities in each domain (Eccles et al., 1993). The
measures were counterbalanced. Half of the sample within each grade level was asked about their math value and math self-concept first while the other half was asked about their reading value and reading self-concept first. Each measure described below is included in the Appendix.

Self-concept Measure

Eccles’ et al. (1993) *competence belief scale* asks children “how good they will be at learning new material in each subject, their expectancies for success in each activity, how hard they believe each activity is, and their sense of efficacy for learning new things in each domain” (p. 833). Eccles et al. (1993) slightly modified the items from prior studies that assessed early adolescents’ beliefs about mathematics, language arts, instrumental music, and sports (see Eccles, 1984a, 1984b; Eccles, Adler, & Meece, 1984; Eccles et al., 1983; 1989; Eccles & Wigfield, 1995; Parsons, Adler, & Kaczala, 1982). The modified scale had Cronbach alphas of .78 (math competence beliefs) and .82 (reading competence beliefs), while evidence from the factor analyses presented in the Eccles et al. (1993) study indicated that the measures have good discriminant validity. Further, Yu Wu, Hughes and Kwok (2010) conducted a study using these scales and reported an internal consistency of .82 for the reading scale and .83 for the math scale. To assist children in understanding how to use the measure the scale is illustrated with bars of increasing length based on a one to seven Likert-style scale (Eccles et al., 1993). For example, when vertical bars are used, the smallest bar is at one end-point with increasing bars going towards the other end, with the highest bar at the end. Both the end points and the midpoint of each scale are labeled, with a descriptor for that scale point, (e.g., the number one is labeled with the words “not at all good,” the number four is labeled with the word “ok,” and the number seven is labeled with the words “very good”) (Eccles et al., 1993, p. 833).
includes five competence belief items assessing children’s self-perceptions of their abilities within math and reading. Comparable wording was used in each domain of reading and math. All questions were read aloud to all children in each grade level. After reading each question to the children they were asked to point to the bar that best represents their answer.

**Subjective-Task Value Measure**

Children’s task-value was assessed using the Task-Value Scale for Children (TVS-C; Aunola et al., 2006; Nurmi & Aunola, 1999; 2005) which is adapted from Eccles et al.’s (1983) *subjective-task value scale*. The scale consists of nine items measuring children’s task-value in reading (three items), writing (three items), and math (three items). However, for this study, only the reading and math questions were used. An example of the three questions for math are the following, “how much do you like math?”; “How much do you like doing math-related tasks at school?”; “How much do you like doing math-related tasks at home?” (Nurmi & Aunola, 1999, p.108). This measure includes the word “like” instead of “value” to make it easier for the children to understand the questions being asked.

During one-on-one interviews with the children, the students were first read each question, then they were shown a set of five faces that depict an evaluative scale running from very positive to very negative. The children were then asked to point to the picture with the face that best describes their liking. For example, a picture of a happy face had a rating of five and had written underneath, “I like it very much/ I really enjoy doing those tasks.” A picture of an unhappy face had a rating of one and had written underneath, “I do not like it at all/ I dislike doing those tasks.” Before each interview, the meaning of each picture was carefully explained to the child.
Nurmi and Aunola (2005) used the TVS-C with children who were six-to-seven-years-old during an interview session and reported a sum score for subject-related task-value, which was created by adding the scores for the three items. The Cronbach reliabilities were computed in their study for four separate measurement points, .70, .77, .83, and .82 for math-related value and .72, .83, .82, and .81 for reading-related task-value.

**Student Self-concept of Ability Accuracy Rating**

Students were presented with a sheet of paper containing 20 faces in a line from the top to the bottom of the page (see Aunola, Leskinen, Onatsu- Arvilommi, & Nurmi, 2002; Nicholls, 1979; Nurmi & Aunola, 2005). The students were told that the faces represent the children in their class and the child at the top of the page represents the child who is the best at reading or math, while the face at the bottom represents the child who is the worst at reading or math. They were then asked ‘Now, can you show me how good you are at reading? Which one is you? Ok, now, can you show me how good you are at math? Which one is you?’ The participants responded twice, after each question, by pointing to one of the faces.

This measure, known as the self-concept of ability instrument, was previously used with six-to-seven year old children (Aunola et al., 2002; Nurmi & Aunola, 2005) and with students in grades two, four, six, and eight (Nicholls, 1979). Nurmi and Aunola (2005) indicated the self-concept of reading ability test-retest correlation across separate measurement points. Between times one (fall) and two (spring) the correlation was .50, between times two (spring) and three (fall) the correlation was .46 and it was .57 between times three (fall) and four (spring). For self-concept of math ability, the test-retest correlation was .34 between times one (fall) and two (spring), .54 between times two (spring) and three (fall), and .52 between times three (fall) and
four (spring) (Nurmi & Aunola, 2005). For the current study, the test-retest for the one reading question was .76 for this measure. The one math question of this measure was .32, however it did have significant positive correlations with many other items.

To calculate the accuracy of each student’s self-concept of ability rating, the student responses were converted to a numerical scale from 1 to 20 (see teacher ratings in this form below). Then, the student score was subtracted from the score provided by his or her teacher to calculate a difference score. Students who rated themselves just the same as their teacher were considered perfectly accurate whereas a student who rated him or herself higher than the teacher was considered to have overestimated his or her ability. A student who rated him or herself lower than the teacher was considered to have underestimated his or her ability. This calculated difference score was used in the path analyses.

**Teacher Rating Survey**

The 28 teachers (for the consented students) were asked to rate each consented child’s academic skills in reading and math, compared to other children of the same grade level. The scale is similar to the child measure in that, instead of being presented with 20 faces, teachers were asked to rate each consented child on a scale from 1 to 20 with how well they think each child is at doing math and reading tasks relative to other students in their class. A number 1 represented the child who is the best at reading and math, while number 20 represented the child who is the worst in the class. The teachers answered this question twice, once for reading and then again for math. The data was collected this way but was then reverse-coded in SPSS so that when the student self-scores were subtracted from the teachers the numbers were conceptually
representative of overestimation. That is, a positive score represents a student who is overestimating ability relative to the teacher’s rating.
CHAPTER 4
RESULTS

Preliminary Analyses

The data were cleaned in Excel using a spreadsheet comparison equation in order to check for discrepancies. The data was then merged into SPSS where I conducted descriptive statistics, including means and frequencies. I constructed composites by adding the scores of the items for the variables of self-concept for reading, self-concept for math, value for reading and value for math. In order to assess outliers, box plots were computed for all the composites. Any of the cases that appeared to have extremely low values were then replaced with the next highest number within the data set. Then the outliers were recoded into different variables, a method commonly known as winsorizing. The old values were then replaced with a new number, in order to bring the values back into the normal range. Then the outliers were checked again in order to compare the difference. Once the old values were replaced the boxplots demonstrated that the outliers disappeared.

The data were then analyzed for normality of the measured variable distributions, including testing for skewness, kurtosis, and outliers. The cutoff points for skewness/kurtosis are +3 and +8, respectively (Kline, 2010). All the composite variables for both reading and math were normally distributed.

Twenty-two students were re-tested in order to establish reliability of the instruments. The average number of days between testing sessions was 9.8 days with a range of 7 (minimum) to 14 (maximum) days. Test-retest correlations were computed for all the measures included in this study. Eccles et al.’s (1993) competence belief scale had a correlation of .61 for the math
questions on this measure and .65 for the reading questions on this measure. The Task-Value Scale for Children (TVS-C; Aunola et al., 2006; Nurmi & Aunola, 1999; 2005), which was adapted from Eccles et al.’s (1983) *subjective-task value scale* had a test-retest correlation of .45 for the math questions of this measure and .80 for the reading questions of this measure. The self-concept of ability instrument (Aunola et al., 2002; Nurmi & Aunola, 2005; Nicholls, 1979) had a test-retest correlation of .62 for the one reading question and .20 for the one math question.

In order to obtain validity for the teacher measure, 16 of the teachers were randomly chosen to complete an additional five-point scale on 29 students. This Likert-type scale has been used in several very large-scale early childhood studies such as the Preschool Curriculum Evaluation Research Project conducted by Lonigan, Phillips and colleagues (Preschool Curriculum Evaluation Research Consortium, 2008). The scale contains two items, using a Likert-type five-point scale. The teachers were asked “overall, how would you rate this child’s academic skills in each of the following areas, compared to the other children of the same grade level?” Teachers answered this question for both reading and math by placing a check-mark in one of the five columns, ranging from far below average to far above average. In order to determine validity, the five-point Likert-type scale was scaled accordingly and compared against the previous 20-point scale measure. For example, a teacher who rated a child between 1 through 4 on the 20-point scale would get a score of 1, a rating between 5-8 would get a score of 2 and a rating between 9-12 would get a rating of a 3 etc. The test-retest reliability for the teacher rating survey for reading was .89 and .85 for math. Teachers were re-tested, on average 5.5 days after original test date (the range was 3 to 8 days later).
Descriptive Results

Descriptive statistics were conducted on the entire sample, a sub-sample of the students who overestimated, a sub-sample of the students who were accurate and a sub-sample of the students who underestimated their ability in reading and math. The mean estimation difference for the entire sample was 4.10 for reading and 2.88 for math. There were a total of 120 (69.4%) students who overestimated their ability in reading and 110 (63.6%) who overestimated their ability in math. Students who overestimated their reading ability, compared to their teacher, had a mean of 6.89 while students who overestimated their math ability had a mean of 4.20, as compared to how their teacher rated them. Compared with their respective teachers, there were 19 students who were accurate in their reading ability and 17 who were accurate in their math ability. A total of 34 students underestimated their reading ability, with a mean of -3.44 and 46 underestimated their math ability with a mean of -3.48. Table 1 includes descriptive statistics for the entire sample for both reading and math.

Table 1
Descriptive Statistics on the Total Sample

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Max</th>
<th>SD</th>
<th>Skewnes</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. age in years</td>
<td>8.04</td>
<td>10.42</td>
<td>.96</td>
<td>.046</td>
<td>-.471</td>
</tr>
<tr>
<td>2. estimation difference reading total</td>
<td>4.10</td>
<td>19</td>
<td>5.93</td>
<td>.414</td>
<td>-.455</td>
</tr>
<tr>
<td>3. estimation difference math total</td>
<td>2.88</td>
<td>18</td>
<td>5.76</td>
<td>.406</td>
<td>.031</td>
</tr>
<tr>
<td>4. reading value</td>
<td>13.31</td>
<td>15</td>
<td>1.86</td>
<td>-1.22</td>
<td>1.17</td>
</tr>
<tr>
<td>5. math value</td>
<td>12.76</td>
<td>15</td>
<td>2.35</td>
<td>-1.58</td>
<td>3.13</td>
</tr>
<tr>
<td>6. reading self-concept</td>
<td>28.50</td>
<td>37</td>
<td>4.59</td>
<td>-.272</td>
<td>-.691</td>
</tr>
<tr>
<td>7. math self-concept</td>
<td>28.30</td>
<td>35</td>
<td>5.16</td>
<td>-.628</td>
<td>-.373</td>
</tr>
</tbody>
</table>

Note. N = 173 for the entire sample.
Each of the proposed research questions is presented below with a description of the associated analytic strategy.

What are the bivariate correlations between age, student overestimation, self-concept and value for both reading and math?

Pearson correlation analyses were conducted for the entire sample \((n=173)\) to examine the bivariate correlations between age, student overestimation, self-concept and value for both reading and math. There was a significant positive correlation between the calculated rating of student accuracy in reading ability (i.e., estimation difference ratings) with this same variable for math ability \((r = .471, p < .05)\). Moreover, there was a significant positive correlation between reading value and math value \((r = .193, p < .05)\). Self-concept for reading was significantly correlated with self-concept for math \((r = .335, p < .01)\). Thus, although these variables were moderately positively correlated it supports prior research in suggesting that student’s self-concept and value are subject specific. There was a significant negative correlation between age and reading value \((r = -.193, p < .05)\) and age and reading self-concept \((r = -.161, p < .05)\). See Table 2 for the correlations among the observed variables, for the entire sample.

**RQ1**

What are the correlations between Self-concept and Value for both reading and math?

This research question was answered using Pearson correlation coefficient analysis. By conducting correlational analyses I was able to determine whether self-concept and value are in fact related for both reading and math, across ages. Based on the correlation analyses, there were significant moderate positive correlations. Self-concept of reading was correlated with value for reading \((r = .478, p < .01)\) and self-concept of math was correlated with value for math \((r = .475, p < .01)\). This was expected because prior research suggests that students who are...
confident in their ability might also tend to be more motivated to engage in a subject matter. See Table 2 for correlations on the entire sample.

**RQ2**

Are age and student overestimation correlated?

This research question was answered by using Pearson correlation coefficient analysis. Based on the correlational analyses, age and overestimation for both reading \((r = -.152, p < .05)\) and math \((r = -.141)\) were negatively correlated. This supports my original hypothesis, as students get older they are more likely to underestimate instead of overestimate their reading and math abilities. See Table 2 below for correlations on the entire sample.

### Table 2

*Correlations Among Observed Variables for Entire Sample*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. age in years</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. estimation difference</td>
<td>-.152*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. estimation difference</td>
<td>-.141</td>
<td>.471**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>math</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. reading value</td>
<td>-.193*</td>
<td>.264**</td>
<td>.054</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. math value</td>
<td>-.033</td>
<td>.147</td>
<td>.229**</td>
<td>.193*</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. reading self-concept</td>
<td>-.161*</td>
<td>.126</td>
<td>.067</td>
<td>.478**</td>
<td>.198**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7. math self-concept</td>
<td>-.054</td>
<td>.087</td>
<td>.165*</td>
<td>.132</td>
<td>.475**</td>
<td>.335**</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note.* *p < .05,** *p < .01.

**RQ3a**

Do age and student overestimation predict self-concept?

In order to answer this research question and to develop the model for later testing of mediation path models were conducted in MPLUS. Age was significant in predicting reading
self-concept, $b = -1.18$, $t(172) = -2.57$, $p < .05$ (see Figure 2). Overestimation was significant in predicting math self-concept, $b = -1.39$, $t(172) = -2.46$, $p < .01$. See Figure 3.

**RQ3b**

Is there an interaction between age and student overestimation in predicting self-concept?

The interaction of age and overestimation in predicting reading self-concept was non-significant, $b = .100$, $t(172) = 1.68$, $p > .05$. The interaction of age and overestimation in predicting math self-concept was significant, $b = .192$, $t(172) = 2.74$, $p < .01$. See Figures 2 and 3.

![Figure 2](image2.png)  
Figure 2. Model of age, student overestimation and overestimation x age interaction in predicting reading self-concept. *$p < .05$.

![Figure 3](image3.png)  
Figure 3. Model of age, student overestimation and overestimation x age interaction in predicting math self-concept. *$p < .05$, **$p < .01$. 
RQ4a

Do age and student overestimation predict value?

In order to answer this research question similar steps were followed as in question three. Age was significant in predicting reading value, $b = -.54$, $t(172) = -2.97$, $p < .05$. Overestimation was non-significant in predicting reading value, $b = -.310$, $t(172) = -1.63$, $p > .05$. Overestimation was non-significant in predicting math value, $b = .103$, $t(172) = .397$, $p > .05$. Age was non-significant in predicting math value, $b = .004$, $t(172) = .016$, $p > .05$.

RQ4b

Is there an interaction between age and student overestimation in predicting value?

The interaction of age and overestimation in predicting reading value was significant, $b = .05$, $t(172) = 2.05$, $p < .05$. The interaction of age and overestimation in predicting math value was non-significant, $b = -.001$, $t(172) = -.038$, $p > .05$.

Figure 4. Model of age, student overestimation and overestimation x age interaction in predicting reading value. *$p < .05$, **$p < .01$. 

45
Figure 5. Model of age, student overestimation and overestimation x age interaction in predicting math value. *$p < .05$.

**RQ5**

Does academic self-concept mediate relations between other predictors and learning value?

The full hypothesized model was built (see Figure 1) and the pathways were tested for significance. The hypothesized model in this study is fully saturated and has perfect fit. A saturated model has perfect fit since it exactly reproduces all of the covariances, variances and means. Therefore, the fit indices were all perfect for this model and did not need to be evaluated.

The assumptions of path analysis were checked, (i.e., efficient sample size, correctly specified model, continuous data and multivariate normal distributed data). The cutoff values of assessing non-normality are recommended as univariate Skewness ($+/−3$) and univariate Kurtosis ($+/−8$) (Kline, 2010). The range of Skewness for these variables was from -1.58 to .406 and the range of Kurtosis was from -.471 to 3.13. Maximum Likelihood Estimate (ML) was then used to analyze the data in MPLUS. ML assumes multivariate normality among the measured variables.
and underlies the derivation of parameter estimates (Kline, 2010). The parameter estimates maximize the likelihood that the data were drawn from the population (Kline, 2010).

In order to answer the research question I first tested mediation following the suggested steps of Barron and Kenny (1986). The Baron and Kenny approach has been a very popular approach to testing mediation, partially because of its simplicity. Hayes (2009) states that “most anyone can be taught this approach, its implementation described in only a few manuscript lines, and readers and reviewers will be able to follow along without difficulty” (p.5). However, these are not convincing enough reasons to use this method. Simulation studies have demonstrated this approach as being among the lowest in power (MacKinnon et al., 2002). Moreover, this approach fails to quantify the very thing it is attempting to test – the intervening effect (Hayes, 2009). It is possible for a mediator to be causally between the independent (x) and dependent variables (y) even if x and y are not associated. Thus, it is for this reason that many researchers prefer to avoid the term mediator, and instead refer to x’s indirect effect on y through M (Mathieu & Taylor, 2006).

In addition to the Baron and Kenny approach in testing mediation, the bootstrap method implemented by Preacher and Hayes (2004, 2008) was also conducted. The bootstrap method is more recent and simulation research has demonstrated that this method tends to have the highest power and the best type 1 error control (Hayes, 2009). Bootstrapping takes the original sample size and draws a new set of values from it and thus creates a new sample size. Typically, 1,000 bootstrapped samples is the approach used, however, 100 - 500 bootstrapped samples have been demonstrated to be sufficient (Pattengale, Alipour, Bininda-Emonds, Moret, & Stamatakis, 2010). This method takes the original equations and estimates them for each bootstrap sample, in this case estimating both the indirect and direct effects of age and overestimation on value.
through self-concept. Bootstrapping estimates everything simultaneously instead of assuming the three regression equations are independent from each other.

Using MPLUS, approximately 1,000 bootstrap samples were drawn and the path coefficients were estimated for both reading and math. Figure 6 includes the full model for reading along with their path coefficients and their significance level. Figure 7 includes the full math model. Based on the full model results for reading, age was a significant predictor of reading self-concept ($b = -1.18$, $t(173) = -2.40$, $p < .05$), overestimation was a non-significant predictor of reading motivation ($b = -.181$, $t(173) = -.936$, $p > .05$), the interaction of age x overestimation was non-significant in predicting both reading self-concept ($b = .100$, $t(173) = 1.59$, $p > .05$) and reading value ($b = .031$, $t(173) = 1.27$, $p > .05$). Reading self-concept was significant in predicting reading value ($b = .173$, $t(173) = 5.51$, $p < .001$) and age was significantly correlated with overestimation ($b = -.86$, $t(173) = -2.01$, $p < .05$).

Based on the full math model results, overestimation significantly predicted math self-concept ($b = -1.39$, $t(173) = -1.90$, $p < .05$), the interaction of age x overestimation significantly predicted math self-concept ($b = .192$, $t(173) = 2.09$, $p < .05$), overestimation was non-significant in predicting math motivation ($b = .402$, $t(173) = 1.70$, $p < .05$), self-concept of math significantly predicted math motivation ($b = .214$, $t(173) = 5.94$, $p < .001$) and age was significantly correlated with overestimation ($b = -.774$, $t(173) = -1.96$, $p < .05$).

In order to determine mediation, 1,000 bootstrap samples were computed using a 95% confidence interval for both the reading and math models. The standardized regression coefficients were then evaluated to determine indirect, direct and total effects (see Tables 3 and 4). In support of the bootstrap method, Zhao, Lynch & Chen (2010) have identified five possible
patterns a researcher could observe to determine mediation for structural equation modeling. They include three patterns with mediation and two patterns with non-mediation:

Figure 6. Path analysis of the relationship between age, overestimation and their interaction in predicting reading value through reading self-concept.
Note. Standardized Structural Estimates of the Hypothesized Model for Reading at 1,000 bootstrap samples. Significant paths are indicated with solid lines labeled with path coefficients; broken lines indicate non-significant paths. *p<.05, **p<.001.

Figure 7. Path analysis of the relationship between age, overestimation and their interaction in predicting math value through math self-concept.
Note. Standardized Structural Estimates of the Hypothesized Model for Math at 1,000 bootstrap samples. Significant paths are indicated with solid lines labeled with path coefficients; broken lines indicate non-significant paths. *p<.05, **p<.001.
“1. Complementary mediation: Mediated effect \( a \times b \) and direct effect \( c \) both exist and point at the same direction.”

2. Competitive mediation: Mediated effect \( a \times b \) and direct effect \( c \) both exist and point in opposite directions.

3. Indirect-only mediation: Mediated effect \( a \times b \) exists, but no direct effect.

4. Direct-only non-mediation: Direct effect \( c \) exists, but no indirect effect.

5. No-effect non-mediation: neither direct effect nor indirect effect exists”

(p.200).

I will now address the five different patterns above as they pertain to this research study.

For the reading model, the direct path to reading value from age was non-significant \( b = -0.331, t(173) = -1.45, p > .05 \) and the indirect path from age to reading value through self-concept was significant \( b = -1.18, t(173) = -2.39, p < .05 \). The indirect effect exists; therefore the variables of age regressed on reading value through self-concept demonstrated indirect-only mediation.

The direct path of overestimation to reading value was non-significant \( b = -0.181, t(173) = -0.94, p < .001 \) and the indirect path from overestimation to reading value through self-concept was non-significant \( b = -0.72, t(173) = -1.43, p > .05 \), which indicated no-effect non-mediation. The interaction of age x overestimation regressed on reading value and then again on reading value through self-concept were both non-significant \( b = 0.031, t(173) = 1.27, p > .05; b = 0.100, t(173) = 1.59, p > .05 \), which indicated no-effect non-mediation.

For the math model the paths from age to math value and then from age to math value through self-concept were both non-significant \( b = 0.180, t(173) = 0.912, p > .05; b = -0.82, t(173) = -1.57, p > .05 \) which indicated no-effect non-mediation. Overestimation to math value was non-significant \( b = 0.402, t(173) = 1.70, p < .05 \) and overestimation to math value through self-
concept was significant ($b = -1.39$, $t(173) = -1.90$, $p < .05$). The mediated effect exists, but no direct effect, demonstrating *indirect-only mediation*. The interaction of age x overestimation was non-significant in directly predicting math value ($b = -.042$, $t(173) = -1.48$, $p > .05$). The interaction of age x overestimation in predicating math value through self-concept was significant ($b = .192$, $t(173) = 2.09$, $p < .05$). This indicates *indirect-only mediation*.

Table 3
*Direct, Indirect, and Total Effects for Reading Model*

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Reading self-concept</th>
<th>Reading Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Indirect</td>
</tr>
<tr>
<td>Age</td>
<td>-1.18*</td>
<td>-1.18*</td>
</tr>
<tr>
<td>(A x O) Interaction</td>
<td>.100</td>
<td>.100</td>
</tr>
<tr>
<td>Overestimation</td>
<td>-.72</td>
<td>-.72</td>
</tr>
<tr>
<td>Self-concept</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05$, ** $p < .001$.

Table 4
*Direct, Indirect, and Total Effects for the Math Model*

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Math self-concept</th>
<th>Math Value</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Direct</td>
<td>Indirect</td>
</tr>
<tr>
<td>age</td>
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<td>-.82</td>
</tr>
<tr>
<td>(A x O) Interaction</td>
<td>.192*</td>
<td>.192*</td>
</tr>
<tr>
<td>overestimation</td>
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<td>-1.39*</td>
</tr>
<tr>
<td>Self-concept</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05$, ** $p < .001$. 
CHAPTER 5

DISCUSSION

The purpose of this study was to further investigate children’s self-concept (i.e., expectation for success) and task-values, as well as the variables’ relations with age and overestimation for reading and math ability. More specifically, this study sought to explore if student overestimation significantly predicts reading and math value as mediated by self-concept (i.e., expectation for success). Student ratings of their reading and math ability were compared with teacher report. The data was collected from private school populations, with the tuition range being between 6,400 to 42,000 dollars per year. The study’s sample was ethnically diverse, with approximately as many males as females. Overall, the sample size was 173 students and their respective teachers. Of the 173 students, 120 students overestimated their ability in reading and 110 overestimated their ability in math, compared to teacher report. In terms of the specific research questions and the hypotheses, the findings are reviewed briefly below.

There were significant moderate positive correlations between self-concept of reading and value for reading. Self-concept of math also was significantly correlated with value for math. These findings were hypothesized and support prior research suggesting that students who are confident in their ability might also engage more in a subject matter (Spinath & Spinath, 2005; Jacobs et al., 2002). Moreover, age and overestimation for both reading and math were negatively correlated. This also supports prior research that suggests that younger students overestimate their capabilities more than older students (Stipek & Daniels, 1988; Wigfield et al., 1997).

Age was found to significantly predict reading self-concept, however, overestimation of reading ability was not significant in predicting reading self-concept. This suggests that as
children get older they are more likely to have a negative reading self-concept, which then influences their value for reading.

Different results were indicated for math. Overestimation of math ability significantly predicted math value through math self-concept. This finding supports prior research in suggesting that students who hold high confidence in their math abilities value math more (Nurmi & Aunola, 2005; Eccles et al., 1998). Age did not significantly predict math self-concept. However, the influence of age cannot be ruled out entirely for the math findings because the interaction of age x overestimation was significant in predicting math self-concept. The fact that age was not a unique predictor of math self-concept or math value is an interesting finding in itself and partially contradicts prior research supporting decreases in math value with age (Eccles et al., 1998; Eccles et al., 1993; Jacobs, et al., 2002). However, it could be the case that less emphasis is placed in math, in these early grades within the private school setting, as opposed to language and reading. This could result in fewer experiences in activities within this domain. Fewer experiences could result in limited opportunities for the possibility of developing a negative math self-concept.

Another reason why age did not predict math self-concept or math value may be that private schools tend to put less of an emphasis on standardized testing. This could result in the students demonstrating less social comparison with their classroom peers. It would be worthwhile to evaluate the focus of classroom instruction in private school settings such as those participating in the current study to see if instruction is more focused on task mastery rather than performance (and thus social comparison). Mastery-oriented instruction focuses on a sense of task mastery and is often correlated with positive learning environments (Anderman et
al., 2001; Weiner, 1979). Classrooms focused on task mastery could help student’s maintain positive self-appraisals. These would be interesting questions worth exploring in the future.

Age also may not have directly predicted reading or math value because the majority of the data collected in this study was at the beginning of the school year, as opposed to the end. At the beginning of the school year children tend to receive less frequent instruction in school, and thus less related feedback, making it less likely that the students’ value patterns would be substantially different from students in the prior school year, regardless of age (Nurmi & Aunola, 2005).

Overall, these findings support previous research in suggesting that even elementary aged children distinguish between different school domains in the value they attach to them (Wigfield & Eccles, 1992; Nurmi & Aunola, 2005; Jacobs et al., 2002). It would be important to better understand how children distinguish between different school subjects and what influences student’s value towards different subject domains. A further investigation is deemed appropriate of the age differences and the value that student’s place on different subject domains. Once we have a better understanding of the developmental differences between students’ responses to different subject domains we can better assess environmental factors that influence such differences. The factors that motivate an individual to do well in reading might be different than the factors that motivate him or her to achieve in math.

Self-concept (i.e., expectation for success) was found to significantly predict value for both the content areas of math and reading. This supports prior findings in suggesting that self-concept beliefs are closely linked with the value a person places on something (Archambault et al., 2010; Jacobs et al., 2002; Spinath & Spinath, 2005). This further supports research suggesting that self-concept (i.e., expectations for success) and value need to be studied together
in SEM and other multivariate studies because the importance of changes in one over another may not be estimated correctly if they are studied individually (Eccles, 2005).

This study also supports prior research in suggesting that children in the early elementary years tend to hold overly positive perceptions of their academic ability, compared to their actual skill levels (Parsons & Ruble, 1977; Stipek & MacIver, 1989). There was a steady downward trend with age, for those children who overestimated both their reading and math ability. The percentage of children who overestimated both their reading and math abilities also decreased with age. This further supports the notion that as children progress through elementary school, their self-concept beliefs tend to become more realistic as they continue to receive feedback on their performances (Kistner, David & Repper, 2007; Stipek & Mac Iver, 1989; Wigfield et al., 1997; Wigfield & Eccles, 2000). Moreover, different types of causal attributions, such as prior ability and estimates of task difficulty, developed from prior successes and failures all influence an individual’s self-concept (i.e., expectations for success).

Limitations

Public schools were excluded from recruitment for this research study due to logistical feasibility. The data were collected from the private school population; therefore, results may not be generalizable to the general public school population. Thus, nearly all of the prior research that this study is founded on is from public school data, making it one limitation for this study. However, this also reflects a good aspect of this study, as there is not much prior research related to the private school population.

Public schools must follow the rules and regulations set by politicians. Private schools are independent and thus are not required to abide by the same sorts of regulations that govern public
schools. This could result in differentiated learning environments for each type of school setting. Moreover, the majority of private schools have strict admissions procedures for becoming enrolled in the school and as a result, private schools are allowed to be more selective in their admissions enrollment.

A second limitation of this study is that some of the test-retest correlations were fairly low for this research study. Eccles et al.’s (1993) *competence belief scale* had a test-retest correlation of .61 for the math questions of this measure and .65 for the reading questions of this measure. The Task-Value Scale for Children (TVS-C; Aunola et al., 2006; Nurmi & Aunola, 1999; 2005) which was adapted from Eccles et al.’s (1983) *subjective-task value scale* had a test-retest correlation of .45 for the math questions of this measure. The self-concept of ability instrument (Aunola et al., 2002; Nurmi & Aunola, 2005; Nicholls, 1979) had a test-retest correlation of .62 for the reading question and .20 for the math question. A low test-retest reliability score is an indication that the measure is poor and/or that students’ self-concept and value towards their reading and math ability is not stable. This would be worth exploring in the future to see why students’ self-concept for math and reading and value for math changes so quickly and is fairly unstable. It could also be that students’ self-concept and value for math and reading is fairly stable but the measure is poor. All three of the self-concept and value measures (Aunola et al., 2002; 2006; Eccles et al., 1993; Nicholls, 1979; TVS-C; Nurmi & Aunola, 1999; 2005) should be administered to additional students in the future in order to better test the validity and reliability of the measures.

A third limitation is related to the construct of self-concept, which was included in this study. Self-concept indicates fairly stable perceptions of the self that are past-oriented and based on past performance, whereas self-efficacy represents future-oriented conceptions of the self’s
potential (Bong & Skaalvik, 2003). It seemed most appropriate to use the construct of self-concept for this study due to the students being of such a young age. The students might have a hard time in assessing their future abilities in specific situations. However, Eccles et al.’s (1993) competence belief scale, which was included in this study, has some items that may be focused on assessing an individual’s self-efficacy in a specific domain. This scale asks children “how good they will be at learning new material in each subject, their expectancies for success in each activity, how hard they believe each activity is, and their sense of efficacy for learning new things in each domain” (p. 833).

Moreover, it may be important to revisit the issue of how to assess motivation in young children. Perhaps the expectancy-value model may not be appropriate for this young age group. According to Eccles et al. (1983) academic value includes four value aspects: “Attainment value (the importance of doing well on a task), utility value (the value of the task for reaching future goals) and interest value (the enjoyment one receives for engaging in an activity) and cost (the negative aspects in engaging in an activity, such as anxiety)” (p.89). It could be the case that young children are less likely to hold value, but better able to demonstrate a liking for something. It is possible that we need to revisit some of the constructs that make up some of the motivational literature, in order to make sure they are recognized in the same way. This may also include creating additional measures that accurately assess a student’s self-concept and motivation.

Another limitation of this study is that the effect sizes obtained are quite small in this study. This means that there are significant predictors not represented in the model. These predictors could include environmental factors such as, the organization of the classroom, teacher-child relationships, parental support, and instructional support etc.
Implications and Future Research

Some implications can be drawn related to the development of students’ reading and math self-concept and value. First, further investigation of teacher practices and the types of instruction that elementary students receive are worth exploring in the future in order to better identify how such practices can influence academic self-concept and value patterns in students. It would be important to evaluate the focus of classroom instruction in private school settings to see if instruction is more focused on task mastery rather than performance (and thus social comparison). Instruction focused on performance has been demonstrated to negatively impact changes in reading and math value (Anderman et al., 2001). On the contrary, classrooms that are more mastery-focused tend to focus less on social comparison with classroom peers. Mastery-oriented instruction could promote an individual’s self-concept, where all students can feel a sense of task mastery and ultimately feel successful even upon needing improvements (Anderman et al., 2001; Weiner, 1979). A further investigation of this knowledge could help educators in the development of effective strategies that promote children’s self-concept of ability and value for reading and math.

Second, the results suggest that overestimation of reading and math ability positively influence math self-concept. Thus, it seems necessary to better understand the timing of when more realistic views (and negative views) of the self start to occur in students’ reading and math self-concept of ability. Researchers still are not sure whether these differences reflect specific environmental factors, such as the type of instruction that children receive, teacher-child relationships (Pianta, La Paro, & Hamre, 2008), classroom organization (Emmer & Stough, 2001), or other influences. We need to better understand if these factors influence children at different points in time and for whom (Archambault et al., 2010). Moreover, it seems important
to adopt changes in curriculum as needed that help meet the individual needs of each student. Prior history of achievement has been shown to be a good predictor of future academic motivation in students (Harter & Connell, 1984; Jacobs et al., 2002). Therefore, educators may want to consider focusing more on mastery-orientated instruction, which can provide positive feedback that promotes academic self-concept and value in students.

Third, more research is needed in better understanding how the processes of ability accuracy, self-concept of ability and value develop and interact with each other. In addition, it seems especially important to understand what is driving differences of these processes in both of the content areas of reading and math. We do know that students tend to hold different interpretations about their self-concept of ability towards different subject domains based on their distinct performance history in each domain (Bandura, 1989; Eccles et al., 1993). Moreover, it seems appropriate to further assess the factors that influence gender differences in both the content areas of reading and math. Building on what is already known, there is still much more to understand about the development of these psychological processes in both the content areas of reading and math.
APPENDIX A

FLORIDA STATE UNIVERSITY IRB APPROVAL

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 - FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 08/15/2012

To: [Redacted]

Address: [Redacted]

Dept.: EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research

Trajectories of Elementary Students’ Motivation and self-concept in Reading and Math

The application that you submitted to this office in regard to the use of human subjects in the research proposal referenced above has been reviewed by the Human Subjects Committee at its meeting on 06/13/2012. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 06/12/2013 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Beth Phillips, Ph.D.  <bphilips@fsu.edu>, Advisor

HSC No. 2012-8082
APPENDIX B

FLORIDA STATE UNIVERSITY IRB RE-APPROVAL MEMORANDUM

Office of the Vice President For Research
Human Subjects Committee
P. O. Box 3062742
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

RE-APPROVAL MEMORANDUM

Date: 05/20/2013

To:   [Redacted]

Address: [Redacted]

Dept.:  EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From:  Thomas L. Jacobson, Chair

Re:  Re-approval of Use of Human subjects in Research:

Trajectories of Elementary Students' Motivation and self-concept in Reading and Math

Your request to continue the research project listed above involving human subjects has been approved by the Human Subjects Committee. If your project has not been completed by 05/07/2014, you must request renewed approval by the Committee.

If you submitted a proposed consent form with your renewal request, the approved stamped consent form is attached to this re-approval notice. Only the stamped version of the consent form may be used in recruiting of research subjects. You are reminded that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chairman of your department and/or your major professor are reminded of their responsibility for being informed concerning research projects involving human subjects in their department. They are advised to review the protocols as often as necessary to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

Cc:

HSC No. 2013.10343
APPENDIX C

FLORIDA STATE UNIVERSITY IRB RE-APPROVAL MEMORANDUM

Office of the Vice President For Research
Human Subjects Committee
P. O. Box 3062742
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

RE-APPROVAL MEMORANDUM

Date: 06/03/2014

To: 

Address: 

Dept.: EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From: Thomas L. Jacobson, Chair

Re: Re-approval of Use of Human subjects in Research:
   Trajectories of Elementary Students’ Motivation and self-concept in Reading and Math

Your request to continue the research project listed above involving human subjects has been approved by the Human Subjects Committee. If your project has not been completed by 04/08/2015, you are must request renewed approval by the Committee.

If you submitted a proposed consent form with your renewal request, the approved stamped consent form is attached to this re-approval notice. Only the stamped version of the consent form may be used in recruiting of research subjects. You are reminded that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chairman of your department and/or your major professor are reminded of their responsibility for being informed concerning research projects involving human subjects in their department. They are advised to review the protocols as often as necessary to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

Cc: 

HSC No. 2014.12364
APPENDIX D

PARENT COVER LETTER

Informed Consent Form

This is a research project being conducted by a graduate student, Kayla Sedgwick, under the supervision of Dr. Beth Phillips in the department of Educational Psychology and Learning Systems, at the Florida State University. The purpose of the research project in which we are asking your child to participate is to learn more about the development of elementary students' learning motivation and self-concept and how elementary classroom environments can better foster students' overall academic experiences.

Should you agree to let your child participate, he or she will be interviewed, one-on-one by a trained research assistant for approximately 15 minutes. The questions being asked during this time will focus on your child's beliefs about his or her ability in reading and math. In addition, students will be asked about their self-beliefs in reading and math, relative to the others in their class. An example of a question that your child may be asked includes: "how much do you like math?" These interviews will take place at your child’s school during regular school hours.

Your child’s teacher will also be asked to rate your child’s academic skills in reading and math, compared to the others in his or her class.

Your child’s participation may help the investigators learn more about the development of student motivation as a way to increase academic success.

We know of no risks associated with your child’s participation in this project. All information obtained as a result of this project will be kept confidential, to the extent allowed by law. Confidentiality will be ensured in the following ways: In public reports of the results of this project, we will only report results that have been averaged over large numbers of children. No individual child will ever be identified publicly. Assessments of your child’s beliefs are only for research purposes and we will not include your child’s name on any collected data. A code will be placed on all collected data, through the use of an identification number where the researcher will be able to link the data to your child’s identity. All data will be stored in a locked file storage area in research offices at the Florida Center for Reading Research at Florida State University. This data will not be available to your child’s school or to any other person or institution unless you ask us in writing to do so. All data will be retained for a period of 5 years following completion of the project.

FSU IRB Approved on 5/08/2013 Void After 5/7/2014 HSC #: 2013.10343
If at any time you have questions about this project, please contact Kayla Sedgwick, a graduate student in Educational Psychology and Learning Systems, Florida State University, 6471 Oakleaf Towne Blvd. If you have questions about your child’s rights as a participant in this project, or if you feel your child has been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Office of the Vice President for Research, at (850) 644 8633.

If you agree to have your child participate in this research project, please sign and print your name, the name of your child, and the name of your child’s teacher below. Your signature indicates that you have read the information provided above, or have had it read to you, and that you have decided to participate.

A copy of this consent form has been offered to you.

________________________________________
Signature and printed name of parent or legal guardian

________________________________________
Home address

_________________________  ____________________________  __________________________
Today’s Date             Phone Number            E-mail Address

________________________________________
Printed name of child

________________________________________
Child’s Date of Birth

________________________________________
Printed name of child’s teacher

________________________________________
Printed name of school

FSU IRB Approved on 5/08/2013 Void After 5/7/2014 HSC # 2013.10343
APPENDIX E

TEACHER COVER LETTER

Informed Consent Form

This is a research project being conducted by a graduate student, Kayla Sedgwick, under the supervision of Dr. Beth Phillips in the department of Educational Psychology and Learning Systems, at the Florida State University. The purpose of the research project in which we are asking you to participate is to learn more about the development of elementary students’ learning motivation and self-concept and how elementary classroom environments can better foster students’ overall academic experiences.

Should you agree to participate, you will be asked to fill out a short questionnaire regarding each participating child, containing two questions. The two questions will simply ask you to rate consented children’s academic skills in the areas of math and reading. The participating children will be interviewed, one-on-one by a trained research assistant for approximately 15 minutes. The questions being asked during this time will focus on your student’s beliefs about his or her ability in reading and math. In addition, students will be asked about their self-beliefs in reading and math, relative to the others in their class. An example of a question that your child may be asked is: “how much do you like math?”

Your participation may help the investigators learn more about the development of student motivation as a way to increase academic success.

We know of no risks associated with your participation in this project. All information obtained as a result of this project will be kept confidential, to the extent allowed by law. Confidentiality will be ensured in the following ways: In public reports of the results of this project, we will only report results that have been averaged over large numbers of children. No individual child will ever be identified publicly. Assessments of your beliefs are only for research purposes and we will not include your name or your students’ names on any collected data. A code will be placed on all collected data, through the use of an identification number where the researcher will be able to link the data to your identity. All data will be stored in a locked file storage area in research offices at the Florida Center for Reading Research at Florida State University. This data will not be available to your school or to any other person or institution unless you ask us in writing to do so. All data will be retained for a period of 5 years following completion of the project.

FSU Human Subjects Committee Approved on 8/15/2012. Void after 6/12/2013. HSC # 2012.8402
Your participation is completely voluntary. You do not have to participate if you do not want to. Your decision whether to participate or not will have no effects on any other treatment or services to which you are entitled from Florida State University. You may change your mind and withdraw from this project at any time without penalty. There are no risks associated with withdrawal from this project. Your decision to participate in, decline participation in, or withdraw from this project at any time will not affect your employment status or compensation; no research documentation will be shared with employment supervisors.

If you choose to participate a complimentary gift basket (including various books and supplies) will be gifted to you and your class.

If at any time you have questions about this project, please contact Kayla Sedgwick, a graduate student in Educational Psychology and Learning Systems, Florida State University, If you have questions about your rights as a participant in this project, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Office of the Vice President for Research, at (850) 644 8633.

If you agree to participate in this research project, please sign and print your name. Your signature indicates that you have read the information provided above, or have had it read to you, and that you have decided to participate.

A copy of this consent form has been offered to you.

____________________________________________________
Signature and printed name of teacher

____________________________________________________
Today’s Date    Phone Number    E-mail Address

____________________________________________________
Printed name of school

Please include the following information so that we can contact you regarding project results

____________________________________________________
Street Address    City    State    zip

____________________________________________________
Home Phone:      Work Phone:

FSU Human Subjects Committee Approved on 8/15/2012. Void after 6/12/2013. HSC # 2012.8402
Child Assent Script

Hello ______________ (child’s name), my name is _______________(examiner’s name). How are you doing today? I would like your help in a project I am doing.

I would like to ask you some questions about school subjects like math and reading. For instance, I will ask you questions about whether you like to do math.

These questions take between 10 and 15 minutes to finish.

I am going to ask some of the other children in your class to help me answer some of the same questions.

Your parent said it was okay for you to come with me today. However, you can decide if you want to answer my questions. You won’t get in trouble, and no one will be mad if you decide you don’t want to answer the questions.

Okay? So will you answer my questions?

If child says yes……add:

I am going to write down some of what you say so that I can remember it. Are you ready now?

If child says no, the child will be thanked and excused.
APPENDIX G

PROJECT OVERVIEW

This is a research project being conducted by a graduate student, Kayla Sedgwick, under the supervision of Dr. Beth Phillips in the department of Educational Psychology and Learning Systems, at the Florida State University. The purpose of the research project in which we are asking your school to participate is to learn more about the development of elementary students’ learning value and self-concept and how elementary classroom environments can better foster students’ overall academic experiences.

Should you agree to let your school participate, permission will be sought from students in first, second and third grade. In addition, consent will be sought from the learner’s teachers and their parents. Only those who consent will participate in this research study. Teachers will be asked to fill out a short questionnaire, containing two questions. The two questions will simply ask them to rate consented children’s academic skills in the areas of math and reading, relative to other students in the same grade. The participating children will be interviewed, one-on-one by a trained research assistant for approximately 15 minutes. The questions being asked during this time will focus on student’s beliefs about his or her ability in reading and math. In addition, students will be asked about their self-beliefs in reading and math, relative to the others in their class. An example of a question that students may be asked includes: “how much do you like math?”

Your school’s participation may help the investigators learn more about the development of student value as a way to increase academic success.

Once I have received your permission to approach the students and their teachers to participate in this study I will,

- arrange for informed consent to be obtained from participants’ parents
- arrange a time with your school for data collection to take place
- obtain informed consent from participants

We know of no risks associated with your participation in this project. All information obtained as a result of this project will be kept confidential, to the extent allowed by law. Confidentiality will be ensured in the following ways: In public reports of the results of this project, we will only report results that have been averaged over large numbers of children. No individual child will ever be identified publicly. Assessments of teacher and student beliefs are only for research.
purposes and we will not include the teachers’ or students’ names on any collected data. A code will be placed on all collected data, through the use of an identification number where the researcher will be able to link the data to his or her identity. All data will be stored in a locked file storage area in research offices at the Florida Center for Reading Research at Florida State University. This data will not be available to your school or any other person or institution unless you ask us in writing to do so. All data will be retained for a period of 5 years following completion of the project.

If you choose to let your school participate, a complimentary gift basket (including various books and supplies) will be gifted to participating classrooms.

If at any time you have questions about this project, please contact Kayla Sedgwick, a graduate student in Educational Psychology and Learning Systems, Florida State University. If you have questions about your students’ and their teacher’s rights, as participants in this project, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Office of the Vice President for Research, at (850) 644 8633.

Attached for your information are copies of the parent and teacher consent forms.

If you agree to allow your school to participate in this research project, please sign and print your name. Your signature indicates that you have read the information provided above, or have had it read to you, and that you have decided to participate.

A copy of this project overview has been offered to you. Thank you for taking the time to read this information.

________________________________________  _____________________________
Signature and printed name of principle

_____________ ____________
Today’s Date       Phone Number       E-mail Address

________________________________________
Printed name of school

________________________________________
Street Address           City           State           zip

Work Phone: ____________________________
APPENDIX H

MEASURES

Self-concept Measure

Directions: “I’m going to ask you some questions about math and reading. Each bar represents a number. The smallest bar equals a 1 and means ‘not at all good’, 4 is ‘ok’ and 7 is very good. I want you to point to the bar that best represents your answer to the question. Do you have any questions before we begin?”

1) How good at math are you?

2) If you were to list all the students from best to worst in math, where are you? (1= one of the worst, 7= one of the best)

3) Compared to other subjects, how good are you at math?
4) How well do you expect to do in math this year?

5) How good would you be at learning something new in math?
6) How good at reading are you?

7) If you were to list all the students from best to worst in reading, where are you?

8) Compared to other subjects, how good are you at reading?
9) How well do you expect to do in reading this year?

10) How good would you be at learning something new in reading?
Subjective-Task Value Scale

Instructions and material for the Task-value scale for children (TVS-C; Nurmi & Aunola, 1999b)

Instructions: ‘You learn and do many things at school, such as reading, writing and mathematics. I am going to ask you some questions concerning different kinds of school tasks and how much you like them. At the same time, I will show you a picture which has on it five different faces. The faces go from happy to unhappy and reflect your liking of tasks. The happier the face is, the more you like the task. This, the happiest face means that you like the task very much and you enjoy doing things like that. This second face means that you quite like the task; this one means that you neither like it nor dislike it; this one means that you don’t like the task and this last one means that you really dislike the task and don’t enjoy doing tasks like that at all. So, your job is to answer my questions by pointing out the picture which best describes how you feel. There are no right or wrong answers. I just want to know how much you like different things and what do you think about them. Do you understand? Good. Let’s start.’

Points: 5 4 3 2 1

“I like it very much, I really enjoy doing those tasks.”  “I do not like it at all, I dislike doing those tasks.”

“how much do you like math?”

Points: 5 4 3 2 1

“I like it very much, I really enjoy doing those tasks.”  “I do not like it at all, I dislike doing those tasks.”
“How much do you like doing math-related tasks at school?”

![Smiley faces with points]

```
Points: 5 4 3 2 1
```

“I like it very much, I really enjoy doing those tasks.”

“I do not like it at all, I dislike doing those tasks.”

“How much do you like doing math-related tasks at home?”

![Smiley faces with points]

```
Points: 5 4 3 2 1
```

“I like it very much, I really enjoy doing those tasks.”

“I do not like it at all, I dislike doing those tasks.”

“how much do you like reading?”

![Smiley faces with points]

```
Points: 5 4 3 2 1
```

“I like it very much, I really enjoy doing those tasks.”

“I do not like it at all, I dislike doing those tasks.”
“How much do you like doing reading-related tasks at school?”

![Emojis and point scale]

Points: 5  4  3  2  1

“I like it very much, I really enjoy doing those tasks.”

“I do not like it at all, I dislike doing those tasks.”

“How much do you like doing reading-related tasks at home?”

![Emojis and point scale]

Points: 5  4  3  2  1

“I like it very much, I really enjoy doing those tasks.”

“I do not like it at all, I dislike doing those tasks.”
Student Self-concept Measure

“These faces represent the children in your class. The child at the top of the page represents the child who is the best at reading and math, while the face at the bottom represents the child who is the worst at reading and math. Now, can you show me how good you are at reading/math? Which one is you?” Please point to one of the faces.”
**Teacher Rating Scale**

Overall, how would you rate this child’s academic skills in each of the following areas, compared to other children of the same grade level?

<table>
<thead>
<tr>
<th></th>
<th>Far below average</th>
<th>Below average</th>
<th>Average</th>
<th>Above average</th>
<th>Far above average</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Reading skills</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Math skills</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
REFERENCES


Lippman (Eds.), What do children need to flourish? Conceptualizing and measuring indicators of positive development (pp. 237-249). New York: Springer.


BIOGRAPHICAL SKETCH

Learning how individuals learn and think has been an interest of mine since childhood. I have always been fascinated with the brain, which motivated me to receive my Bachelor of Arts in Psychology at Florida State University. Upon graduating with my Bachelors degree I started working with the Florida Center for Reading Research (FCRR) as a researcher. Shortly after working at FCRR, I became encouraged to pursue a graduate degree in Educational Psychology and Learning Systems. I graduated with a Masters of Science in Educational Psychology and received a certificate in Measurement and Statistics in the summer of 2014. My purpose in life is to motivate and encourage young people to be knowledge producers, knowledge users, and lifelong learners.