"IT WAS MORE USEFUL THAN I INITIALLY THOUGHT": CHANGES IN

MOTIVATIONAL COMPONENTS AS PRESERVICE TEACHERS COMPLETE A

MEANINGFUL ACADEMIC TASK

by

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ABSTRACT OF THE DISSERTATION

"It was More Useful than I Initially Thought": Changes in Motivational Components as

Preservice Teachers Complete a Meaningful Academic Task

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In this study, I revealed changes in academic motivational components while students were completing an academic task. The sample consisted of teacher education graduate students enrolled in an educational assessment summer course. The academic task was an assessment portfolio that the students could use after the course when they applied for teaching jobs and as an aid in their teaching. The task was designed to be meaningful to the students and to enhance their intrinsic motivation. It was constructivist in nature and allowed the students to practice the skills they learned within their own fields. I measured value and expectancy components of motivation at a task-specific level while students completed this assignment over the duration of the 4-week summer course.

I measured academic motivation at a task-specific level to provide empirical support for modern expectancy-value theory. Because motivational constructs were found to have more predictive power when measured at a domain-specific measure compared to global measures, measuring the motivational constructs of expectancy and value at a

task-specific level was expected to significantly predict academic performance and self-reported behavior as well. Additionally, measuring motivational constructs at a task-specific level presented a different way to examine motivational constructs.

The theorists of modern expectancy-value theory have demonstrated links that exist between the motivational constructs described in their theory and those in other academic motivational theories. In this study, I provided additional support to this effort by demonstrating that the description of intrinsic value more closely matched that of constructs from other theoretical perspectives. Intrinsic value is a component within task value in expectancy-value theory defined as the enjoyment one experiences while completing a task and the interest one has in the task. I hypothesized that interest and enjoyment, constructs used interchangeably to define intrinsic value, were distinct constructs that varied during the completion of an academic task. The results of this study supported this hypothesis. The results also showed that the constructs varied in opposite directions over time as the students completed the academic task. These findings support changes in the conceptualization of intrinsic value in order to incorporate these distinct constructs into the model.

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Chapter 1: Introduction and Statement of Problems

MetLife (2006) conducted a survey that asked American teachers about their initial career expectations and current experiences in order to learn about the factors that affected teacher satisfaction. In response to one of the items, more than half of the teachers (52%) reported that the student apathy that affected learning was a problem in their schools. This survey presents one example showing that students' academic motivation is important to teachers. Insight into the nature of academic motivation as well as the influences on students' motivation is beneficial to teachers. Such knowledge can enhance teachers' decisions as they create their lessons, design their assessments, and interact with students. These and other activities ultimately make up the learning environment and influence students' academic achievement.

In this study, I examined influences on academic motivation that were specific to the classroom, academic tasks, and other characteristics of the learning environment typically under a teacher's control. Because I believe modern expectancy-value theory (Eccles, Adler, Futterman, Goff, Kaczala, Meece, & Midgley, 1983) is a comprehensive model that explains multiple sources of influence on students' motivation, my goal was to investigate the motivational components theorized in the model. Additionally, I wanted to gain task-specific information about short-term changes in motivation. I used measures of academic motivation that I tailored to a project on which the students were working. As a result, I could investigate influences on student motivation as they were engaged in completing their project. The findings revealed influences on motivation from a variety of

contextual sources—namely, the academic task, interactions with the teacher, and students'
understandings of the purpose and requirements of the task.

The students in this study were preservice teachers enrolled in a summer course on
assessment in education. This required course was available only for the students in the
Masters in Teacher Education Program. The preservice teachers taking this course had
already completed a number of courses within their fields that gave them pedagogical
training and were preparing for student teaching in the fall. Some of them were already
interviewing and preparing for their future careers. In this summer course, the students
completed a standards-based assessment project within their own fields. Designed with the
students in mind, these projects were an excellent way for students to demonstrate their
understanding of assessment in an authentic way. The students could use their projects
during job interviews and when teaching as well.

Using the expectancy-value model proposed by Eccles and her colleagues (Eccles,
et al, 1983), I explored the theorized components of academic motivation in two ways.
First, I examined whether the individual motivational components specified by the theory
would change over time. Additionally, measuring academic motivation at a task-specific
level provided me with the opportunity to investigate changes in motivation that occurred
over a short period of time—during the time students were completing their project. I
considered aspects of the academic task, interactions in the classroom relating to the task,
and other factors that were under the control of the instructor as influences on these
changes. I also considered factors that were outside the teachers' purview such as the
students' personality traits and extracurricular obligations as potential contributors to
students' task-specific motivation. For these reasons, this study offers a unique perspective

on academic motivation and changes in motivation. The findings also have theoretical significance because modern expectancy-value theory includes both the internal and environmental sources of motivation. The variety of motivational influences that this investigation revealed lends further support for the model.

The second way I explored the motivational components described in the model was through the close examination of the construct *intrinsic value*. Eccles et al. (1983) defined intrinsic value as the interest and enjoyment one experiences when working on a task. However, there are a number of researchers who have theorized and found evidence that interest and enjoyment are separate constructs (Hidi & Harackiewicz, 2000; Linnenbrink & Pintrich, 2002; Schraw & Lehman, 2001). In this study, I explored whether interest and enjoyment are separate constructs in the context of preservice students working on an assessment project.

In order to get a better perspective of how I could explore these topics, I conducted a pilot study. I created task-specific measures of the theorized expectancy and value components and administered them to students in two sections of the course taught by the same instructor. Portions of the project were due once each week during the last three weeks of the four-week course. The task-specific questionnaires gauged students' motivation related to the project before they began and each week when they completed each portion.

The students completed the initial segment of the project and turned them in during the second week of the course. In that segment, they described their target populations and listed the state curriculum standards for the grade-levels and domains appropriate for them. During the third week, they completed a segment of the project where they described a

number of assessments that would measure skills or knowledge covered by selected standards. They also provided further detail for half of the assessments that they described. The final segment included a rationale where the students needed to justify their assessment choices and how they aligned with their educational philosophies. The questionnaire for that week also asked students if they were motivated to use their completed projects.

In the pilot, I did not find as many statistically significant quantitative findings as I expected, but there was very informative qualitative data from the open-ended questions. Those questions addressed influences on the students' motivation to continue with the project, as well as influences on their interest and enjoyment in the project. The findings from the pilot study also provided information that I used as I planned the current study. In this study, the participants were enrolled in six sections, which were taught by five instructors. I made modifications to the measures and procedures used in the pilot study in order to address motivation as preservice teachers engaged in an authentic project.

Problem Statements

I conducted this study to learn more about academic motivation and the influences that produce changes in motivation. Evidence from the pilot supported the assumption that students often begin a course highly motivated to work effectively in order to learn and achieve. These students possibly believed at first that the work was important and that they needed a deep understanding of the underlying concepts. However, in spite of these initial feelings, at some point during the course, some students exhibited unmotivated behavior such as exerting minimal effort to fully understand the material and producing work below the quality of their capabilities. By learning about the changes in motivation that occurred during the time students completed an academic task, I gained insights into the potential

causes of these changes. Such information could be useful to educators who wish to have students that remain highly motivated, exhibit motivated behaviors, and ultimately achieve throughout the course.

Another goal of this study was to learn more about expectancies for success and task value, the elements that comprise the psychological cluster of expectancy-value theory. Along with students' grades, I analyzed students' responses about their motivation and behavior in an attempt to find support for the theory by determining if the theorized motivational constructs would predict self-reported behavior and achievement. Additionally, I individually measured the theorized components describing expectancies for success and task value in order to discover detailed information about how each of them changed over time. Further analyses of the construct *intrinsic value* would provide additional information that could clarify the model and potentially aid researchers in their attempts to gain a more detailed understanding of academic motivation.

Background

In this study, I explored contributors to academic motivation by focusing on the psychological cluster of the expectancy-value model. The developmental cluster of the model described influences on students' motivation throughout their lifespan. It also described sources of influence from environments outside of the classroom, such as the home and the society in which the person develops. The psychological cluster described expectancies for success and task value beliefs. These were the internal processes that influenced a person's achievement behaviors. Aspects of the classroom environment, where teachers are central, can directly influence changes to these beliefs. In this study, I also examined academic tasks, a key element in the learning environment also under the

influence of teachers. The findings from this study can inform researchers and educators because it provided insight into contextual influences on academic motivation.

Learning about the various influences on motivation is important because academic motivation is important to the educational process. It can affect students' behaviors and their academic achievement (Sins, van Joolingen, Savelsbergh, & van Hout-Wolters, 2008; Wigfield, Tonks, & Eccles, 2004). Also important is learning about the changes in motivation over time. For example, knowing that students from certain age groups are more likely to exhibit low academic motivation, especially in certain academic domains, helps teachers to work preemptively towards offsetting the detrimental effects of unmotivated learners. The findings from this study provided information about changes in motivational components that occurred over a short period of time and within the context of the learning environment. Typically, researchers who have explored changes in student's motivation have focused their investigations on motivation during child's development. Additionally, when researchers explored changes in motivation over time, the time period was usually no shorter than a semester. Although these studies helped teachers learn how the characteristics of the learning environment affected motivation, the techniques used in this study provided more insight into a specific aspect of the learning environment—the academic task. Learning how academic tasks influence students' motivation as they complete the task is beneficial to teachers as they design their assessments. It is also beneficial to learn about influences in the learning environment that affect students' task-specific motivation. Further, the findings from this study provide evidence showing the nature of an academic task and characteristics from the classroom learning environment that combined and influenced students' motivation.

The psychological cluster of expectancy-value theory outlined expectancies for success and task value beliefs. Within these beliefs, Eccles et al (1983) described motivational components that further elaborated the model. Specifically, they proposed that task value, the value students place on their academic task, consists of four components—attainment value, utility value, intrinsic value, and cost. Attainment value refers to the importance a student places on completing the academic task. Utility value is the perceived usefulness of the task. The interest and enjoyment experienced when completing the task were terms used to describe intrinsic value. Cost refers to a cost/benefits ratio students estimated when completing their task. For example, when studying for a test, a student may weigh the cost of missing a favorite television program against the benefit of earning a high test score. Although the expectancy-value model described these separate components, there was limited information about them because researchers typically have not measured the value components separately. Instead, they have focused their research on the task value construct as a whole (e.g., Bong, 2001, 2002, 2004; Eccles et al., 1983). Therefore, in order to support the theory, it is necessary to investigate the separate components of the theory.

One of the strengths of modern expectancy-value theory lies in the attempts made by the researchers of the theory to integrate similar constructs from other theoretical perspectives (Bong, 1996; Murphy & Alexander, 2000). Such integration would eventually allow for more efficient and comparable investigations of academic motivation. To continue in this approach, I took a closer look into some of the components theorized in the model in order to reveal potential connections with other theoretical perspectives. Intrinsic value, a component of task value, includes interest and enjoyment as interchangeable

descriptions. However, research from other motivational theories has provided evidence that interest and enjoyment were separate and distinct constructs. Considering this evidence, the definition of intrinsic value should be reformulated, and these differences should be taken into account. Differentiating between interest and enjoyment might provide more consistent results in studies of motivation, as well as reveal connections that may exist between expectancy-value theory and other motivational theories.

An additional strength of modern expectancy-value theory involved the theorists' measurement of motivational constructs at a domain-specific level. For example, these researchers would advocate measuring students' ability beliefs in math or algebra instead of measuring their ability beliefs in academics in general. They found that academic motivational components were domain-specific (Eccles et al., 1983). As a result, the domain-specific measures of the motivational constructs were better in explaining the variance in students' achievement and behavior than were global measures of academic motivation. "It is clear that there is a need for diverse designs and methods in order to adequately address [the] complex nature of academic motivation" (Bong, 1996). Enlightening as well was the suggested use of domain-specific as well as task-specific measures (Murphy & Alexander, 2000).

Purpose

This study contributes to theory and practice related to motivational theory. To investigate modern expectancy-value theory, I focused on the psychological cluster of the model that stated that motivation was influenced by a person's *expectancies for success* as well as the value placed on the task, or the *task value* (Eccles et al., 1983; Wigfield, 1994). Whether a student believes he or she will be successful in a task can be greatly influenced

by a teacher. A teacher can also influence the value that students place on the various academic tasks they have to perform in order to achieve in school. By focusing this study on the aspects of academic motivation that were more amenable to teacher influence, the results are more meaningful and useful to practitioners.

In order to learn more about academic motivation and the influences that produce changes in motivation, I studied the components of academic motivation in a contextualized manner. Learning about the changes in motivation that occurred during the time students completed an academic task provided insight about the influences that affected these changes. The value components in modern expectancy-value theory were not always included in previous studies of academic motivation (e.g., Wigfield & Eccles, 2000). When they were, they were not often divided into separate value components but were simply conceptualized as value (e.g., Bong, 2001, 2002, 2004). In order to learn more about these components, I measured them individually in this study. In addition, this study employed task-specific measures of the motivational components in order to present a different way to examine the motivational constructs in the expectancy-value model. Although domain-specific measures of academic motivation were customary, task-specific measures were rarely used (Murphy & Alexander, 2000). Examining motivation at a domain-specific level would include collecting data on independent variables such as students' beliefs about science or algebra instead of about school in general. The dependent variables would include students' grades from science or algebra class as opposed to the overall semester GPA. On the other hand, measuring motivational constructs at a task-specific level would include collecting data about grades on an assigned lab project within the science domain or the results on an algebra test in math.

Measuring at a task-specific level revealed an alternate way to gauge the constructs that contributed to academic motivation (Bong, 1996; Murphy & Alexander, 2000). Using these more detailed measures, researchers could eventually determine which types of tasks maximize students' expectancies for success and task values. Such insights can be invaluable to practitioners. With additional exploration, learning how academic tasks—such as completing projects or engaging in class activities—influence academic motivation can further benefit teachers as they design their courses.

In this study, I explored whether interest and enjoyment were distinct constructs that should not be used synonymously to define intrinsic value. In my investigation of these constructs, I measured students' ratings of interest and enjoyment in order to learn if they changed along different trajectories while students completed their assigned task. I used paired t-tests as evidence to suggest that my hypothesis may be correct. Finally, I conducted a factor analysis of the questionnaire item data in order to gain information that is more conclusive. Understanding the differences between these constructs contributes to the body of knowledge because it provided a way to more precisely conceptualize intrinsic value and measurement. It also continued the practice of revealing connections between modern expectancy-value and other motivational theories.

The findings of this study suggest the need for some refinement to the expectancy-value model. Schunk (2000) stated that motivational researchers need to clarify conditions under which motivation best predicts behavior. By taking a closer look at the value components of these theorized constructs, it could be possible to include them in future research in order to provide more consistent results concerning the affects motivation has on behavior and achievement. Gaining a better understanding of how the components and

subcomponents in this model interact allows researchers better understandings in the ways in which modern expectancy-value theory relates to other theories of academic motivation and achievement. An awareness of how various constructs in motivation research relate to one another provides a better approach in the study of academic motivation and achievement behaviors (Eccles, 2005a; Eccles et al., 1983; Eccles & Wigfield, 2002).

Theoretical Foundation

Modern expectancy-value theory (Eccles et al., 1983), one of the leading theories of academic motivation, is a comprehensive model of academic motivation that considered multiple influences on motivation. The model includes the individual's psychological state as well as the developmental and environmental contexts within which the individual is situated. In the psychological cluster of the model, the conceptualization of task value comprises attainment, utility, cost, and intrinsic value. Attainment value concerns the importance of doing well on a task. Utility value is the usefulness of the task to the student. The model also states that students evaluate the time and effort required to complete a task in order to determine its cost value. Theorists have defined intrinsic value as the interest and enjoyment students have in a task (Eccles et al., 1983; Wigfield & Eccles, 2000; Wigfield, 1994). These two clusters in the model were theorized to interact in a reciprocal manner through the examination of individuals' academic motivation within social experiences that occurred throughout their development (Eccles et al., 1983; Wigfield, 1994).

Modern expectancy-value theory has successfully addressed some criticisms of much academic motivational research. Specifically, Bong (1996) discussed two overarching criticisms in academic motivation research. The first criticism was that no

theory addressed every aspects of an individual's life. Thus, "no single model can capture the full dynamics of motivated behaviors" (p. 149). When these theories attempted to describe an individual's experiences, the focus of the descriptions was too narrow, and it ignored important contributing factors to motivation, such as social and situational factors. She continued by describing "a conceptual mess" (p. 151) of too many labels that were applied to seemingly the same constructs. Also missing from motivational theories was the exploration of the various motivational constructs on information processing.

The second overarching criticism with academic motivational research, as described by Bong (1996), was that the theorists too often assumed without clear definitions the meanings of the motivational constructs. A more clearly defined meaning lends itself to the development of more precise measures of academic motivation. In her article, Bong compared two studies that purported to be examining the same independent and dependent variables but used different measures. As a result, comparisons of the seemingly contrasting findings from the two studies could not be made in any meaningful way. Bong (1996) also criticized the use of self-reported measures of the motivational constructs and suggested using behavioral measures, observations, and interviews as supplements.

Modern expectancy-value theory has addressed Bong's (1996) first overarching criticisms by addressing both the psychological and developmental contributors to motivation. It addresses Bong's (1996) second overarching criticism in part through the improved predictability from more domain-specific measures of the motivational constructs (Bong, 1996; Eccles et al., 1983; Wigfield, 1994; Wigfield & Eccles, 2000). Researchers have demonstrated that when motivational constructs were measured at a domain-specific

level or at a task-specific level, more consistent results were found than when these same motivational constructs were measured globally (Bong, 1996; Murphy & Alexander, 2000).

Research Questions

In this study, I used task-specific measures of the academic motivational components theorized in expectancy-value theory. The first research question was, "Will task-specific measures lead to significant predictions of behavior and achievement?" Because significant predictions of achievement resulted when domain-specific measures were used compared to measures that were more global, I hypothesized that I also would find that task-specific motivation significantly predicts achievement.

The second research question addressed changes in motivation during a meaningful project. The second question was, "Do the task-specific motivational components change during the time that students complete academic tasks?" Academic motivation researchers have already found that students' levels of motivation change during their development as well as during a school year. Additionally, the findings from the pilot study suggested that changes in students' motivation during the time they worked on their project that had quadratic trends. Therefore, the hypothesis was that I would find separate and significant changes over time for each of the motivational components, some with quadratic trends as in the pilot study.

The third research question addressed the hypothesized differences between interest and enjoyment. That question was, "Are interest and enjoyment separate constructs?" I further hypothesized that interest is general to a task in its entirety, whereas enjoyment is specific to acting on the various segments or steps within a task. Therefore, I hypothesized was that students' mean levels of interest would remain relatively stable but their levels of

enjoyment would be significantly different from interest during the completion of a project. Additionally, I hypothesized that a factor analysis of the constructs would provide evidence that they were separate and distinct.

I used mixed methods in this study in order to address these research questions and gain a fuller understanding of the components that contribute to academic motivation. A mixed method technique had the potential to provide a greater richness of information than did the sole use of quantitative measures. By incorporating open-ended statements and the interviews, the qualitative methods provided a rich description of the understandings that underlie the findings from the quantitative analyses.

Chapter 2: Literature Review

Researchers have studied academic motivation from a variety of research traditions (Eccles & Wigfield, 2002; Linnenbrink & Pintrich, 20002; Murphy & Alexander, 2000). For example, Eccles and Wigfield (2002) described some as belonging to four major categories. They described theories focused on expectancy such as self-efficacy theory and (locus of) control theory. They stated that interest theories, intrinsic motivation theories, and goal theories are all theories focused on the reasons a person engages in an activity (Eccles & Wigfield, 2002). They described self-regulation theory as a theory that integrated motivation and cognition. Finally, they stated that expectancy-value theory and attribution theories both integrated expectancy and value constructs (Eccles & Wigfield, 2002).

Generally, the researchers in these traditions sought to understand which attributes and antecedents of student engagement lead to academic success (Eccles & Wigfield, 2002; Linnenbrink & Pintrich, 20002; Murphy & Alexander, 2000). Further, researchers have taken multifaceted approaches to the study of academic motivation (Linnenbrink & Pintrich, 20002). For example, research that examines behaviors indicative of unmotivated students (e.g., procrastination) helps provide valuable insight about students and their academic environments (e.g., Senecal, Lavoie, & Koestner, 1997). In addition, recent investigations of academic motivation have explored person-centered profiles of motivated individuals (e.g., Braten & Olaussen, 2005).

Although the different theoretical approaches to academic motivation have produced a wealth of information that ultimately aided teachers as they educated students of all ages, there remain some theoretical obstacles that need to be addressed. Bong (1996)

pointed out a number of criticisms within academic motivation research. She described a lack of discriminant validity because researchers often use constructs without adequately defining them. Another problem she described was the limited depth and breadth of the models described by academic motivational researchers. The scope of these models was too narrow and ignored important aspects of students' life. Some were also too broad and could not be empirically investigated. She also pointed out that there are a number of constructs that are similar from one theory to the next. She stated that reconciling these constructs would lead to a more parsimonious investigation into academic motivation. Another problem with motivational research is that findings between studies cannot be compared because the constructs were measured using inconsistent levels of specificity.

In light of these criticisms, modern expectancy-value theory (Eccles, et al, 1983) emerges as a comprehensive model that addresses many of the criticisms proposed by Bong (1996). The researchers have defined the constructs used in their model theoretically and empirically. The researchers divided the model into two clusters in order to broaden the focus in a way that could still be empirically investigated. Early theories of academic motivation were narrowly focused and described students' psychological states as occurring in a vacuum, without consideration of the educational environment (e.g., Atkinson, 1964/1966). The modern expectancy-value theory model includes the environment and psychological functioning of students as they develop (Eccles et al., 1983). It also describes features of the major motivational theories in developmental and educational psychology (Eccles & Wigfield, 2002). By including features from other theoretical perspectives, the theorists recognized the similarities in many motivational constructs and addressed Bong's criticism. Finally, much of the research using the modern

expectancy-value model has consistently measured the motivational constructs at a domain-specific level with consistent, comparable results (Eccles et al., 1996).

Although modern expectancy-value theory is comprehensive, some aspects of the model need further investigation. For example, the researchers in this perspective have demonstrated that using domain-specific measurement of the motivational constructs results in consistent and informative findings. Although the use of task-specific measurement has been suggested (Bong, 1996; Murphy & Alexander, 2000), there are very few studies utilizing this method. Additionally, research in this perspective has focused on developmental changes in motivation, though not changes in motivation that occur within the learning environment. Further, the research has not addressed changes that occur while students are working on an academic task. In addition to examining changes in the theorized psychological components, the subcomponents that make up task value need further exploration. In the psychological cluster of the model, Eccles and her colleagues (1983) defined task value as being made up of four components--attainment, utility, cost, and intrinsic value. Although they defined these components separately, research investigations that included task value often has not examined these components separately. Lastly, the task value component, intrinsic value, has been defined as the interest and enjoyment one experiences while working on a task. However, theorists from other research perspectives have shown that interest and enjoyment are different constructs (Hidi & Harackiewicz, 2000; Linnenbrink & Pintrich, 2002; Schraw & Lehman, 2001).

My research questions for the current study also involved learning more about the motivational components theorized in the psychological cluster of modern expectancy-value theory. I wanted to learn about motivation in a more context-specific manner. My

first question was, "Will task-specific measures of academic motivation lead to a strong prediction of behavior and achievement?" I included behavior as an additional outcome measure. My second research question was, "Do the motivational components change as students complete an academic task?" I specifically wanted to investigate changes in task-specific motivation. My third research question was, "Are interest and enjoyment separate constructs?"

Some Leading Academic Motivational Theories

There are a number of theories of academic motivation and achievement. Generally, they have attempted to explain what a person is thinking or feeling when they are deciding to act. Additionally, these theories have explored the sources of a person's thoughts and feelings. They have also described the important results of the individual's behavior. These theories have endured over the years. This is because, as empirical investigations continue, researchers modified these theories in order to explain the individual differences that they found in the research.

Attribution Theory

"Attribution theorists construe human beings as scientists, seeking to understand the world around them and themselves..." (Weiner, 1992, p. 860). People considered events that have occurred in the past and speculated about the cause of the outcome. An *attribution* was the reason a person assigned to the outcome of an event. Attributions were based solely on the person's perceptions of the event and could be individually determined. *Causal dimensions* described characteristics of the attributions. Aspects of the antecedents to a person's attribution influenced the attributions that the individual assigned. The

consequences of attributions were associated with different causal dimensions (Weiner, 1992; Stipek, 2002).

Causal dimensions. Attribution theory defined three dimensions that described the attributions people assigned to achievement outcomes. *Locus* is the dimension that described whether the outcome was attributed to an internal or external factor. For example, if a person fails a test because she thinks the instructor designed it poorly, the locus of her attribution is external. The second dimension, *stability*, refers to whether the attribution is likely to be stable over time. Therefore, if that student feels that the professor always creates bad tests, then the attribution is stable. If she believed it is a fluke, then the attribution is unstable. The controllability dimension describes whether the person feels she could possibly control the cause of the success or failure. Because this student believes that she cannot influence the quality of tests the teacher administers, her attribution is considered uncontrollable (Graham & Weiner, 1996; Stipek, 2002).

Students' expectations for future success can be influenced by the stability of their attributions. For example, if a student attributes the good grades he earns in science classes to his study habits, he is likely to hold high expectancies for future success. However, if a student attributes his high score on a test to lucky guesses, he is not likely to hold high expectancies for future success. The attribution made by the student in this example is also an externally controlled attribution. When students make attributions that are external— whether the outcome is success or failure—not only are they likely to hold uncertain expectancies for success, but they can develop learned helplessness. Students who have developed learned helplessness stop trying to achieve because they believe nothing they do will positively affect the outcome (Weiner, 1992; Stipek, 2002).

Researchers working with Weiner's attribution theory have also investigated the affects of students' intrapersonal attributions. Additionally, they have explored the emotions that result from different causal dimensions of the attributions made. For example, "The locus dimension of causality determines whether pride and self-esteem are altered following success or failure" (Graham & Weiner, 1996, p. 71). Additionally, emotional effects such as anger, guilt, pity and shame tend to be the result of the controllability dimension.

> Specifically, anger is experienced if someone is prevented from success by factors that others could have controlled...guilt is self-directed when someone fails or breaks a social contract because of internal controllable causes, such as lack of effort or negligence; pity and sympathy are expressed toward others who do not attain their goals because of uncontrollable causes...(Weiner, 1992, p. 861)

The results of the causal attributions could affect high-achieving and low-achieving students in different ways. Methods to combat the negative consequences such as learned helplessness are a focus of continued study in this research perspective (Weiner, 1992; Stipek, 2002).

Goal Theory

According to Goal Theory, people who are performing the same activity may have very different reasons for doing them. They have different *goals* that define why a person would behave in certain ways. Goal theory describes *performance goals* and *mastery goals* (also known as learning goals). Students with performance goals tend to hold an *entity view* of ability. They concentrate their efforts on improving the appearance of their abilities because they believe they cannot change their innate ability level. Students with mastery

goals hold an *incremental view* of ability. These students believe that their abilities can improve with effort. They exert their energy on efficiently working towards improving their abilities in order to better learn the academic concepts (Graham & Weiner, 1996; Linnenbrink & Pintrich, 2002; Stipek, 2002).

Performance goals. People act according to performance goals when they are concerned with the way others perceive them. With performance goals, a person may have an *–approach* or an *–avoid* orientation. Someone may act in ways so that others see them as smart, athletic, or having some other positive attribute. They are described as having *performance-approach goals*. For example, a student may participate in classroom discussions so that she can look like she knows more than her classmates do. A student with *performance-avoidance goals* may act out or become the class clown so that he can avoid looking stupid. Because people with performance goals focus their attention on themselves and not on their work, they are described as being *ego-oriented*. Additionally, because these people hold entity views of ability, their attributions to failures are most likely to be internal (e.g., I am stupid), stable (e.g., I will never learn it), and uncontrollable (e.g., nothing can be done). As a result, a low-achieving person with performance goals will more likely give up when academic work becomes more challenging (Graham & Weiner, 1996; Stipek 2002).

Mastery goals. Students with mastery goals act in ways that allow them to achieve a better understanding of the academic concepts they are studying. These students believe that, even if they are not achieving as well as they would like, they can get better with effort and better learning strategies (e.g., help-seeking). These students will work hard in order to improve their understanding and persist when challenged. These students will also

modify, and employ more advanced learning strategies to help them achieve their goals. Because students who hold mastery goals have their attention focused on their academic tasks, they are described as *task-oriented* (Stipek, 2002).Initially, theorists believed that one goal orientation guided each behavior. However, they have learned that students can hold both goal orientations at the same time (Stipek, 2002). Further, researchers have found that students who hold both instead of one goal orientation were more successful on academic tasks (Harackiewicz, Barron, Pintrich, Elliot and Thrash, 2002). As an extreme example, a student with a mastery goal orientation but no performance goals may work very hard to learn the material but would have no inclination to earn advanced degrees or high academic standings

Self-Determination Theory

In Self-Determination Theory, as children grow, they learn valued achievement behaviors from caregivers and other important adults. They learn these behaviors from the reinforcement of rewards and punishments. These reinforcements do not need to be salient. Eventually, some children internalize these valued achievement behaviors and act in accordance with them. These children internalize the values underlying the behaviors and reinforcement as their own. As a result, they align their behaviors with the social norms and they assimilate successfully into society (Stipek, 2002).

Motivation as a continuum. Self-determination theorists have considered motivation as a continuum from *extrinsically-regulated* behaviors to *self-regulated* behaviors. During development, children move in one direction along the continuum. When children are extrinsically-regulated, their actions and inactions are influenced by rewards and punishments. As the child grows, he anticipates the responses his behaviors

will elicit and chooses to act in ways that will result in rewards or avoid punishments. At this point, the child is experiencing *introjected regulation* and his actions are based on the perceived judgments of others as well as his own feelings. For example, a child may choose not to cheat on a test because he will feel guilty or ashamed. He perceives the judgments his parents and teacher will have if he acts in a way not valued by them. When children reach *identification*, they internalize the values of the important adults in their lives. As a result, they based their behaviors on their own internalized values (Stipek, 2002).

These theories, as well as other motivational theories, have explained a person's motivation in a variety of ways. Some have described future-oriented perceptions (i.e., "what will happen if I do this?"). Others have described a person's reactions to past experiences (i.e., "why did this occur?"). The theories that are most enduring are those that have explained achievement behavior and have included both future and past perceptions of people. Additionally, most of these perspectives have recognized that past experiences and anticipated outcomes are individually determined by a person's life experiences. Expectancy-value theories take all of these considerations into account as well. Each of the adaptations of expectancy-value theory uniquely detailed a person's perceptions of future and past experiences.

Expectancy-Value Theories

Early and subsequent models of expectancy-value theory linked attitudes and experiences with behaviors in an attempt to explain why people decided to engage in particular activities (e.g., Atkinson (1964/1966). Theorists have modified the model to strengthen its predictive power and to incorporate new empirical findings. For example, researchers realized that a person's expectancy beliefs, values, and resulting behaviors were

domain-specific. Consequently, they considered subsequent reconceptualizations of expectancy-value theory to include more specific areas of influence (e.g., Eccles et al., 1983).

Atkinson's (1964/1966) departure from pure behaviorism prompted the consideration of internal and unobservable antecedents to behavior. Empirical investigations of these initial models lead to the continued refinement of expectancy-value theory. Different versions of the theory emerged over time. Among the most successful are the Theory of Reasoned, the Theory of Planned Behavior, Subjective Expected Utility, and Social Learning Theory. Although these models derived from Atkinson's original conceptualization, the theorists in these perspectives have revised the models in distinctive ways. As a result, these expectancy-value theories have unique descriptions of the influences to achievement and behavior.

Atkinson's Expectancy-Value Theory (1964/1966)

Expectancy value theory was first conceptualized by Atkinson (1964/1966). In addition to the many theoretical perspectives that were dominant at that time, such as behaviorism and psychoanalytic theory, Atkinson was largely influenced by Decision Theory, Hull's Drive Theory, Lewin's Field Theory, and by Tolman's Expectancy Theory. Atkinson integrated these prominent perspectives by considering a person's characteristic toward achievement situations, the likelihood of success, as well as the incentive value of the outcome of the action. These concepts created a calculable formula that provided likelihoods for behavior (Atkinson, 1964/1966; Graham & Weiner, 1996).

Atkinson (1964/1966) stated that his "theory of *achievement-oriented* performance" (p. 240) is based on the assumption that the individual knows that he or she will be

evaluated on the outcome of the task or behavior. This is based on the assumption that the outcome of the action will be either success or failure. His theory integrated the concepts of the behavioral influences, with internal cognitive processes, such as rational thought. Together these concepts contributed to behavioral intentions, another internal, unseen variable.

Expectancy-related beliefs. Atkinson (1964/1966) describes expectancy as the probabilities of immediate outcomes. The expectancy (or probability) of success (P_S) and the expectancy of failure (P_F) are probabilities that individuals subjectively determine as the likelihood of success or failure respectively. These probabilities are based on previous successes or failures in similar situations. He assumed the following relationship between the expectancy constructs: $P_S + P_F = 1.00$.

Task-related value. The value of incentive (I_S) is described as the amount of pride of accomplishment the individual anticipates if the goal is achieved. Atkinson (1964/1966) states that people determine this according to the nature of the task. Therefore, those constructs are assumed to conform to the following relationship: $I_S = 1 - P_S$. If the task is easy to accomplish, it will have a high expectancy for success. As a result, the value of incentive is low. If the task has a low expectancy for success, then success at the task will generate a large amount of pride of accomplishment and the value of incentive will be greater (Atkinson, 1964/1966).

Achievement orientation. Atkinson (1964/1966) described one's motivational inclination toward achievement tasks as the tendency to achieve success (T_S). This tendency to achieve success is the product of the motive to succeed (M_S), the expectancy for success (P_S), and the value of incentive (I_S): $T_S = M_S * P_S * I_S$. People's achievement

actions are often determined by their predisposition to achieve; this is described by Atkinson as the individual's motive to succeed. The motive to succeed (M_S) is a characteristic that is stable across domains. The expectancy of success and the value of incentive, however, are subject to situational influences. The tendency to achieve success describes the excitation of achievement behavior (Atkinson, 1964/1966; Graham & Weiner, 1996).

Behavioral product. The inhibition of achievement behavior is described as the tendency to avoid failure (T_{-F}). This is "a capacity for reacting with shame and embarrassment when the outcome of performance is failure" (Atkinson, 1964/1966, p. 244). The tendency to avoid failure is also the product of the motive to avoid failure (M_{AF}), the likelihood of failure (P_F) and the incentive value of failure (I_F), which is represented by the following relationship: $T_{-F} = M_{AF} * P_F * I_F$. The minus sign in the subscript of T_{-F} indicates, however, that the person is motivated to not act (i.e., negatively motivated). Here the motive to avoid failure (M_{AF}) describes the stable characteristic of the individual's predisposition to avoid failing and to avoid the resultant negative emotions. Though the motive to succeed and the motive to avoid failure are stable characteristics within individuals, Atkinson stated that people have both characteristics in varying degrees. These unconscious stable factors often come into conflict with one another. One motive becomes greater than or equal to the other when the individual is expected to perform (Atkinson, 1964/1966; Stipek, 2002).

The situational variables, the expectancy of failure (P_F) and the incentive value of failure (I_F), also contribute to the tendency to avoid failure. An assumption of the incentive value of failure is that its strength is equal to that of P_S. Therefore, if an action has a high

expectancy for success (e.g., an easy task) it will also have a high negative incentive for failure. That is, the individual's desire to avoid failure will be very strong. Failing at a more difficult task (when P_S is low) would elicit a low desire to avoid the negative aspect of failure (I_F is low) because the resultant feelings of shame and embarrassment would not be as intense. Atkinson described this relationship as $I_F = - P_S$. The negative sign signifies a negative event (failure) that must be avoided. Additionally, the incentive value of failure has the same strength as the expectancy for success (Atkinson, 1964/1966).

Measurement of the constructs. Expectancy beliefs were measured with self-report scales (Atkinson, 1964/1966). The experimenter would present the participants with questions to determine what they believed the probability of success (or the probability of failure) would be in a particular situation. For example, a researcher might give his participants "a long list of occupations and [ask] them to indicate how many, out of 100 typical students at the college, had the general ability required to attain each occupational goal" (Atkinson, 1964/1966, p. 251). Since Atkinson believed that the value of incentive beliefs were directly related to the expectancy beliefs, once an expectancy probability was computed, the value of incentive probability could be determined (Atkinson, 1964/1966).

It was assumed that the inclination to avoid failure and the feelings of shame and embarrassment would create a great deal of anxiety in the individual (Atkinson, 1964/1966). Test anxiety scores were, therefore, used to determine the degree of a person's unconscious motive to avoid failure. The Thematic Apperception Test (TAT) results were also used to determine what the individual's unconscious achievement motives were (Atkinson, 1964/1966). Participants were asked to look at pictures depicting vague situations and then to describe what was happening in those pictures (Stipek, 2002). Scores

were computed based on which category (achievement-related or avoidance of failure-related) their response fell into (Atkinson, 1964/1966). Atkinson stated that the TAT was used to measure the individual's needs. This belief comes from Freud's psychoanalytic perspective that people's needs, values, and beliefs can be determined by their dreams and unconscious projections (Atkinson, 1964/1966; Stipek, 2002). The tendency to succeed or to avoid failure criterion was calculated using the results of the other measures. The probabilities computed were then compared with the observed behaviors of the participants (Atkinson, 1964/1966).

Shortcomings. Weiner (1965) stated that "the model cannot account for the maintenance of goal-seeking, purposive behavior in the absence of the instigating external stimulus" (p. 429). According to Weiner, this problem persisted even after it was addressed with a reconceptualization of Atkinson's theory (Weiner, 1965).

Atkinson (1964/1966) stated that a major problem with his theory was the measurement of people's expectancy for success. He stated that researchers primarily use self-report and that they estimate this value with questions asking people what their expected outcome is (as indicated by a grade, by passing or failing, etc.). He also stated that some researchers instead proceeded with the assumption that the expectancy for success was .50 (Atkinson, 1964/1966). Additionally, the incentive value of success or the avoidance of failure is determined solely by probability of success or failure, regardless of how important the task may be (Stipek, 2002). The motive for success and the motive to avoid failure were difficult to measure as well. Since these constructs were believed to be unconscious, they needed to be measured indirectly (Atkinson, 1964/1966; Stipek, 2002).

Theory of Reasoned Action/Theory of Planned Behavior

The Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen is a widely recognized reconceptualization of expectancy-value theory (Ajzen, n/d; McCormack Brown, 1999). This theory continues to be used in examining the decision making processes of people in various contexts such as the workplace (Van Hooft, Born, Taris, & Van der Flier, 2006), reproductive health (Wang, Charron-Prochownik, Sereika, Siminerio, & Kim, 2006), and water conservation (Trumbo & O'Keefe, 2005). This theory, as well as the Theory of Planned Behavior (TPB), which Fishbein and Ajzen later developed, considered the importance of the action as well as the perceived beliefs of others. The theory of reasoned action was later reconceptualized to include the individual's *perceived control beliefs*. The original model neglected to take into account the fact that not all situations are under a person's control. Additionally, the theory of reasoned action considers varying levels of perceived control by the individual. Their theories have been primarily used in the prediction of health related behaviors (McCormack Brown, 1999).

Behavioral attitudes. According to TRA and TPB, an individual holds certain attitudes about a behavior. According to the theory, these attitudes are partially based on the person's beliefs (*expectations*) that an action will lead to a specific outcome (its *subjective probability*). The behavioral attitudes are also based on the individual's positive or negative evaluation of the behavior (its *subjective utility*). Additionally, the *attitude about the action* (A) is weighted (w_1) by the *importance of the action*. (McCormack Brown, 1999; Moisander, 2000).

These separate constructs are similar to Atkinson's (1964/1966) expectancy and value variables. However, his expectancy variable is limited to the outcome of the

behavior. These behavioral attitudes consider the nature as well as the evaluation of the outcome that is based on the specific behavior. Another important difference is that Fishbein's model addressed the shortcoming of the value component in Atkinson's (1964/1966) model by considering how important the task was to the individual (McCormack Brown, 1999; Moisander, 2000).

Subjective norms. The theory of reasoned action takes into account normative beliefs, or generally acceptable behavior. *Subjective norms* (SN) are comprised of what the individual believes others will think about him or her performing the action. This construct is weighted by the importance of those viewpoints. Theorists have called this weight (w_2) the *motivation to comply* (McCormack Brown, 1999).

Behavioral intentions. Believed to be the precursor to behavior, *intentions* (B ~ I) are a function of an individual's *behavioral attitudes* (w_1A) and the individual's *subjective norms* (w_2SN). This relationship is represented as B ~ I = f ($w_1A + w_2SN$) (McCormack Brown, 1999; Moisander, 2000). This construct was like Atkinson's (1964/1966) criterion variable in that they both indicated the strength of the behavioral decision.

The theory of planned behavior introduced perceived behavioral control (PBC) into this aspect of the original model. In this reconceptualization, this third component added to the weighted attitude and subjective norm components in order to create the individual's behavioral intentions. The new model was represented as B ~ I = f ($w_1A + w_2SN + PBC$) (McCormack Brown, 1999; Moisander, 2000).

Perceived behavioral control is made up of two clusters—the *individual's control beliefs* and *perceived power*. Control beliefs described the degree of control the individual feels he or she has over the situation. The relevant skills, opportunities, or resources

available to the individual influence control beliefs. Whether or not a person can use these relevant skills or resources in a way that can influence the performance of their behavior represents the person's perceived power (McCormack Brown, 1999; Moisander, 2000).

Subjective Expected Utility

Subjective Expected Utility (SEU) is also known as Behavioral Decision Theory (Horan, 1977; Madden, 2006). Various forms of this theoretical perspective exist within an assortment of social scientific disciplines. It was developed to explore the determinants of decision making. These ideas, in particular, were very influential to Atkinson (1964/1966) in his formulation of the expectancy-value theory. Today, researchers use behavioral decision theories to predict behaviors such as cigarette smoking and criminal behavior (Horan, 1977).

Expectancy. In this theory, the expectancy referred to the individual's subjective probability that if an action is taken, an outcome will result (Horan, 1977; Madden, 2006). This construct is very similar to Atkinson's (1964/1966) expectancy variable except that it does not explicitly consider the difficulty level of the task. "...S.E.U. theories are seen as being good predictors of how people will act" (Madden, 2006, p. 4, Behavioral decision theory section, ¶ 4).

Value. The utility, or usefulness, of the goal is the value. This construct takes into account the value of the goal after the behavior and resultant outcome. It does not involve the act of performing the behavior (Horan, 1977; Madden, 2006).

Behavioral outcome. As in Atkinson's (1964/1966) theory, the expectancy and value variables multiply in order to produce the subjective expected utility. Unlike Atkinson, however, there are other considerations to take into account before the individual

makes the decision to act or not to act (Horan, 1977). Other subjective expected utilities, positive and negative, are calculated. The expectancy of the outcome occurring if no action is taken as well as the utility of the goal if a different outcome results is among the components of the other subjective expected utilities. Once all possible outcomes are calculated, the sum of these subjective expected utilities determines the strength and direction of action (Horan, 1977; Madden, 2006).

Subjective expected utility is still in use, primarily to predict behavior in a variety of fields from economics to health. In spite of the resilience of this theory, some of its main weaknesses lie in the assumption that the behavioral choices made were independent of each other (Horan, 1977).

Social Learning Theory

Another expectancy-value theory is Rotter's Social Learning Theory. In this departure from psychoanalytic theories and behaviorism, the theory identified *the law of effect*. Representing a combination of behaviorism and the study of personality, "The law of effect states that people are motivated to seek out positive stimulation, or reinforcement and to avoid unpleasant stimulation" (Mearns, 2007, Overview of Theory section, ¶ 1). In this theory, behavior is believed to be preceded by three variables—*subjective probabilities*, *reinforcement values*, and an individual's *psychological situation*. A behavioral outcome is represented by a *behavioral potential*. The behavior with the highest behavioral potential is the one that the person will most likely choose. Similar to SEU, the individual represented by social learning theory is seeking to maximize the *utility value* of the behavior outcome. Rotter also recognized that behavior was changeable (Graham *& Weiner*, 1996; Madden, 2006; Mearns, 2007).

Subjective probabilities. The expectancies that a person has regarding the likelihood of a behavior leading to a specific outcome represents his or her subjective probability. If a person is confident, or has high expectancy that a behavior will lead to an outcome, he or she is more likely to choose that behavior. If the desired outcome can be accomplished by more than one behavior, the person determines which behavior is most likely to achieve the outcome (Graham & Weiner, 1996; Mearns, 2007).

Reinforcement values. The reinforcement value of an outcome is also subjective. The positive and negative aspects that can result from different possible outcomes determine the reinforcement value of the outcome (Graham & Weiner, 1996; Mearns, 2007; Stipek, 2002). "The concept of internal versus external control of reinforcement developed out of social learning theory" (Rotter, 1975, p. 56). According to Rotter (1975), although, it was not a central concept in social learning theory, as some investigators had stated. The social learning theorists developed this concept because they discovered that there was a characteristic of the individual that mediated how reinforcements changed a person's expectancies (Rotter, 1975). People with an *internal control of reinforcement* (or locus of control) believe that their own behaviors or characteristics determine outcomes. Those with an *external control of reinforcement* (or locus of control) believe that events are the result of uncontrollable factors, such as luck (Rotter, 1975; Stipek, 2002). Weiner's attribution theory expanded on the internal/external locus of control dimension described in Rotter's social learning theory.

Psychological situation. The psychological situation describes the current state that the individual is in, which contributes to determining how a person will behave out of a range of possible behaviors (Mearns, 2007). This description of an individual's personality

is an attempt to include the environmental factors that contribute to the development of the individual.

Behavior potential. An individual's behavior potential is the product of subjective probabilities and subjective utilities. It represents each of the possible behaviors that a person can perform. The behavior potential is the product of the subjective probability and the subjective utility in each situation (Mearns, 2007).

Problems with Academic Motivational Theories

The leading theoretical approaches to academic motivation as well as the variations of expectancy-value theories have allowed researchers to learn more information about students' achievement behaviors. Often the information learned by these theorists has prompted modifications within the theory or the creation of a new theoretical model. The same is true for modern expectancy-value theory. The information learned from the other expectancy-value models, as well as from work within the other theories of academic motivation, have aided researchers in this perspective to create this all-encompassing model.

In spite of the improvements made in the theories over the years, there remain problems in academic motivational research in general. Bong (1996) pointed out a number of problems that have ultimately been addressed by modern expectancy-value theory. To begin, she noted that many academic motivation theories lack discriminant validity. Researchers in these perspectives inadequately defined and empirically investigated their motivational constructs. The modern expectancy-value researchers have defined the constructs used in their model theoretically and empirically.

Early theories of academic motivation were narrowly focused and described students' psychological states as occurring in a vacuum, without consideration of the educational environment (e.g., Atkinson, 1964/1966). Bong (1996) stated that many of the leading academic motivational theories remain narrowly focused and ignore important aspects of a person's life experiences. The modern expectancy-value theory model included the environment and psychological functioning of students as they developed (Eccles et al., 1983). The researchers divided the model into two clusters in order to include the important influences to students' motivational development and to broaden the focus in a way that could still be empirically investigated. Bong (1996) stated that many of the theories of academic motivation were too broadly focused and included so many influences on motivation, the model could not be empirically tested. The psychological and developmental clusters in the modern expectancy-value model were described in a way to allow for empirical investigations.

Bong (1996) stated that because there were so many similar constructs in different theories, a mess has been created. She and other researchers (e.g., Linnenbrink & Pintrich, 2002) suggested that these terms be consolidated (Bong, 1996). Modern expectancy-value theory includes features from other major motivational theories in developmental and educational psychology (according to Eccles & Wigfield, 2002). By including features from other theoretical perspectives, expectancy-value theorists recognized the similarities in many motivational constructs and have in this way addressed Bong's criticism. Finally, much of the research using the modern expectancy-value model consistently measures the motivational constructs at a domain-specific level.

Another criticism of motivational theories was that the measurement of their constructs has lacked consistency concerning the level of specificity. Findings from studies measuring motivational constructs at a general school level could not be compared with those measuring the same constructs at a domain-specific level. Modern expectancy-value theory (Eccles, et al, 1983) emerges as a comprehensive model because it has addressed many of the criticisms proposed by Bong (1996).

Modern Expectancy-Value Theory

Modern expectancy-value theorists "argue that individuals' choice, persistence, and performance can be explained by their beliefs about how well they will do on the activity and the extent to which they value the activity" (Wigfield & Eccles, 2000, p. 25). The developmental cluster of the model describes social and developmental influences on an individual's motivation. These influences include child-rearing practices, social norms and expectations, and individual affordances. The psychological cluster of the model describes the individual's internal beliefs concerning expectancies for success and task value. As Figure 1 illustrates, Eccles and Wigfield's model recognizes that as individuals grow and gain more experiences, the developmental and psychological clusters of their model interact in a reciprocal manner (Eccles et al., 1983; Wigfield, 1994). Therefore, although their model is described in a linear manner, it addresses a problem often criticized in motivational research (e.g., Bong, 1996)—the inclusion of context as part of one's development and experiences.
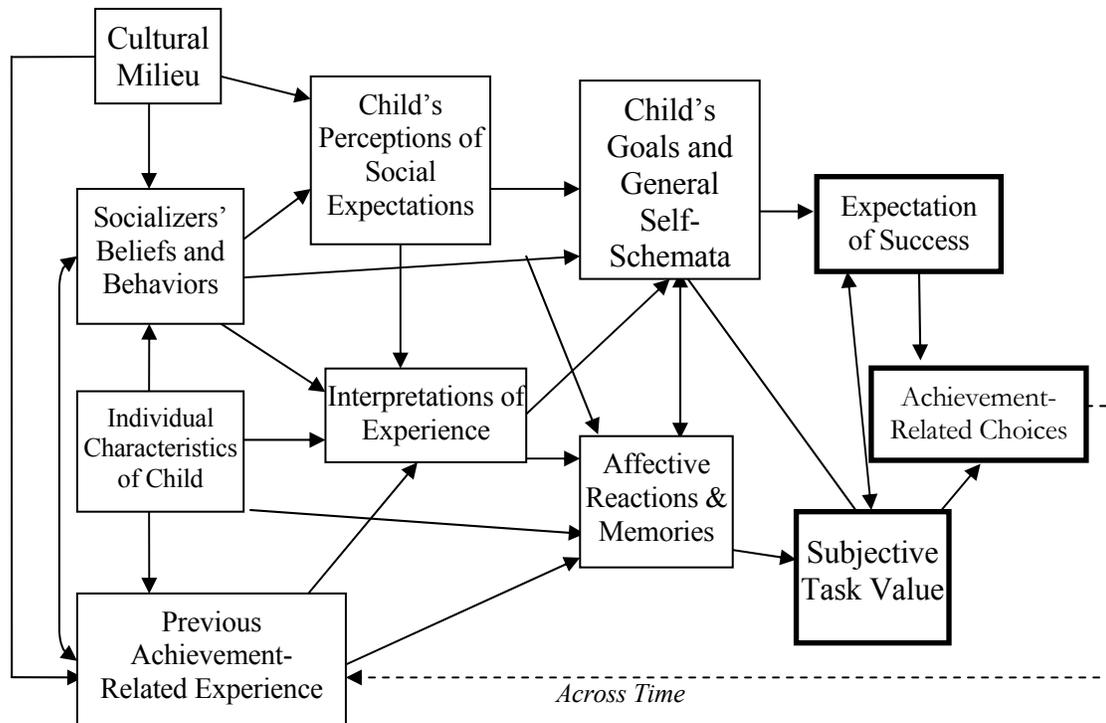
Figure 1: Eccles et al. (1983) expectancy-value model of achievement motivation (derived from figures in Wigfield & Eccles, 2000 and Eccles, 2007). The **bolded** areas represent the constructs examined in this study.

Constructs in the Developmental cluster

The developmental cluster of modern expectancy-value theory explores the nature of various influences from societal factors that affect children's perceptions, attitudes, and behaviors during development. Although the psychological and the developmental clusters in the model interact with each other, the model is broken up into components as a way to tease out those parts of the theory more readily available to experimental manipulation (Eccles et al., 1983). This mirrors a suggestion by Bong regarding ways in which motivational researchers can have adequate breadth and depth in their investigations of motivational factors without losing sight of the broader range of influences (Bong, 1996). Eccles et al. (1983) found that, in the literature about societal and situational determinants

to behavior, there are three influences that continually emerged. Therefore, the developmental cluster of their model focuses on role modeling, the expectations of others, the experiences and opportunities provided to children and the socializing effect these have on children's development (see Figure 1).

Socialization effects of role modeling. Because the developmental cluster of the model focuses on the development of the child, it frequently references parents. In addition to parents, other influential adults in a child's upbringing include family members, teachers, and other caregivers. Eccles and her colleagues (1983; Wigfield et al., 2004a) consider these adults to be socializers because they guide the child's social development by communicating societal norms and modeling behaviors. Figure 1 illustrates the influences on and from the socializers' beliefs and behaviors as well as those to and from the child's perceptions of those beliefs and attitudes (Wigfield & Eccles, 2000). In an empirical investigation of the developmental cluster, Eccles and her colleagues (1983) hypothesized that children would adopt the math-avoidant behaviors and attitudes of their same-sex parents. They assessed mothers' and fathers' math-avoidant behaviors and, as expected, found that the mothers assessed themselves as exhibiting more math-avoidant tendencies compared with the fathers' self-assessments. These domain specific results were consistent with the behaviors of both male and female students in relation to math. The students' behavior in math was opposite to their general academic performance. As expected, females performed better in overall high school performance than males. This also aligned with the parents' beliefs about their children's and their own overall academic abilities.

Effects of socializers' expectations. Eccles et al. (1983) also consider the expectations of the various socializers in children's lives. Teachers and parents especially

had a great influence on student's academic beliefs and behaviors. For example, teachers who have high expectations of their students are more likely to have students who try harder and achieve more. They assumed that socializers, such as parents and role models, communicated their expectations through evaluative feedback and causal attributions (Eccles et al., 1983). These messages "impact on students' sense of competence" (Eccles, 2007). In addition to messages about the students, teachers who believed in their own abilities and effectiveness to make a difference, communicated their own high expectancies to their students, and affected their students' beliefs of competence (Eccles, 2007). Ultimately, the teacher-student interaction mediated the teachers' expectancy effects on the students (Eccles, 2007).

When children performed either well or poorly, they often received *evaluative feedback* from parents and teachers. Evaluative feedback was the overt response to children's performance that communicates the aspects of the behavior that lead to success or failure. When the evaluative feedback focused on academic performance, it affected performance more than when it focused on students' behavior. Further, Eccles et al. (1983) found that, in general, female students tended to receive less work-related criticism than males. However, in the math domain, they also found that when the amount of feedback was great, females who had higher expectancies for success (according to the teacher) found math to be easier when they received larger amounts of feedback, regardless of whether it was in the form of praise or criticism.

Similarly, parents often held a set of beliefs about their children's academic abilities, performance, and other characteristics that were not always based upon actual performance. For example, parents held very different ideas about their male or female

child's academic performance and behavior when the only actual differences were the children's gender (Eccles, Flanagan, Goldsmith, Jacobs, Jayaratne, Wigfield, & Yee, 1987). When the researchers asked parents about the causal attributions of their children's success, they determined that the parents of sons attributed their children's successes to talent more often than did the parents of girls. Further, parents of girls attributed their daughters' successes to effort more often than did the parents of boys. The researchers concluded that attributing success to effort had a more detrimental effect on performance, because the children viewed it as compensation for talent. These findings provided additional support to the notion that attributing success to talent, a stable factor, has a more positive effect on performance than does attributing it to effort (Eccles et al., 1983; Eccles et al., 1987; Paulsen & Feldman, 1999).

Conversely, attributing failures to effort instead of aptitude had a more positive effect on performance. Paulsen and Feldman, (1999) observed this in a study of the effects of epistemological beliefs on motivation and performance. These findings were aligned with those of other research stating that when students attributed failures to factors that were under their control, such as effort or the use of strategies, they were more likely to adjust their behavior in order to succeed (Stipek, 2002). On the other hand, when failures were attributed to characteristics of the individual that were seemingly unchangeable, such as aptitude, the result could be a lack of effort, giving up entirely, or the emergence of maladaptive behaviors (Stipek, 2002).

Differential experiences. Children who are reared together, even identical twins, do not develop into the same type of adolescent or adult. Each individual has his or her own interpretation of the events that occur in everyday life. An experience shared by two people

is likely to be interpreted differently by each of those people. These subjective experiences, in turn, affect the components of motivation—expectancy and value beliefs—and have an eventual effect on achievement behaviors (Eccles et al., 1983; Wigfield, Guthrie, Tonks, & Perencevich, 2004). For example, children raised together by protective parents may interpret the parents' behaviors differently. One child may feel nurtured by the attention and, as a result, is likely to welcome future attention from teachers and other role models. Another child may feel smothered by the parents' behaviors and become reluctant to interact with other adults. The first child may be more likely to utilize critical feedback from teachers, seek help when needed, and make better academic choices. The second child, on the other hand, may ignore feedback from teachers and avoid adult influences on her academic choices.

In addition to the societal factors that contribute to the development of value beliefs, people have individual differences such as aptitude for a task. They also have previous experiences unique to them. These individual differences shape our subjective interpretations of events; they play a part in our understanding and in the perspectives we take when encountering both familiar and novel events. Eccles and her colleagues (1983) identified three types of general experiences that have particular influence on students' choices—the types of role models, recreational activities, and independence training that children are exposed to as they develop. Eccles and her other colleagues continue to examine the effects of these experiences on gender differences (e.g., Simpkins, Davis-Kean, & Eccles, 2005).

The developmental cluster of the modern expectancy-value model considers influences on academic motivation beyond the focus of traditional motivational theories.

This model describes how the different motivational constructs develop over time, become differentiated within certain domains, and affect achievement behaviors. Although the developmental cluster of the model has been described separately from the psychological cluster, the interactions between them have not been ignored. The inclusion of both clusters ensured that the theory would not ignore important aspects of a students' life. The division of the clusters allowed researchers to empirically evaluate the theory.

Constructs in the Psychological Cluster

The psychological cluster generally describes the internal mechanisms behind a person's motivated choices and behaviors. For example, a person is more likely to register for an advanced math course if she expects she will be successful in the course. Although her expectancies for success are also high in a more basic course, the advanced course is of a higher value to her. Therefore, the multiplicative combination of the expectancy and value beliefs make taking the advanced course more likely than taking the basic course. The psychological cluster of the modern expectancy-value model described the psychological components that comprised a person's expectancies for success and the value beliefs a person placed on academic tasks.

Expectancies for success. Expectancies for success have been defined through the publications of Eccles and Wigfield as "children's beliefs about how well they will do on an upcoming task" (e.g., Wigfield, 1994, p. 52). These expectancy beliefs have a number of contributing factors. The most immediate determinants of individuals' expectancies for success are their self-concepts of ability and their perceptions of task difficulty. The *perceptions* of others' beliefs also contribute to a students' expectancy for success (Wigfield & Eccles, 2000). For example, if a student perceives that his teacher holds low

expectancies for success, it influences the child's own expectancies for success. This description is related to the 'expectancies of socializers' described in the developmental cluster. However, because the child's perceptions are described—not the teacher's actual beliefs—it is placed in the psychological cluster. The individual is the source of these perceptions.

Modern expectancy-value theorists have described beliefs about one's *ability-related self-concept* as "children's evaluations of their competence in different areas" (Wigfield, 1994, p. 53). Ability beliefs are sensitive to domains, tasks, and time (Wigfield & Eccles, 2000) and have been defined as "the individual's perception of his or her current competence at a given activity" (p. 70). The theorists, however, defined expectancy for success as a future-oriented belief of one's ability to do well on a given activity. Confirmatory factor analyses of expectancy for success established that this concept was indistinguishable from ability beliefs across both childhood and adolescence (Wigfield & Eccles, 2000). For example, in an examination of three longitudinal studies that tested features of the modern expectancy-value model, Wigfield and Eccles (2000) described the ways in which ability beliefs contributed to achievement outcomes. They found that, when previous performance was controlled for, children's ability beliefs and expectancies for success were the strongest predictors of math grades. These predictions were even more significant than the children's previous grades. They also found that, in a study of seventh and ninth graders, the effects of previous performance on current performance were mediated through children's ability and expectancy beliefs. That is, the academic successes or failures from previous school years provided information to the

students that helped form their self beliefs about ability. These beliefs, in turn, affected the students' performance in their current school year (Wigfield & Eccles, 2000).

Task value. In addition to the expectancy for success, the value that students place on the activities in which they are engaged contributes to their level of motivation.

> According to [other] theorists, the value of a task is determined by both the characteristics of the task and by the needs, goals, and values of the person. The degree to which the task is able to fulfill needs, facilitate reaching goals, or affirm personal values determines the value a person attaches to engaging in that task (Eccles et al., 1983, p. 89).

Eccles et al. (1983) suggested that task value is made up of four components—attainment value, utility value, intrinsic value, and cost. If a task fulfills one's needs or is important to an individual, then the individual's *attainment value* of the task is high. Eccles stated that the attainment value of a task reflected how important it was for the individual to succeed on that task. For example, if a student wants acceptance in a very competitive college, it is very important to him that he do well on the standardized tests.

The *utility value* of a task describes whether the completion of the task serves a useful purpose beyond its immediate goal. The long-term goal may or may not be directly related to the nature of the task at hand (Eccles et al., 1983). For example, a student may take a high school typing class as a required elective. She may also chose this class as preparation for typing papers and class notes in college. Additionally, she knows that while in college, having this skill will allow her to get summer or part-time jobs where typing is a requirement. Although the immediate goal would be to learn to fulfill an elective requirement, the class serves additional purposes.

Intrinsic value was defined as "the inherent, immediate enjoyment one gets from engaging in an activity" (Eccles et al., 1983, p. 89). Eccles et al. (1983) also noted that intrinsic value and utility value can be described in a similar manner as 'means' and 'ends', respectively, and basing their description of intrinsic motivation on the work of Deci and Ryan (1985). Theorists have used the term intrinsic value interchangeably with that of *interest value*. Additionally, they have simultaneously described intrinsic value as *interest* and *enjoyment*. They found inconsistent results regarding intrinsic value's influence on performance. In their longitudinal analysis of the psychological clusters of the model, Eccles et al. (1983), they conceptualized intrinsic value as interest in and liking for math. They found that with the 5th through 12th grade students in their sample, intrinsic value decreased over time. There were no direct influences on behavior or achievement, and the students rated it as one of the least important reasons for deciding to take math course. They also found that intrinsic and utility value appeared to be influenced by another value component, cost value. They stated that variations in task value were generally more difficult to predict that those in expectancies.

Cost was not initially conceptualized as a component of value, though it was considered to contribute to value. As such, the research on it is not as extensive as that of the other value components. The theorists described the cost value component as being similar to a cost/benefit ratio. An individual considers the cost of completing a given task (e.g., the amount of time and effort involved, along with and sacrificing valued distractions) and compares it to the benefits that can be gained from that task's completion (Eccles et al., 1983; Eccles & Wigfield, 2002; Wigfield, 1994). For example, many adults leave their full-time jobs in order to earn their baccalaureate or graduate degrees. They

exert a great deal of time and effort, and they sacrifice the security of their full-time jobs so that they may have a better quality of life with a higher income in a preferential career.

The psychological cluster of the modern expectancy-value model examines the internal thoughts and beliefs that affect academic motivation and, ultimately achievement behaviors. Although it is similar to other expectancy-value theories, the modern expectancy-value model stands out because the theorized motivational components are explored in different ways. Like other traditional research perspectives, the constructs of the model have been investigated for discriminant validity and model fit. However, unlike other theories, the theorists have also investigated the motivational components in modern expectancy-value theory within the developmental cluster of the model. In this cluster, the researchers have explored the longitudinal development of the constructs (e.g., Eccles, 2005, 2007; Fredricks & Eccles, 2002; Wigfield et al., 2004a). They have identified age-group differences in the domain-specificity of the constructs (e.g., Denissen, Zarrett, & Eccles, 2007; Eccles, 1983, 2007; Wigfield et al., 2004a, 2004b). They have also explored gender, ethnic, and cross-cultural differences in the development and interactions of the components (e.g., Eccles, 2007; Wigfield et al., 2004b).

Gaps in the Literature

The context of the learning environment. Much of the research by the theorists of modern expectancy-value theory has involved longitudinal studies exploring how the various components of the model change as the individual grows (e.g., Eccles, 2005, 2007; Fredricks & Eccles, 2002; Wigfield et al., 2004b). Additional research exploring the nature of the theorized motivational components has focused on the domain-specificity (e.g., Denissen et al., 2007; Eccles, 1983, 2007; Wigfield et al., 2004a, 2004b), and the age-

related differences (e.g., Eccles, 1983, 2007) of the constructs. Recent investigations of the modern expectancy-value model have also begun to focus on ethnicity and gender differences in the distinctiveness and development of the motivational components (e.g., Eccles, 2007). Additionally, research in this and other motivational perspectives has begun to examine the cross-cultural consistency of the theorized motivational components (e.g., Wigfield et al., 2004b). Lacking, however, are studies describing the constructs within the context of the learning environment. With the exception of discovering domain-specific similarities and differences in the constructs that make up motivational profiles (e.g., Braten & Olaussen, 2005), there is little research that examines motivation as it changes over a relatively short period of time within the context of the classroom. Most of the research on changes in motivation over time has examined changes during the child's life span.

   Limited information about task value. Motivational researchers have investigated whether they could empirically differentiate the four task value constructs. Wigfield and Eccles (2000) found clear distinctiveness of the value constructs in early adolescents and adolescents in the math domain, although this was not as consistent for the early adolescent students. In fact, only intrinsic value and utility value were differentiated in early elementary students, and then, only in certain domains. Over time, the mean levels of children's value beliefs declined in varying ways across these domains as well. For example, older elementary students' value beliefs declined more than that of younger elementary students in the domains of math, reading and instrumental music. In essence, the older students devalued these subjects more rapidly than did the younger students. Overall, however, there remains limited information regarding value components as

researchers typically did not separate and measure aspects of the theorized value constructs, instead they focused their research on the construct as a whole (e.g., Bong, 2001, 2002, 2004; Eccles et al., 1983). In addition, because the components that make up task value are often overlooked in empirical investigations, little is known about how they change and interact over time.

Levels of specificity. Bong (1996) looked at some of the prominent academic motivation theories and examined them to determine if they predicted behavior. It appeared that the effects of expectancy and value beliefs on achievement outcomes would depend on how each construct was measured and at what level of domain specificity. As an example, she compared two studies that reported observing the relationships between the same independent and dependent variables—expectancy, value, and achievement behavior. However, the results of these studies conflicted. The source of this divergence lay in the authors' different operationalizations of the independent and dependent variables. In one study (Berndt & Miller, 1990, as cited in Bong, 1996), the expectancy, value, and achievement behavior variables were measured globally, across all academic domains (i.e., overall grades). In the other study (Meece, Wigfield & Eccles, 1990), the researchers worked within the academic domain of mathematics. In essence, although these researchers were using the same terminology, they were studying very different constructs and relationships. The work of these researchers suggested that domain-specific investigations produced more valuable information regarding the relationship between motivational variables and academic behavioral outcomes (Bong, 1996).

Bong (1996) recognized the need for more empirical evidence in motivational theories within various domains as well as over time. Also recognizing this concern,

Wigfield (1994) and Wigfield and Eccles (2000) conducted studies that were domain specific. They noted the inadequacy of using global measures for motivational constructs and found that children's ability related beliefs, as well as some of the value constructs, were distinct, domain specific, and task-specific. Further research could reveal more information regarding the relationship between motivation and behavior, if the constructs within motivational theories, such as modern expectancy-value theory, were more frequently measured at a task-specific level (Bong, 1996; Murphy & Alexander, 2000).

Relation of Motivational and Modern Expectancy-Value Constructs

Although modern expectancy-value theory could be quite useful in practice, using this theory to predict behavior may be challenging due to the range of factors that could contribute to a person's expectancy beliefs. Reviews of the modern expectancy-value literature have included efforts to integrate variables from other academic motivation perspectives that are similar to those described in Eccles et al.'s (1983) model. Such an integration of the various perspectives and constructs would allow for more efficient investigations of academic motivation. Attempts to create such an integration require examining the specific constructs described in modern expectancy-value theory. As a result, researchers could develop ways to strengthen the descriptive and predictive power of the model.

Constructs Related to Expectancy Beliefs

Formulations of expectancy beliefs have included beliefs about oneself (e.g., self-efficacy) as well as subjective beliefs about the nature of the task (e.g., the task is easy). Additionally, perceived behavioral control beliefs, though not described as part of behavioral attitudes, considered prerequisites for the task and whether the individual was

prepared for it (Eccles et al., 1983; Eccles & Wigfield, 2002). They examined the structure of the expectancy concept as well as some of the factors that contributed to the formulation of expectancy beliefs and compared them with different theoretical standpoints.

A study conducted by Haugen and his colleagues (2004) examined the concept of expectancy as it related to personality dispositions. They measured global and academic self-concept, achievement motives (to succeed or to avoid failure), attributions (to determine pessimistic and optimistic poles), and cognitive anxiety as well as self-handicapping strategies. The intercorrelations among these personality disposition measures were positive, supporting their assumption that optimistic individuals have positive expectancies and *vice versa*. Their factor analyses and resulting cluster loadings supported the idea that expectancy was a two-poled concept (positive and negative). However, the researchers stressed the need for more research to distinguish the two-poled concept hypothesis and the hypothesis that expectancy was actually two constructs that were negatively correlated.

Considering the various antecedents to the expectancy-for-success construct in Eccles et al.'s (1983) model, it seemed likely that the expectancy construct was more complex than a two-poled construct. For example, although expectancy may be two-poled, self-efficacy, which contributes to expectancy, was believed to be multi-faceted (Eccles & Wigfield, 2002). There were different types of expectancy beliefs theorized by various authors including outcome expectancy, efficacy expectancy, personal expectancies (Wigfield & Eccles, 2000), and perceptions of talent as an innate structure, as opposed to an understanding of ability based on effort and experience (Watt, 2006). Wigfield and Eccles (2000; Wigfield, 1994) reviewed some of the constructs in the modern expectancy-

value model and compared them to similar constructs described by other theorists. The constructs they reviewed from other theoretical perspectives included self-efficacy theory (Bandura, 1997) and a number of control theories.

Self-beliefs of ability. Atkinson's (1964/1966) model did not take into account the person's beliefs about his or her own ability. In his model, subjective considerations of a task's difficulty informed the individual of whether he or she would be successful in accomplishing the task. Modern expectancy-value theory, as well as other theories involving academic motivation, described the self-beliefs of the individual more explicitly. However, according to Bong (1996), a "conceptual mess" (p. 151) had been created because many of these variables seemed to describe the same or similar constructs.

"Bandura proposed that individuals' efficacy expectations (the expectations that he or she would do well) were the major determinant of goal setting, activity choice, willingness to expend effort, and persistence." (Eccles & Wigfield, 2002, p. 111). The definition of self-efficacy has been described by a number of theorists (for examples, see Bandura 1997; Eccles & Wigfield, 2002; Schunk, 1991; Stipek, 2002; Wigfield & Eccles, 2000). Wigfield's (1994) definition of expectancy is similar to Bandura's (1977) definition of efficacy expectancies and described beliefs about future outcomes. Bandura's (1977) definition of efficacy expectancies described the prospect that one could produce a desired outcome through a behavior. "As in expectancy-value theory and attribution theory, Bandura's self-efficacy theory focuses on expectancies for success" (Eccles & Wigfield, 2002, p. 111).

Schunk (1991) noted that self-efficacy seemed analogous to capacity beliefs, particularly self-confidence. These terms, however, describe a person's beliefs on specific

tasks. A similar factor, self-concept, described a person's beliefs in his or her abilities within a domain that were less-specific than those of self-efficacy. Schunk's review of these two constructs described the differences based on empirical evidence. Not only were these constructs measured in similar ways, but when he measured self-efficacy at a domain-specific instead of task-specific level, the differences between the two constructs were difficult to separate. In the review, Schunk concluded, "Self-concept is a global construct comprising self-efficacy and other aspects of the self" (p. 212).

One of the goals of researchers is to differentiate self-efficacy from the other self-belief constructs like self-esteem, self-confidence, self-competence, and self-concept (Bong & Skaalvik, 2003). Bong and Skaalvik conducted an extensive review of the similarities differences between self-efficacy and self-concept. They, like Schunk (1991), also noted that there was some discrepancy between the levels of domain-specificity and predictability between the variables. For example, a basketball player in the starting lineup can have a high self-concept in his athletic abilities but have lower self-efficacy beliefs about making successful lay-ups, especially during high-pressure moments in championship games. In their investigation (Bong & Skaalvik, 2003), self-concept remained a distinct factor, capable of predicting achievement behaviors when measured within the domain of an academic subject. Self-efficacy, however, was a distinct factor at a task-specific level and provided prediction when it measured task-specific beliefs. They also agreed with Schunk that self-efficacy appeared to be a component of self-concept.

In his review, Schunk described self-efficacy interchangeably with competence. Wigfield and Eccles (2000), however, stated that there was a slight difference between self-efficacy beliefs and self-competence, although the nature of these differences remained

unexamined. In Wigfield and Eccles' (2000) review of their model, they described this concept better as competence beliefs. A study of academic motivation literature conducted by Murphy and Alexander (2000) provided a slightly different view of these constructs. They concluded that self-efficacy and self-competence (along with agency and attribution) were components of self-schema. However, their criteria for selecting and excluding literature forced them to exclude expectancy-value research.

Goals and orientations. Eccles et al. (1983) described goals and orientations as achievement goals. Generally, motivation theorists described an individual's goals as either being conscious long and short term goals or unconscious motives (Atkinson, 1964/1966). However, some theorists did not specify whether the goals they described were conscious goals that the individual desired or unconscious goals. Additionally, when theorists described what influenced the formulations of these goals, they did not specify if these influences affected an individual's conscious or unconscious goals.

Performance goals (e.g., wanting to earn a high grade) and mastery goals (e.g., desiring a thorough understanding of the material) are similar to the constructs of task-involved goals and ego-involved goals, respectively. Though they have been described as different constructs (Harackiewicz, et al., 2002; Stipek, 2002), the terms are frequently used interchangeably (e.g. Murphy & Alexander, 2000). Empirically determining whether these terms represented the same constructs was a matter for further study. Additionally, the components of performance goals—performance-approach and performance-avoidance—were found to coincide with mastery goals (Barker, McInerney, & Dowson, 2002). These findings negated the original conception of performance and mastery goals as bipolar in nature (Barker et al., 2002). People who have a combination of both performance

and mastery goals have used them both effectively in achievement situations. Researchers have not specified if the individual intentionally employed performance and/or mastery goals in specific situations or if this determination was left up to uncontrollable characteristics of the individual (Barker et al., 2002).

Constructs Related to Value

Eccles et al. (1983) described intrinsic value and interest as the same component within the larger value concept. Whether or not the enjoyment of engaging in an activity is the same as interest, however, has yet to be differentiated by these theorists. Schraw and Lehman (2001) argued that interest was a multifaceted construct and included *situational* and *personal interest*. They described situational interest as task-specific and as a fleeting phenomenon that began and ended quickly. They described personal interest, on the other hand, more as a personality trait "characterized by [an] intrinsic desire to understand a particular topic that persists over time" (p. 24). I would argue that interest and enjoyment in an activity are two different constructs—a contention supported by other theorists (e.g., Hidi & Harackiewicz, 2000; Linnenbrink & Pintrich, 2002; Schraw & Lehman, 2001). One can be interested in a certain activity, sewing, for example, but not enjoy engaging in the act of sewing (calibrating the machine, threading needles, etc.). Further study into the levels of task-specificity of this construct is necessary in order to determine whether enjoyment and interest are the same and, if not, in what ways they differ.

Constructs Related to Developmental and Sociocultural Influences

The sociocultural environment in which an individual is embedded during his or her development influences both the individual's expectancies and his or her values as

previously described. Theories that concentrate on the effects of a person's environment have developed separately from the formulation of modern expectancy-value theory. The integration of these theories is still in its infancy, but the need to address both has been recognized (Bong, 1996; Eccles & Wigfield, 2002).

Sociocultural influences and empirical research. Although the influences of people's sociocultural backgrounds clearly shape how they approached academic tasks, having a large number of influences on behavior can impede the ways in which researchers can empirically test a theoretical model. Bong (1996) recognized this problem and suggested two solutions to make such testing possible. These were not simple solutions, of course, and each had pros and cons associated with it.

Her first possible solution was to combine the theoretical perspectives in a way that included the motivational influences from a variety of sources. She also suggested that, in this case, researchers should have unified construct definitions. This could clarify some of the seemingly contradictory results found in the research (Bong, 1996). However, Bong recognized that there were potential difficulties inherent in these suggestions. Although the constructs from different theoretical perspectives were similar, there were slight differences that were too important to ignore. An additional problem with an integrative model was its impracticality. Having a theoretical model that included influences from a variety of perspectives might be comprehensive, but realistically, researchers need to empirically focus on smaller aspects of these models. Finally, and perhaps most importantly, using such a model to make predictions would be impossible (Bong, 1996).

Her second proposed solution was to continue using multiple models but to have them represent separate dimensions of academic motivation. This solution has the potential

of allowing researchers studying within a dimension of academic motivation to do so with greater depth and breadth. Examining motivation in this manner would be more empirically, and theoretically, user-friendly, although not reflective of real-world situations. Finally, it would also ensure that the methods needed to make predictions would be more feasible. However, if researchers were to examine the contributing factors to motivation separately, the challenge would be to examine how these separate dimensions interact (Bong, 1996).

Pilot Study

I conducted a pilot study in order to test the feasibility of measuring motivation at a task-specific level and to investigate the properties of the theorized motivational components. The participants were preservice teachers in a summer assessment course. As a requirement of their course, they completed a meaningful project with three segments that were due at different points throughout the course. These three parts also received distinct grades in addition to a final grade for the completed project. The project they completed was a standards-based assessment portfolio. The instructor designed the project to serve as an authentic assessment of the students' skills and to be an assignment the students would be intrinsically motivated to complete. After the course concluded, the students' completed portfolios could be beneficial during interviews or in the classroom.

I measured expectancy and the value components at a task-specific level during the time the students were completing their projects. When I measured the value component, I separated the four value subcomponents—attainment value, intrinsic value, utility value, and cost—and measured them individually. When measuring intrinsic value, I also measured enjoyment and interest separately in order to examine these constructs further. I

measured the expectancy and value constructs with Likert items and supplemented the questionnaires with open-ended survey questions.

Participants. The sample consisted of twenty-five Masters in Teacher Education graduate students. These preservice teachers were enrolled in two sections of a summer course about educational assessment (N = 17 for section 1 and N = 8 for section 2). The same instructor taught both sections of the course. There were 18 females (N = 12 in section 1 and N = 6 in section 2) and 7 males (N = 5 in section 1 and N = 2 in section 2). Nineteen participants (76%) completed every questionnaire in the study.

Academic task. All of the students in this course were required to complete a portfolio assignment as a major portion of their class grade. In this assignment, students looked up the standards within their own fields and selected the appropriate standards that their lesson plans addressed. They described their lesson plans and created a number of assessments based on the lesson plans in order to demonstrate the different types of assessments they learned during the course. Because these students practiced these assessment skills within their own fields and left the course with a completed and useable project, the instructor and I believed the assignment was meaningful to them and elicited high intrinsic motivation. The instructor gave the students the opportunity to complete rough drafts and receive feedback before completing final drafts.

The lengthy project was divided into three overall segments with separate grades. The first segment involved a brief description of the teachers' target population. Then, the students listed the state core curriculum standards within the students' fields of study and the cross-content workplace readiness standards (no longer in use by the state). Some of the students had not been exposed to the core curriculum standards before, and this exercise

was intended to acquaint them with the standards. The instructor listed internet links to these documents in the syllabus. Additionally, the instructor provided an example of the first segment. She showed it to them as a display during the first class and it was available to the students electronically. This segment was due during the second week of the four-week class.

The second segment began with the students selecting standards from the core curriculum standards and the cross-content workplace readiness standards. Then the students described a total of 10 ways to assess the standards. Next, the students expanded on 5 of their descriptions and created full and useable assessment tools along with scoring rubrics. The instructor also made examples of this segment available to the students electronically. This segment was due during the third week of class.

The last segment involved a rationale of how the assessment plans fit with the students' educational philosophies. The students needed to defend why they chose to use specific assessment types. In addition, they needed to explain how their assessments would adequately evaluate the progress of students in their target population. This segment was due on the last day of class.

Measures. I developed four task-specific questionnaires. I wanted to measure expectancies for success (measured as self-efficacy), as well as the separate components of task value and intrinsic value. I looked at a number of published measures of some of these constructs but most seemed inappropriate for the age level and academic task of my participants. In addition, many widely used measures were inaccessible. I read items from the self-efficacy and intrinsic value subscales of the Motivated Strategies for Learning

Questionnaire (MSLQ) (Pintrich & De Groot, 1990). Appendix A lists the items I considered as well as the blueprint for the pilot study questionnaires.

I measured expectancy with items addressing self-beliefs about ability (e.g., "I am confident that I completed each component accurately"). This item was similar to the MSLQ (Pintrich & De Groot, 1990) item "I am sure I can do an excellent job on the problems and tasks assigned for this class." I measured value with items addressing attainment, utility, cost, and the two components of intrinsic value (interest and enjoyment). Some of the items on the MSLQ were clearly assessing the same value components. For example, the MSLQ item "I think I will be able to use what I learn in this class in other classes" was similar to the pilot study item "I think the SBA project will be useful to me after I finish this course." I attempted to have items that were very similar from one questionnaire to the next. For example, on the second and third questionnaires, the cost items were "Every component of the project I completed was worth spending a lot of time on" and "Every component of the project I completed was worth the amount of time I spent on it," respectively.

The questions on each measure assessed the participants each week while they completed the project (because segments were due once a week). Each questionnaire included 15 Likert items and 3 open-ended questions. I wanted to ensure that the entire questionnaire would fit on a double-sided page. Because participation was voluntary, I did not want to use a long questionnaire. The participants were asked to rate each of the 15 positively worded statements on a scale from 1 to 5 (1 = Strongly Disagree, 5 = Strongly Agree). I averaged the items assessing each component and used that average as the rating for that component for each questionnaire. The three open-ended items that concluded the

first three questionnaires measured interest ("What aspects of the SBA project are interesting to you?"), enjoyment ("Why do you believe you will or will not enjoy completing the SBA project?") and motivation ("Are you motivated to complete the SBA project? Why or why not?"). The order in which the Likert as well as the open-ended items were displayed varied per questionnaire. The last questionnaire also contained three items, written in past tense. The item measuring motivation asked students, "Are you motivated to use the completed SBA project? Why or why not?" The other questions asked students to comment on influences on their interest and enjoyment as they worked on the project.

Procedures. After the students were given the description of the project, they were given time to read the directions and answer questions about the project. The instructor introduced me, along with the purpose of the study, to the class. After the instructor and I answered all questions about the project and the study, the participants signed the consent forms. I then administered the first questionnaire. The questionnaires were repeated measures that linked the participants' current responses to their previous response; therefore, they used their student ID numbers as identification. Students who did not know their student ID numbers were asked to provide a number that they would remember.

The additional three questionnaires were administered on the respective due dates. The last questionnaire was administered by the instructor instead of the researcher because the students were expected to come to class at staggered times on the last day of the course. Unfortunately, seven students were given the wrong questionnaire on the last day. Those students completed the third week's questionnaire instead of the fourth week's questionnaire, though they left the questions about "the upcoming project sections" blank. After the course was completed, the teacher submitted and final grades and then released

the participants' project and overall grades to me, in accordance with the students' signed consent.

Results. I used the expectancy and value measures from the questionnaires to determine whether the behavioral outcome, or the grade on each segment of the project, would be significantly predicted using the task-specific motivational measures. I only analyzed the data with the items from the third questionnaire and the second project segment. Because the participants had not yet begun the project when they completed the first questionnaire, there were no grades associated with it. There was a ceiling effect with the second and fourth questionnaires. There was a maximum of five points each for the first and third project segments and all of the students received a four or a five on each segment. The second project segment had a maximum of 25 points. Although there was more variability, the mean for the second project segment grade was $M = 23.15$.

The analyses were consistent with findings in the literature about expectancy but did not provide enough information to support the theory. The multiple regression analyses (see Table 1) revealed that the variance in the second project segment grade was explained by the model, with students' ability beliefs as the only significant predictor ($F(2, 19) = 4.078$, $p < .05$, Adj. $R^2 = .245$). For exploratory purposes, I used the grand mean of each of motivational variables from all of the questionnaires to predict the class grades (see Table 2). Beliefs about ability was again the only variable to significantly predict grades, ($F(2, 25) = 6.685$, $p < .01$, Adj. $R^2 = .313$). For the current study, I revised the questionnaire statements about the value components for clarity in order to find a significant relationship.

Table 1

Pilot Study: Regression of Motivational Variables on Project Third Segment Grades

Variable	M	SD	r with predictor 1	r with predictor 2	B	SEB	β
Segment Grade	23.15	2.01	.57**	.27			
1 Expectancy	4.17	.79	--	.46*	1.43	.57	.57*
2 Value (weighted)	3.30	.96		--	.02	.47	.01

*p < .05, **p < .01, (n = 20)

Table 2

Pilot Study: Regression of Mean Motivational Variables from All Questionnaires on Class Grade

Variable	M	SD	r with predictor 1	r with predictor 2	B	SEB	β
Class Grade	95.27	3.35	.57**	.33			
1 Expectancy	4.20	.51	--	.05	3.43	1.11	.53**
2 Value (weighted)	3.47	.64		--	1.10	.89	.21

**p < .01, (n = 26)

I conducted an ANOVA on the Likert style responses to determine if students' levels of interest, enjoyment and the other expectancy and value variables would vary during the progression of the project. After reading many of the open-ended statements, it appeared that students' motivation might have increased as they reached the completion of the project. Considering this shift, quadratic and cubic contrasts were included in the ANOVA. Although the means plots of some of the motivational variables visually suggested changes over time—particularly those of interest and enjoyment—there were no significant differences in the linear, quadratic, and cubic analyses. Figure 2 shows the means plots of interest and enjoyment.
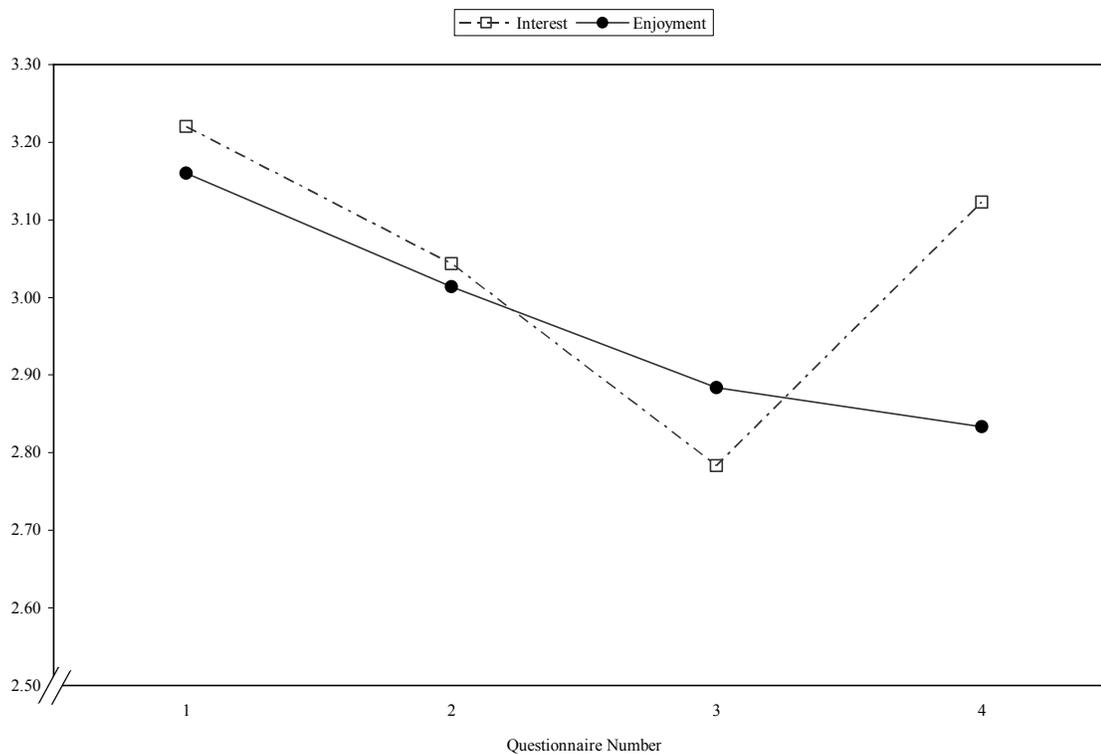
Figure 2. Pilot study: Means plots of interest and enjoyment. The mean ratings of the interest and enjoyment items on the four questionnaires visually suggest significant changes over time. The quantitative findings, however, did not support this assumption. There were no significant changes over time in any of the constructs. The paired t-tests also were insignificant.

To determine if the measures of interest and enjoyment from each of the testing times were significantly different, I conducted paired-sample t-test for each of the measurement times. The values of these variables were highly correlated and there were no significant differences found between the variables. Combined with the ANOVA results that also did not reach significance, there was no support to the hypothesis that interest in the task would remain stable as enjoyment declined. However, the students' responses to the open-ended questions provided anecdotal support for this hypothesis. Most students enjoyed the project, or certain aspects of the project, less as time progressed. However, a few of the participants continued to state that the topic of the project, or its components, were interesting. When considering this, along with the fact that many of the students used

the terms interest and enjoyment interchangeably in their comments, it seemed possible that I could identify a difference between the two variables if the questionnaires were revised for the current study in order to better clarify the two constructs for the participants.

The open-ended questions were included for exploratory purposes initially. I wanted the items to gauge students' levels of interest, enjoyment, and overall motivation as they anticipated completing the assignment. Some recurring themes arose from the comments. Students listed the usefulness of the portfolio project as one of their primary sources of interest (n = 7), anticipated enjoyment (n = 11), and motivation to proceed (n = 11). Unfortunately, as the project progressed, fewer and fewer students believed that the project was useful.

After the anticipated usefulness of the project, the next highest number of statements was about the students' interest in completing the project. Many students stated that they were interested in completing the project because it gave them the opportunity to learn about assessments (n = 10) or the standards (n = 7). Conversely, considering the project to be informative was among the lower ranking reasons students believed they would enjoy working on the project (n = 2). This supported the hypothesis that although students might be interested in a project, they might not enjoy working on it and that enjoyment and interest might not be the same variables. Students stated that having a good learning experience was the second highest reason they would enjoy completing the assignment. However, this was not was not a close second (n = 2) to the project's usefulness (n = 11).

The hands-on experiences that the students engaged in during the completion of the project included creating assessments, lesson plans, writing an educational philosophy (and

using it to justify the students' assessment choices), and aligning the assessments with the standards. These encompassed most of the statements explaining participants' initial interest in the assignment. The students did not list any of these as a reason for enjoying working on the project. Although considering the project to be good practice was a reason for general motivation to work on the project, it was among the least stated reasons.

For the pilot study, I hypothesized that interest and enjoyment were different constructs. Though the quantitative findings did not support the hypothesis, the open-ended statements did support it. Students primarily stated reasons concerning why they would be interested in the assignment throughout all four weeks of the study. However, the enjoyment statements during those four weeks were primarily about why they would not enjoy completing the assignment. There were specific statements in regards to both interest and enjoyment that showed differences over the course of the completion of the project. These statements encompassed working on the lesson plans, creating assessments, learning about assessments, learning about standards, and the educational philosophy. Additionally, there were much fewer negative statements overall describing students' interest in the assignment. However, most of the statements describing students' enjoyment were negative.

The information from the pilot study prompted revisions that I implemented in the current study. Below I summarize the revisions made in order to answer each of the research questions of the study. I also review the three research questions.

The first research question was "Will task-specific measures lead to a strong prediction of achievement outcomes?" To answer this question, I needed an outcome measure that had more variability. Using students' segment grades caused a problem

because of the ceiling effect with two out of the three grades. Therefore, in addition to the grades, I included self-reported behavior items on the questionnaires. Additionally, I needed to ensure that all of the questionnaire items were consistently future-oriented because I wanted to use the motivational items to predict their future behavior and achievement.

The second research question was "Do the motivational components change over time?" In order to address this question, I needed to revise my questionnaire items so that they would be more task-specific. On questionnaires for the pilot study, I did not reference the tasks the students were doing within the segments. Instead, I simply used the name of the project and referenced the components of the project without describing them (see Appendix A). I also needed to have more items measuring each construct for each questionnaire.

The third research question was "Are interest and enjoyment separate constructs?" In order to answer the last research question, I needed to ensure that it was apparent to the participants that the interest and enjoyment questionnaire items were measuring different constructs.

Conclusion

Expectancy-value theory provided a way to explain behavior by incorporating cognition and emotions. Theorists no longer considered behavior simply a response to stimuli. This theory also took into account unseen forces such as motives and intentions as a precursor to behavior. Furthermore, past experiences were not considered simply conditioning. Instead, past experiences, from performing similar tasks to previous social experiences, produced expectancies and contributed to values.

Various expectancy-value models have been formulated since Atkinson's (1964/1966) original conceptualization. Variables such as affect and sociocultural influences have been added to the model in order to make it more comprehensive. Researchers have worked to improve the predictive power of the theory as well as to form a better understanding of how the many factors that influence behavior interact. Theorists have included factors that they assumed to directly or indirectly influence behavioral outcomes. In addition to ensuring that the model is inclusive of the many factors that contribute to a person's beliefs, values, and behaviors, researchers have attempted to incorporate other theoretical perspectives. Many of the variables under study in academic motivation research are comparable. Determining the uniqueness of each variable, as well as how they interact with and affect academic motivation is a necessity in order to make academic models more parsimonious.

The theorists in this tradition have focused most of their efforts on the developmental emergence of the theorized influences on motivation (e.g., Eccles, 2007; Denissen et al., 2007). Additionally, they have examined gender differences in students' beliefs, behaviors, and achievement (e.g., Nagy, Trautwein, Baumert, Koller & Garrett, 2006). Investigations of the racial differences are also an interest in the research of modern expectancy-value theorists (e.g., Eccles, Wong, & Peck, 2006). In their investigations of motivational influences, academic behaviors, and performance, expectancy-value researchers have continued to identify differences and changes over the span of time children were in school that was domain-specific.

In this study, I took a different focus in the study of influences on academic motivation. Instead of examining longitudinal changes in the motivational components over

the academic lifespan of a child, the temporal focus in this study was the immediate influences on motivation that occurred while students were actively engaged in an authentic academic task. This also provided the opportunity to explore additional, contextually based influences on motivation related to the completion of the academic task. In this study, I also examined the components of task value more closely in order to provide a basis for clarification of some of the constructs.

Chapter 3: Methods

In this study, I explored how motivational components changed during the time it took students to complete a project with multiple parts. I measured the motivational components described in modern expectancy-value theory at a task-specific level in order to obtain results that were better than general measures. I also used task-specific measures of the motivational components to explore further the nature of the motivational components described in modern expectancy-value theory (Eccles et al., 1983). More specifically, I examined interest and enjoyment as they changed over time to see if they changed as a unified construct or in unique ways. I measured the motivational components, behavior, and achievement using quantitative as well as qualitative techniques. I used open-ended questions on written measures to provide beneficial information that elaborated on the findings from ratings data. I used interviews in addition to open-ended statements in this study in order to learn more about the nature of the changes in the motivational and behavioral constructs within the context of the learning environment.

Participants

The sample consisted of 96 pre-service graduate students (82.3% female and 17.7% male) enrolled in six sections of a Masters in Teacher Education summer course. These students were likely to be highly intrinsically motivated at a domain-specific level because they were enrolled in a methods course only for students planning to become teachers. From only one of these course sections were all of the participants female. The intention for selecting a sample of students highly motivated within a domain was to establish a baseline against which I could detect differences in the motivational components. Researchers have

already found that the various constructs that contributed to students' academic motivation changed during the course of a school year (Paulsen and Feldman, 1999). As such, I tracked the ways in which the motivational constructs changed over the course of the semester.

In this summer course, students learned about teacher-made and standardized assessments. They also learned the basic concepts of validity and reliability of evidence. There were six sections of the assessment course, taught by five teachers. The same teacher taught sections 1 and 2. First-time teachers taught sections 3 and 4. They decided to work together and used the same syllabi and lesson plans. Sections 5 and 6 were both evening classes.

Sections 1 and 2 were the only sections that met four times a week (Monday through Thursday) for four weeks but with shorter class periods. The remaining courses met either on Mondays and Wednesdays or on Tuesdays and Thursdays for four weeks; they had longer class periods. Overall, the data collection was for the four weeks during the month of June, 2007 (see Appendix B for the data collection and course schedules).

Academic Task

Students' motivation was assessed as they worked on a multi-part project as part of their coursework that took substantial time to complete. The assignment needed to be an integral part of the course in order to obtain a record of how they responded to an actual academic task. Additionally, by examining academic motivational constructs at a task-specific level, it was possible to collect more extensive information about the manner in which components of academic motivation changed during the semester. By studying

students as they completed a project with multiple parts, I was also able to examine changes and differences between interest and enjoyment.

A requirement for the participants was to complete a standards-based assessment (SBA) portfolio as a major part of their class grade. As a part of this assignment, students were to create or describe a lesson plan based on the field in which they plan to teach. They were also required to create a number of assessments based on this lesson plan in order to demonstrate the different types of assessments taught during the course. As an objective in the design of this portfolio, the students were able to demonstrate how they aligned their assessments with the state's standards within their own fields of study. In addition, the students could use their completed portfolios when they began their job searches and when they began teaching.

For the purposes of this study, I divided the multiple parts of the project that were due at varying times during the course into three overall segments. The first segment included the introductory information such as the target population and the relevant standards. The second segment focused on the instructional objectives from the lesson plan and the assessments. In the third segment, students needed to explain their assessment choices to supervisors and parents. The amount of detail the students needed to write in the different parts of the project varied according to different instructors' requirements.

Measures

I used both quantitative and qualitative measures in this study to gain a more complete understanding of the influences on components of academic motivation. I included open-ended statements to provide qualitative information that supplemented the quantitative results. I reviewed the results obtained from the mixed methods procedure

during the pilot in order to refine the measures in the current study. In this study, I utilized Likert questionnaire items, open-ended statements, and interviews.

Quantitative Measures

 Behavior and achievement. I measured the students' academic outcomes using the students' project grades and the class grade. I converted all of the grades from raw scores to percentages and I removed extra credit points, attendance points, and class participation points from the grade calculations so that the grades analyzed for this study included only the project grades. Additionally, because the pilot work had shown that there was often little variation in segment scores, with most students receiving the maximum score on those segments, I also used self-reported behavior as an outcome measure.

 Three of the four questionnaires contained items measuring participants' self-reported behavior as they completed each project segment. I based the items measuring behavior on quality of work, the effort expended, persistence, and procrastination. Examples of these items are "I did the best work I could have possibly done in this section" and "I worked consistently on this section without unnecessary breaks" (see Appendix C for the full questionnaires). I created a positively and negatively worded statement for each of the four behaviors. For example, the two statements measuring effort were "I gave my highest effort in this section" and "I could have put more effort in this section." After these eight statements were developed, I then randomly chose a statement to represent each of the four behaviors on the questionnaires. So, although questionnaires 2 through 4 have an item measuring each type of behavior, I used some of the items twice. I ensured that each item was not used more that two times, however. During questionnaire development, when I randomly selected an item that was already used twice, I would randomly choose again.

During the development of the behavioral subscales on the questionnaires, I intended for all of the items to represent a single measure of behavior. Otherwise, in order to make four separate behavior subscales, I would need to greatly increase the amount of items.

On the Likert items, the participants were asked to rate statements on a scale from 1 to 4 (1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Agree*, 4 = *Strongly Agree*). Items on the behavioral subscale were both positively and negatively worded. I reversed the scoring on the negatively worded items when I computed the score. On the questionnaires, however, I consistently labeled the Likert 1 to 4 ranges from *strongly disagree* to *strongly agree*. All of the questionnaires are included in Appendix C.

Task-specific measures of motivation. Expectancy was measured with 4 items on each questionnaire addressing self-beliefs about ability (e.g., "I can identify the appropriate standards for my instructional program"). Twenty items addressing attainment, utility, cost, and each of the two components of intrinsic value (interest and enjoyment) measured value. The open-ended data from the pilot study suggested that students often described interest and enjoyment interchangeably. In order to obtain a stronger measure of these variables, I revised the wording of the interest and enjoyment statements. For clarity, I conceptualized *interest* as interest in the topics covered by the task and *enjoyment* as enjoyment while completing the task. Table 3 shows examples of the items that were used to measure value.

In order to measure task-specific motivational constructs, the measure needed to address specific aspects of the academic task. Therefore, I developed four task-specific questionnaires. Items on the first three questionnaires measured the participants' motivational components before beginning each segment of the project. There were also

items on the last three questionnaires that measured the participants' self-reported academic

behaviors after they completed those segments. Appendix C lists the full measures.

Table 3
Examples of Value Measures

Variable	Two Item Examples
Interest	"I am interested in understanding what the standards, strands, and progress indicators mean." "The variety of ways to assess students is interesting to me."
Enjoyment	"I will enjoy deciding on and describing a target population." "Describing how my assessment plan fits with my educational philosophy will be fun for me."
Attainment	"Describing different ways to assess each standard is important to me." "The SBA project is important for me to complete in order to understand classroom assessment."
Utility	"I think the SBA project was useful to me after I finish this course." "It is practical to describe why the assessments I created are appropriate."
Cost	"It will be worth spending as much time as possible on the lesson plan." "The amount of effort I put into describing the different ways to assess each standards will be worthwhile."

I created the task-specific items for the pilot study aided by published

questionnaires, primarily the Motivated Strategies for Learning Questionnaire (MSLQ)

(Pintrich & De Groot, 1990), which I used as a template. The results from the pilot study,

however, prompted necessary modifications in the wording of the questionnaire items in

order to make them even more specific to the project segments. For example, I modified

the item "I am sure I can do an excellent job on the problems and tasks assigned for this

class" from the MSLQ to read, "I believe I will do well on every part of the SBA project

that I completed" for the pilot study. However, the results from the pilot indicated that

items worded in this manner were still not specific enough. Therefore, I modified the items

further, as in this example that is parallel to the two items just described: "I can easily describe my target population."

For this study, because I made the items very specific to the tasks involved in completing the SBA project, I was unable to make the items identical from one questionnaire to the next. To compensate for these changes in wording from one item to the next, certain phrasings were similar. For example, many of the expectancy items had a phrasing of "I am capable of __" or "I can __" although there were differences such as "I am fully capable of __" or "I am confident that I can __." For interest, the items generally stated, "I am interested in __," "It is interesting that __," or "__ is interesting to me." Utility value items included phrasings with the word "useful" and "practical." Cost value included phrasings about "__ will be time well spent" (or "worth spending time on"). Additionally, the cost value items included phrases that had "worthwhile" in them and one item that described challenge because it related to a positive use of time and effort (Q3, #13, "Describing how my assessment plan fits with my educational philosophy will be challenging to me").

Table 4 shows the number of items on each of the questionnaires. The first questionnaire consisted of 24 Likert items and 1 open-ended question. The open-ended question was the same on each questionnaire, "What aspects of this project make you more or less motivated to work on it?" The second and third questionnaires each had 28 Likert items and the open-ended question. The fourth questionnaire had 4 Likert items and 2 open-ended questions. The additional open-ended question asked students if they were motivated to use their completed projects and to explain their answer. The open-ended items provided students the opportunity to include additional information related to their

motivational beliefs. I positively worded all of the items on the questionnaires measuring the motivational constructs.

The 4 expectancy and 20 value items (4 items each for the attainment, utility, cost, interest, and enjoyment components of value) always referred to the tasks to be undertaken in the next segment of the project. The 4 behavior items always referred to behaviors on the previous segment just completed.

Table 4: Number and Type of Items on Each Questionnaire

Questionnaire	Motivational Components		Behavior	Open-Ended	Total
	Expectancy	Value*			
1	4	20	0	1	25
2	4	20	4	1	29
3	4	20	4	1	29
4	4	20	4	2	6

*The 20 value items included attainment, utility, cost, interest, and enjoyment.

On each questionnaire, I computed the average of the four items that measured each of the constructs to indicate the rating for that construct. I computed each construct's rating for each of the questionnaires. There were no overall motivational or behavioral subscale scores because I was interested in each of the components separately. Therefore, the calculated scores individually represented each construct for each questionnaire.

Because each of the questionnaires measured both motivational constructs as well as self-reported behavior, Table 5 lists the Cronbach's alpha for each subscale as well as the alpha for each of the four questionnaires. One behavior item from the third questionnaire (question #3) was removed from the analysis of the results because the alpha for that behavior subscale would have been $\alpha = .4787$ and $\alpha = .9006$ for the entire measure.

Removing the item increased the reliability coefficient to α = .6958 for the subscale and α = .9086 for the questionnaire.

Table 5

Reliability Coefficients of the Questionnaires

Questionnaire	Subscale	alpha	# items	# cases
1	Motivation	.9102	24	93
	Behavior	.6499	4	90
2	Motivation	.9103	24	86
	Entire Measure	.9013	28	85
	Behavior	.6958	3*	90
3	Motivation	.9057	24	86
	Entire Measure	.9086	27	86
4	Behavior	.7226	4	91

*I removed one item from this subscale.

I computed additional reliability coefficients as well. Appendix D lists the construct reliabilities of each motivational construct from all of the questionnaires. They ranged from α = .7989 for ability to α = .8983 for enjoyment (see Table D1). Additionally, Appendix D lists the parallel reliabilities of the motivation (α = .9596) and behavior (α = .8098) subscales for all questionnaires and all of the questionnaires combined (α = .9605). The parallel reliability for the behavior subscale with the third item from the third questionnaire removed was α = .8217 (see Table D2). Appendix E lists the descriptive statistics for each item on each of the questionnaires.

Qualitative Measures

Open-ended statements. On the questionnaires, the participants were encouraged to write anything else they wanted to add regarding the project. In addition, one question on each of the four questionnaires was, "What aspects of this project make you more or

less motivated to work on it?" The last questionnaire also asked students if they were motivated to use the completed project and to explain why or why not (see Appendix C). The open-ended statements from the pilot study provided a great deal of information that supported the quantitative data. Those statements, however, focused solely on interest and enjoyment, for exploratory purposes. Those responses provided insight into students' conceptualization of interest and enjoyment that allowed for the revision of the questionnaires in this study.

Interviews. In addition to the open-ended statements, I conducted semi-structured interviews to reveal important information that might be missed using only Likert items and short responses. The questions on the interview centered on the three research questions (see Appendix F for the interview protocol). For example, to measure changes in motivational components over time, I asked the participants what they initially thought of the project and whether those beliefs changed while they were working on the project. Follow-up questions focused on each of the motivational constructs and each of the project segments in order to get a complete response. To address the second research question, I asked the participants how interested they were in the topics the project segments covered as well as how much they enjoyed working on those segments.

Additional items on the interview protocol further explored what students thought about the project and its purpose. For example, there were questions that asked students what they would eliminate or revise with respect to each of the segments. There were also questions that asked the students what types of assignments they would devise if they were to teach the course. The follow-up questions asked the participants how they would optimize students' motivational components during the completion of the tasks. The

intention of these questions was to gain further insight into the motivational components under investigation.

Procedures

I measured the motivational constructs examined in this study at a task-specific level. Therefore, the academic task that the participants completed was an important aspect in this study. To measure changes over time, it was essential that the task have multiple segments. The task also needed to be an integral part of the course so that the academic task would be authentic. Although there were slight instructional differences in the course, the procedures taken by the researcher were generally the same.

After the students were given the description of the project, each instructor gave them time to read the directions and to ask questions regarding the assignment. Each instructor introduced me to the class, and I described the study. She then answered the students' questions about the project. I answered questions about the study and the students signed the consent forms.

I administered the first questionnaire during the first week of classes. The questionnaires were repeated measures that linked the participants' responses across questionnaires; therefore, they used their student ID numbers for identification purposes. This number was on the front of their ID cards, so it was unlikely that they would not know it. The due dates for the project segments varied among course sections. The questionnaires were collected and administered based on the respective due dates of the project segments (see Appendix B for a synopsis of the course and data collection schedules). Additionally, because there were slight differences in the requirements per

section, I instructed the participants to leave blank any item that does not apply to their class.

Procedures for Sections 1 and 2

On the second day of class, students in sections 1 and 2 went to the library for a hands-on session researching information (including validity and reliability evidence) on the No Child Left Behind (NCLB) Act. A guest lecturer guided the students during that time. These students completed the SBA project in the same manner as the students in the pilot study. The instructor gave the students the opportunity to complete rough drafts and receive feedback before completing final drafts. The first segment involved a brief description of the teachers' target population. Then, the students listed the core curriculum standards within the students' fields of study and the cross-content workplace readiness standards. This segment was due on the second week of the class. I collected the first questionnaire and administered the second.

On the first day of the third week of classes, I administered and collected the interview consent forms. I asked students to email me with their availability for the interviews. During this week, the students in this section gave group presentations on one of the five assessment types described in the text. For each day of the week, one group presented. The assessment types presented were selected response, constructed response, performance assessments, portfolio assessments, and affective assessments, respectively. The fifth group, however, did not present their chapter until the Tuesday of the fourth week of the course.

The second segment of the SBA began with the students selecting standards from the core curriculum standards and the cross-content workplace readiness standards. Then,

they described 10 ways to assess the standards. Next, the students selected 5 of their descriptions and created full and useable assessment tools along with scoring rubrics. This was due the Monday of the last week of the course. I collected the second questionnaire and administered the third one that day. Additionally, a guest lecturer from career services spoke to the class about their curriculum vitae.

On the Wednesday of the fourth week, the instructor gave the students an interviewing workshop. On that day, I collected the third questionnaire and administered the fourth. The last SBA segment involved a rationale of how the assessment plans fit with the students' educational philosophies. They also needed to defend why they chose to use specific assessment types and explain how their assessments would adequately evaluate their students' progress. This segment was due on the last day of class. Additionally, the instructor scheduled the students to come to class at different times that day. Groups of them that arrived together participated in a mock parent-teacher conference. Their conference notes answered specific questions that the instructor asked them orally. The notes were turned in after the conference. In the hall, outside of the class, the students were able to drop-off their fourth questionnaires (I provided extra copies as well), and complete their course evaluations.

Procedures for Sections 3 and 4

For the next seven days that the course met, the instructors required the students to complete five out of seven reading responses. Students who chose to complete the first would have turned it in on the second day of class. In addition, students in sections 3 and 4 completed a lengthier version of the SBA project. This version of the project was a combination of the versions used by all of the other instructors. The instructors gave the

students the opportunity to complete rough drafts and receive feedback before completing final drafts. The first segment involved writing an educational philosophy. Then, students included a brief description of their target population and description of their lesson plan. Next, students listed the core curriculum standards within the students' fields of study. After listing the standards in their fields, the students wrote a critique about 5 of them. This segment was due the Monday of the second week of the class. I collected the first questionnaire and administered the second.

On the Monday of the third week, I administered and collected the interview consent forms. I asked students to email me with their availability for the interviews. The second SBA segment involved creating an assessment blueprint where they listed the standards they were covering along with Bloom's Taxonomy. They then indicated on the blueprint what level of the taxonomy the assessment would cover. Then, they described 10 ways to assess five of the standards. Next, the students created a lesson plan within their own fields. After that, they created a traditional and alternative assessment for the lesson. The required assessments were full and useable with scoring rubrics. Various parts of this segment were due during the second and third weeks of the course. I collected the second questionnaire and administered the third on the Thursday of the third week.

On the Monday of the final week of the course, the students turned in parent-teacher conferences notes. Unlike the students in sections 1 and 2, these students did not have a mock parent-teacher conference. The last SBA segment involved a rationale of how the assessment plans fit with the students' educational philosophies. They also needed to defend why they chose to use specific assessment types and explain how their assessments would adequately evaluate their students' progress. They also needed to explain how they

accounted for validity, reliability, fairness, and bias. This segment was due on the last day of class. On that day, the instructors combined sections 3 and 4, and a guest lecturer discussed NCLB. The students also had pizza and beverages when the guest lecturer finished. I collected the last questionnaires from the instructors before the guest lecturer spoke.

Procedures for Sections 5

This section met only once during the first week of class. The instructor in section 5 gave the students the opportunity to complete rough drafts and receive feedback before completing final drafts. The first segment involved writing an educational philosophy. Then, students included a brief description of their target population followed by listing the core curriculum standards within the students' fields of study. This segment was due during the second week of the class. I collected the first questionnaire and administered the second. On that same Wednesday, the first two (of the five) groups gave their assessment chapter presentations.

The second segment involved creating an assessment blueprint where they listed the standards they were covering along with Bloom's Taxonomy. They then indicated on the blueprint what level of the taxonomy the assessment will cover. Next, the students created a lesson plan within their own fields. After that, they created a formative (ungraded and used to inform the teacher) and a summative assessment (graded) for the lesson. The required assessments were complete and useable, along with scoring rubrics. This was due during the third week of the course. On the Monday of that week, two groups presented. In addition, I administered and collected the interview consent forms. I asked students to

email me with their availability for the interviews. The final group presented on the Wednesday that I collected the second questionnaire and administered the fourth

The last segment asked students to develop a rationale of how their assessment plans fit with their educational philosophies. Students also needed to defend why they chose to use specific assessment types and to explain how their assessments would adequately evaluate their students' progress. The rough draft of this segment was due on the Monday of the last week of class and I administered the fourth questionnaire that day. On the last day of the class, the final draft of the entire SBA project was due. Additionally, the students participated in a mock parent-teacher conference. They turned in their conference notes after the conference. At the end of the last day of the evening class, I collected the fourth questionnaire.

Procedures for Sections 6

The students in section 6 completed the same assignment as the students in sections 1 and 2. However, the instructor did not give them the opportunity to complete rough drafts and receive feedback before completing final drafts. Additionally, although the instructor gave the students the project description in advance and urged them to begin immediately, the completed project was due on the last day of class. The instructor did not divide the project into segments that were due at different times during the course. This instructor did not provide me with her syllabus, in spite of repeated requests, until after the class began.

For this section, I administered the first questionnaire electronically during the fist week of classes, as I did with the other sections. I also provided hard copies the day that I came to the class, as I did with the other sections. Like section 5, this class only met once

during the first week of class. I came into class Monday the following week to provide hard copies. On that day, the assignment due was a summary and analysis of the content standards. The requirements for this assignment were the same as the requirements in sections 3 and 4 where the students had to critique the standards.

On the Wednesday of the second week, I administered and collected the interview consent forms. I asked students to email me with their availability for the interviews. That day, I collected the first questionnaire, which was the same as the first questionnaire for the other sections and contained all motivational items. I also administered the motivational subscales from the second and third questionnaires first (including the open-ended items). Those questionnaires are written as Q2M and Q3M, respectively on the schedule in Appendix B. I instructed the students to complete the questionnaires before beginning their projects.

The Monday of the third week of classes, the students turned in an analysis of a research article about assessment. They also made a presentation of the article and analysis. I did not schedule a time to come to the class and did not do data collection during that week.

The Monday of the final week, I collected the motivational subscales and administered the behavioral subscales from the second, third, and fourth questionnaires. I gave them the behavioral subscales as one questionnaire with 12 Likert items and 2 open-ended items. On the schedule in Appendix B, it is written as Q2-4B because it contains the behavioral subscales from questionnaires 2 through 4. That day, their assignment was the development and critique of traditional and alternative assessments. The requirements for

this assignment were the same as the traditional and alternative assessments the students in sections 3 and 4 completed. On the last day of the class, the final project was due and I collected the behavioral subscales. Also due were the students' parent-teacher conference notes.

Collection of Grades

Upon completion of the course and submission of the final grades, the instructors released the participants' project and overall grades to me--with the students' consent, as indicated on the signed forms. Two teachers (sections 5 and 6) did not grade the project segments separately and provided only the total project grades along with the course grades.

Quantitative Analysis

On the questionnaires, the items that measured motivational components referred to the upcoming tasks in the project. I analyzed those items with the self-reported behavior items on the following questionnaires that referred to those same tasks after they were completed. In other words, the motivational items on questionnaires one, two, and three were analyzed in conjunction with the self-reported behavior items on questionnaires two, three, and four, respectively. As a result, there were three periods used for the analyses and those periods are described as *Time 1*, *Time 2*, and *Time 3* (see Figure 3). Additionally, the analyses during three *measured times* (Time 1, Time 2, and Time 3) included the three project segment grades with the motivational components on the three questionnaires.

There were five components that measured participants' overall task value. Those components were attainment value, utility value, cost, interest, and enjoyment. Because there was only one measure for expectancy (self ability beliefs), the value components were weighted in some of the analyses so that the overarching construct of value was given the same weight as the construct expectancy. In order to compute task value (weighted), interest and enjoyment were first combined to form intrinsic value. Then I combined, intrinsic value, attainment value, utility value, and cost to make up *weighted task value*.

Task-Specific Motivation　　　　　　　　**Behavior**

Questionnaire 1	Motivational Components 1	
Questionnaire 2	Motivational Components 2	Self-Reported Behavior 1
Questionnaire 3	Motivational Components 3	Self-Reported Behavior 2
Questionnaire 4		Self-Reported Behavior 3

First Segment Grade

Second Segment Grade

Third Segment Grade

Time 1　Time 2　Time 3
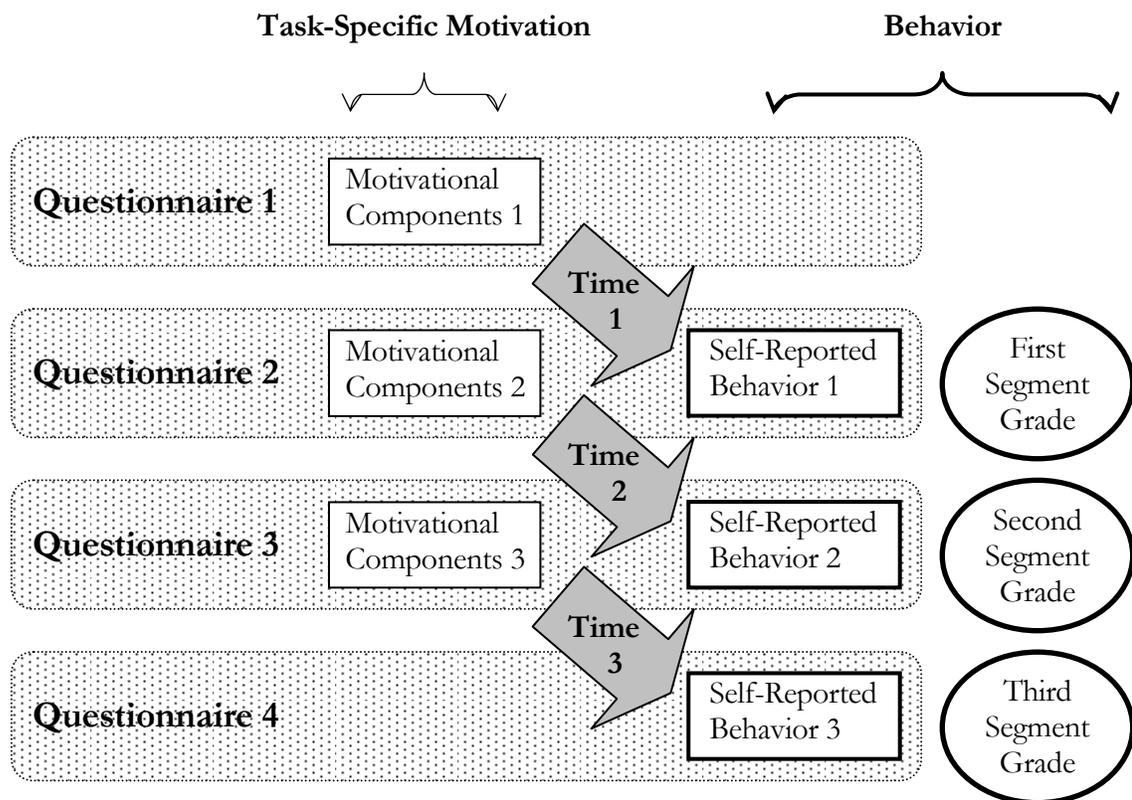
Figure 3: Structure of the quantitative analysis including terminology. The dotted regions signify the contents of the four questionnaires. The rectangles signify the self-reported measures. The ovals represent the project segment grades (class grade is not illustrated). The **bolded** shapes are the dependent variables. Note that the arrows identify the terms Time 1, Time 2, and Time 3.

First research question. To explore whether task-specific measures led to a significant prediction of behavior, I conducted regression analyses using the motivational components from the questionnaires as the predictors. I conducted two sets of analyses at each time, one for each of the dependent variables—grades and self-reported behavior.

Second research question. To describe how the task-specific measures of academic motivation changed as the students were completing the project. I conducted an ANOVA to explore how the measures of expectancy and task value components varied over time. Both the qualitative and quantitative data from the pilot study suggested that changes in these variables might not be linear. Therefore, a quadratic contrast was included in the ANOVA for each construct. I conducted separate ANOVAs for interest and enjoyment.

Third research question. I analyzed each of the motivational constructs with ANOVA to determine if they changed over time, I conducted a paired t-test for interest and enjoyment at each of the three measured times to learn if they differed from each other. Although I theorized that interest and enjoyment were separate constructs, the pilot study did not reveal any information in support of the assumption. The t-test, as well as the ANOVA provided suggestive, but insignificant, preliminary information about the changes in interest and enjoyment during the time the students were completing their projects. Although the t-test and the ANOVA could suggest differences, the variables were highly intercorrelated during the pilot study. As such, it was likely that they were highly intercorrelated for this study as well. I therefore conducted a factor analysis of the items measuring interest and enjoyment in order to gain more evidence to determine if interest and enjoyment were separate constructs within intrinsic value.

Qualitative Analysis

Coding qualitative data is described as "...the operations by which data are broken down, conceptualized, and put back together in new ways" (Strauss and Corbin, 1990, p. 57). Using NVivo, a widely-used qualitative data analysis program, I coded and categorized the data in the open-ended statements and the interviews in order to determine if there were any findings that supported the purposes of this study. "Open coding refers to that part of analysis that deals with the labeling and categorising [sic] of phenomena as indicated by the data" (Pandit, 1996, Data Analysis Phase section, ¶ 5). Open coding was the basis for the qualitative analysis in this study.

Coding both the open-ended statements and the interviews consisted primarily of creating two types of codes within NVivo. These codes are *nodes* in NVivo and there are two types—*free* and *tree nodes*. Tree nodes are codes that can be arranged in a hierarchy. Tree nodes were created as larger groupings encompassing the major foci of the study. The main tree nodes were (a) "Motivational Influences" and (b) "Project Segment." Both overlapped and identified what the statements were describing. I created additional tree nodes based on the categorizations that were used in the pilot study (e.g., "Personality Traits"), the open-ended statements about using the project, and the themes from the interview protocol (e.g., "Effort Expected").

Finally, *free nodes* were the specific codes used for each statement. For example, students specified which aspects of the project interested them and which did not. Therefore, separate free nodes for "Interest" and "Interest-none" were created. I also created free nodes identifying additional motivational influences (e.g., "Perceptions of Teacher"). I used the free nodes to identify the specific statements within the documents

that I categorized and grouped under the tree nodes. For example, to read why students were not interested in creating assessments, one would look into the tree node identifying that task in the project and then find statements coded "Interest-none." Essentially, each free node described (a) the motivational influence, (b) the segment of the project (or the whole project), and (c) behavioral effects of their motivation (e.g., the free node "procrastination" was created when it was mentioned in the documents).
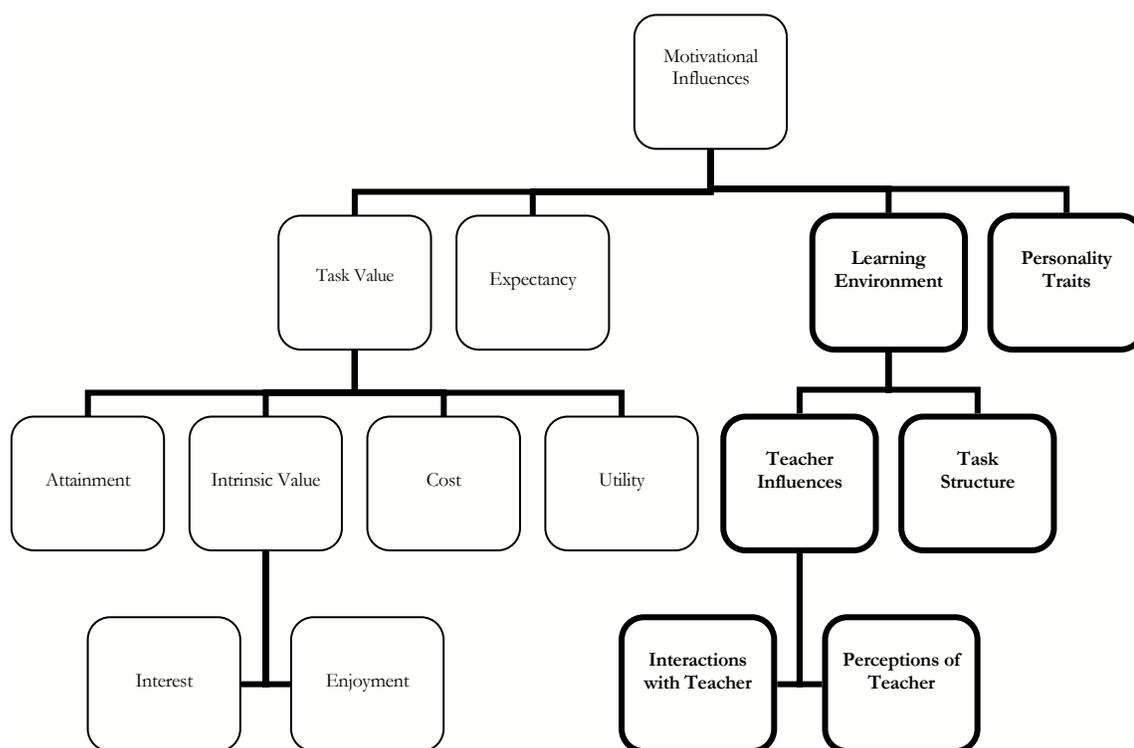
Figure 4: Tree node structure in qualitative analysis coding. This structure was the basis for analyzing both the open-ended statements as well as the interviews. The **bolded** branches exemplify additional tree nodes added during the analysis, based on the data. This structure was slightly modified as needed for each (open-ended and interview) analysis.

The free nodes also stimulated the creation of new tree nodes. For example, there were free nodes that identified course section-specific factors such as interactions with the teacher and interactions with classmates in the same field. I only coded statements that related to working on the project. As a result of these and similar free nodes, I created the

new tree node entitled "Learning Environment." Students also commented about how having the project broken into segments affected their motivation or how there was a large amount of work to do. These comments prompted the creation of the tree node "Task Characteristics." Figure 4 illustrates the tree node structure of the coded data used in this study. The tree nodes identifying the specific project segments are not in the figure because those coded items intersect with the tree nodes describing motivational influences. Appendix G lists statements that exemplify each of the codes.

Open-ended statements. I analyzed the open-ended statements with the goal of organizing the information they provided regarding the hypotheses and research questions. I listed the statements made by the students verbatim, coded, and then categorized them according to the tree node structure illustrated in Figure 4.

As stated, I initially based the codes within the tree node structure on the categories formed during the pilot study. Those categories were (a) "General Statements about the Assignment", (b) "Specific Statements about the Assignment Tasks or Components", (c) "Statements about Intrapersonal Variables", and (d) "Other." Statements in the first and second categories either described portions of the project or the project as a whole. Statements that fell in the third category were statements that described the participant. The last category included mostly blank and "neutral" statements.

I modified these codes as needed because the open-ended statements used in this study asked about motivation in general and not only about interest and enjoyment as they did for the pilot. After modification, I reorganized these codes according to the tree node structure described in Figure 4. For this study, I eliminated the "Other" category. I

simply did not code the items that would have been in that category (e.g., blanks). Also not coded were unclear statements and statements that did not relate to the assignment (e.g., statements about other assignments for the class). Finally, I created a separate tree node ("Using the Project") for the open-ended analysis to address the last item on the fourth questionnaire. Appendix H provides an example of how the initial categories classified the open-ended statements in the pilot study. I used this concise presentation as an initial template for this study as well.

Interviews. The interviews took place in person and over the telephone and were recorded on microcassettes and transcribed by the researcher. Then, I entered the transcribed data into NVivo for analysis. I divided the transcripts into conversational episodes, which centered on comments related to a single topic. The conversational episodes analyzed focused on were the topics of the research problems. Although an interview protocol included follow-up questions, I often asked additional questions. Within each episode, I coded the statements made by the participants and then grouped these codes together into categories (i.e., tree nodes) (Charmaz, 2006). Because the interview addressed this theme more fully, I added "Changes of Belief" as a separate tree node for the interview analysis. Appendix G displays that separate tree node as well as the additional tree nodes I created that were specific to the interview protocol. I also compared students' statements about interest and enjoyment within the tree structure depicted in Figure 4.

Chapter 4: Results

I used quantitative and qualitative methods to answer three research questions. The quantitative analysis involved questionnaires on which students rated their motivational beliefs while they worked on their projects. The qualitative measures included open-ended statements on the questionnaires as well as interviews of a portion of the sample. The first research question was "Will task-specific measures lead to a strong prediction of achievement and behavior?" To answer the question, I conducted regression analyses. The first series of analyses included project grades as a measure of achievement. The second series of analyses included students' self-reported behavior. In the qualitative analysis, I could not demonstrate predictions to achievement or behavior. However, students cited several factors that influenced their motivation and I sorted these influences into categories and described.

The second research question was "Do motivational components change over time?" I conducted a separate ANOVA for each of the motivational components to show if there were significant changes in students' ratings from one measurement time to the next. The separate ANOVAs also illustrated the different ways each of the motivational components changed over time. In the qualitative analysis, the open-ended questions were well suited to address this question. The participants wrote about their feelings on each successive questionnaire. In the interviews, I asked the participants about their initial feelings of each segment of the project. I also asked them how those feelings changed as they worked on those segments. The responses from the open-ended

questions and the interviews were sorted into different categories to reveal patterns in the responses.

To answer the last research question, "Are interest and enjoyment separate constructs?" I conducted factor analyses using the questionnaire items. With the open-ended statements and the interviews, I categorized the different influences on students' interest and enjoyment. There were patterns that showed differences in interest and enjoyment. The statements from the open-ended statements and the interviews showed support to each other as well as to the quantitative findings.

Quantitative Results

The retention rate of the sample was 93.8% with 90 students (74 females and 16 males) out of the original 96 participating throughout the study and completing all of the questionnaires. I analyzed the answers the participants provided using Analysis of Variance (ANOVA) in order to learn how the motivational components changed over time. Additionally, the task-specific level of measurement provided an opportunity to determine if students' motivation would predict their behavior or performance according to the multiple regression results. Finally, results from the initial ANOVA, a t-test, and a factor analysis supported the hypothesis that interest and enjoyment, identically described components of intrinsic value, are instead separate constructs.

Course Section and Gender Differences

Questionnaire items. The four questionnaires were tested using MANOVA for effects of course section, gender, and the interaction of section * gender. The MANOVA for the first, third, and fourth questionnaire revealed no significant main effects or interaction effects. The MANOVA for the second questionnaire, however, showed a

significant main effect $(F_{(140, 255)} = 1.340, p < .05)$ for the course section on the questionnaire items. Table 6 lists the post-hoc analyses. There were significant section differences in all of the items measuring enjoyment. Additionally, three out of the four items measuring attainment also yielded significant section differences. The remaining three items with significant section differences were an item measuring interest (number 13), and item measuring utility (number 14), and an item measuring ability beliefs (number 15). With all of these significant section differences, occasionally sections that were the most similar would group together. For example, students in sections 1 and 2, both taught by the same instructor rated their interest less than the students in sections 5 and 6, the two evening classes. Additionally, students in sections 3 and 4, both taught by first-time teachers using the same lesson plans and syllabi, rated their enjoyment in the task (on items 9 and 16) significantly less than the students in sections 5 on each item.

Table 6

Post-Hoc of Significant Section Mean Differences in Questionnaire 2 Items

Item # Behavior Subscale	Item # and Variable	Section (I)	(J)	Mean Difference (I-J)	Std. Error
1	Persistence	1	6	.8606*	.41572
Motivation Subscale					
5	Enjoyment	1	5	-.6235*	.24550
		4	2	-.6310*	.26816
			3	-.6050*	.25011
			5	-1.0000***	.23770
			6	-.8128**	.26816
6	Attainment	2	6	-.5455*	.24313
9	Enjoyment	5	2	.5134*	.22295
			3	.4874*	.20794
			4	.4706*	.19762
13	Interest	1	5	-.5020*	.19295
			6	-.5394*	.21622
		2	5	-.5080*	.21077
			6	-.5455*	.23225
14	Utility	3	5	-.5546*	.20839
		4	2	-.5080*	.22343
			5	-.6471**	.19805
			6	-.5080*	.22343
15	Ability	2	6	.4545*	.22285
16	Enjoyment	5	1	.5490*	.21318
			2	.5187*	.23286
			3	.5252*	.21719
			4	.4706*	.20641
19	Attainment	3	1	-.3857*	.18944
			4	-.3739*	.18398
22	Enjoyment	3	5	-.5504*	.25948
28	Attainment	3	4	-.4832*	.22884
			5	-.5420*	.22884
			6	-.5260*	.25547

*p < .05, **p < .01, ***p < .001

Project and course grades. I analyzed students' project and overall course grades, which I converted from raw scores to percentages, for course section and gender differences. The MANOVA revealed a significant main effect for the section of the course ($F(10, 170) = 10.356$, $p < .001$). Tables 7 and 8 describe the post-hoc analyses. Table 7 shows that the participants from sections 1 and 2, the sections taught by the same instructor, had significantly higher grades on their projects than those from most of the other sections. Specifically, the participants in section 1 had grades for their project that were significantly higher than the students in sections 3 ($p < .05$) and particularly those in section 6 ($p < .001$). The students in section 2 also had project grades that were significantly higher than students' project grades in section 3 ($p < .10$), section 4 ($p < .05$), and above all, section 6 ($p < .001$).

Table 8 shows the post-hoc analysis describing the significant differences in the overall course grades by section. Here, the grades of the students in sections 3 and 4, the sections taught by the teachers using the same syllabi and lessons, are significantly higher than those of other sections. The class grades of the students in section 3 were significantly higher than those of the students in sections 1 and 2 ($p < .01$ for both) as well as the students' grades in section 6 ($p < .05$). The students in section 4 had higher grades than those in sections 1 and 2 ($p < .01$ for both).

Table 7

Post-Hoc of Significant Project

Grade Differences by Section

Section (I)	(J)	Mean Difference (I-J)	Std. Error
1	3	4.743*	2.019
	6	7.678***	2.019
2	3	5.917**	1.991
	4	4.637*	1.966
	6	8.851***	2.085

*p < .05, **p < .01, ***p < .001

Table 8

Post-Hoc of Significant Class

Grade Differences by Section

Section (I)	(J)	Mean Difference (I-J)	Std. Error
3	1	5.342***	1.230
	2	5.565***	1.274
	6	4.298**	1.274
4	1	3.283**	1.213
	2	3.595**	1.258

*p < .05, **p < .01, ***p < .001

Figure 5 shows the average grades for the project as well as the course. Also displayed are gender and section differences. Overall, the average grade the students in the sample received on their project was 94.1% with males outperforming the females in sections 1, 2, and 3 (section 5 was entirely female). For the course grade, the average was 93.4%. Here the females slightly outperformed the males in sections 2, 4, and 6. The students in sections 1 and 2, the sections taught by the same instructor received higher grades on their projects. The students in sections 3 and 4, taught by teachers who were supporting each other by using the same syllabi and lesson plans, earned higher course grades than the students in the other sections.
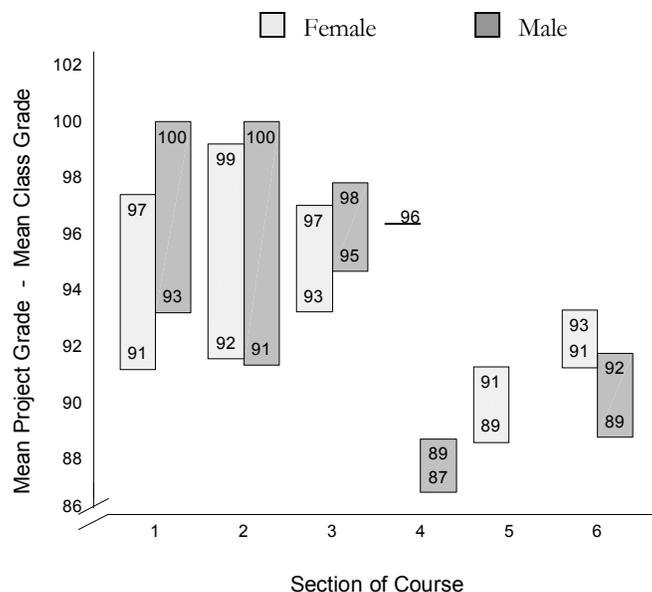
Figure 5: Mean project and class grades by section and gender. Bars represent the ranges of the project and class grades. The bottoms of the bars show the mean project grades. The tops of the bars show the mean class grades. The means of the project grade and the class grade were the same (M = 96) for the female students in section 4.

Will Task-Specific Measures Lead to Strong Predictions of Behavior and Achievement?

Domain specific measures of academic motivation provide more precise information than the general measures when predictions of performance are made; however, in order to measure changes while students were completing an academic task, I needed a higher level of specificity. I hypothesized that these task-specific measures of academic motivation would lead to strong predictions to achievement and behavior.

To determine if task-specific measures would lead to a strong prediction of behavior, regression analyses were performed for each of the 3 measurement times using self-reported behavior as the dependent variable and the motivational components of expectancy beliefs and task value beliefs as the independent variables. I calculated the task value beliefs as a weighted combination of the value components—intrinsic value

(measured as interest and enjoyment), attainment value, utility value, and cost—that the questionnaires measured. The regression models significantly predicted self-reported behavior at each of the three measured times. The regression analyses revealed that the variance in behavior was explained by the students' task values, but not by their expectancies for success, in the first ($F(2, 89) = 11.521$, $p < .001$, Adj. $R^2 = .188$), second ($F(2, 83) = 6.301$, $p < .01$, Adj. $R^2 = .111$), and third ($F(2, 84) = 7.906$, $p < .01$, Adj. $R^2 = .138$) testing times (see Table 9).

Table 9

Regression of Motivational Variables on Self-Reported Behavior

Time	Variable	n	M	SD	r with Expectancy	r with Value	B	SEB	β
	Behavior	92	2.769	.607	.079	.453***			
1	Expectancy		3.435	.455	--	.157	.001	.128	.008
	Value (weighted)		2.821	.445	--	--	.616	.130	.452***
	Behavior	86	2.787	.615	.200*	.353***			
2	Expectancy		3.166	.346	--	.488***	.006	.209	.036
	Value (weighted)		3.042	.393	--	--	.527	.184	.336**
	Behavior	87	2.569	.631	.101	.388***			
3	Expectancy		3.140	.461	--	.462***	-.136	.155	-.099
	Value (weighted)		2.837	.378	--	--	.724	.188	.434***

*$p < .05$, **$p < .01$, ***$p < .001$

In order to determine if task-specific measures of academic motivation would predict achievement, the dependent variables were the three project segment grades. The only significant regression model was for the first testing time ($F(2, 62) = 5.471$, $p < .01$, Adj. $R^2 = .123$). In this model, the best predictor of achievement was students' expectancy beliefs (see Table 10). The evening course sections (5 and 6) were not included in this analysis, however, because the instructors did not provide segmented grades for the project.

Table 10

Regression of Motivational Variables on Project Segment Grades at Time 1

Variable	n	M	SD	r with Expectancy	r with Value	B	SEB	β
Project Segment	65	96.151	7.629	.364**	-.096			
Expectancy		3.427	.446	--	.101	6.457	2.014	.377**
Value (weighted)		2.809	.417	--	--	-2.450	2.152	-.134

**p < .01

To further explore why these regression analyses revealed such different results, I examined the correlations between the self-reported behavior and both the project and class grades. Unexpectedly, self-reported academic behavior was not significantly correlated with any of the students' project grades or class grades (see Table 11). Self-reported behavior was intercorrelated at every time measured. The project grade comprised a large portion of the course grade; so, as expected, most of those grades were intercorrelated. As Table 11 shows, however, there were two project segment grades that were not correlated, as expected. It appears that grades were not as consistent as self-reported behavior. Also considering that students who have continued on to the Masters level are accustomed to doing well academically, it was likely that it would not required a great deal of effort, or other motivated behaviors, for them to achieve a high grade in many of their courses.

Table 11

Correlations of Self-Reported Behavior and Grades

r statistic	S-R Behavior		Project Segment Grades				Class Grade
(n)	2	3	4	5	6	7	8
1. Self-Reported Behavior T1	.357* (88)	.570** (90)	.143 (62)	.182 (62)	.101 (62)	.129 (92)	.019 (90)
2. Self-Reported Behavior T2		.560** (88)	.018 (60)	.091 (60)	-.130 (60)	.087 (90)	.110 (90)
3. Self-Reported Behavior T3			.001 (61)	.225 (61)	.086 (61)	.017 (91)	.030 (91)
4. Project Segment T1				.045 (65)	.431** (65)	.358** (65)	.273 (65)
5. Project Segment T2					.196 (65)	.703** (65)	.212 (65)
6. Project Segment T3						.499 (65)	.040 (65)
7. Project Grade							.658** (96)
8. Class Grade							--

*p < .05, **p < .01, ***p < .001

Do the Motivational Components Change Over Time?

To determine if motivational constructs changed separately while the students were working on their projects, I conducted ANOVAs for each motivational construct. When I analyzed each of the separately measured variables, they revealed significant changes over time and with quadratic trends (see Table 12). The sources of variation are the differences among the three groups—Time 1, Time 2, and Time 3—around the overall means of each construct. "Between Groups" represents the differences between the three times and has been partitioned into linear and quadratic trend components to reveal that the differences follow a curve (see Figure 6). "Within Groups" partitions out the differences of individual variation at each testing time and is an error term.

The components of task value may not contribute in an additive fashion to the task value construct. The ANOVAs conducted confirmed that each component of task value changed in different ways over time (see Table 12). However, when the value components were combined and weighted according to the theoretical structure, the quadratic term remained significant ($F(2, 274) = 16.649$, $p < .001$), though the linear term did not ($F(2, 274) = .072$, $p = .788$). At Time 1, task value ($M = 2.83$) was at its lowest, it peaked at Time 2 ($M = 3.05$) and decreased markedly at Time 3 ($M = 2.84$). With the exception of interest, the quadratic trends of most of the components of task value were also in this direction (see Figure 6). Measuring the components separately, however, reveals variation among the components of task value that might be otherwise overlooked.

Figure 6 show the means plots of all of the motivational constructs measured over the three testing times. At Time 2, the average rating of all of the motivational components was at its peak with a grand mean of 2.92. The grand mean of expectancy beliefs across the three times ($M = 3.25$) was higher than the grand mean of each of the other constructs across the three times.

Not only do these constructs change over time but also most of them are statistically different from each other at each time. At Time 1, the only constructs not significantly different from each other are the task value beliefs attainment and utility ($t(95) = -1.852$, $p = .067$). At Time 2, the same pair was again close in value ($t(90) = -.418$, $p = .677$) along with expectancy beliefs and attainment value ($t(90) = -1.783$, $p = .078$). At the third measurement time, expectancy and interest ($t(89) = 1.271$, $p = .207$), as well as attainment and cost ($t(89) = .743$, $p = .456$), have similar mean ratings.

Table 12

ANOVA of Motivational Variables over Testing Times

Variable	Source	Contrast	df	SS	MS	F
Ability Beliefs	Between Groups		2	4.989	2.495	13.603***
		Linear	1	3.800	3.800	20.721***
		Quadratic	1	1.189	1.189	6.486*
	Within Groups		274	50.249	.183	
	Total		276	55.239		
Attainment Value	Between Groups		2	6.728	3.364	15.195***
		Linear	1	1.454	1.454	6.568*
		Quadratic	1	5.274	5.274	23.821***
	Within Groups		274	60.664	.221	
	Total		276	67.392		
Cost	Between Groups		2	8.197	4.098	17.050***
		Linear	1	2.594	2.594	10.791*
		Quadratic	1	5.603	5.603	23.308***
	Within Groups		274	65.866	.240	
	Total		276	74.063		
Utility	Between Groups		2	3.756	1.878	9.209***
		Linear	1	.824	.824	4.042*
		Quadratic	1	2.932	2.932	14.375***
	Within Groups		274	55.885	.204	
	Total		276	59.642		
Interest	Between Groups		2	2.526	1.263	5.301**
		Linear	1	1.354	1.354	5.681*
		Quadratic	1	1.173	1.173	4.920*
	Within Groups		274	65.295	.238	
	Total		276	67.822		
Enjoyment	Between Groups		2	3.456	1.728	5.210**
		Linear	1	.473	.473	1.427
		Quadratic	1	2.983	2.983	8.993**
	Within Groups		274	90.883	.332	
	Total		276	94.340		

*$p < .05$, **$p < .01$, ***$p < .001$
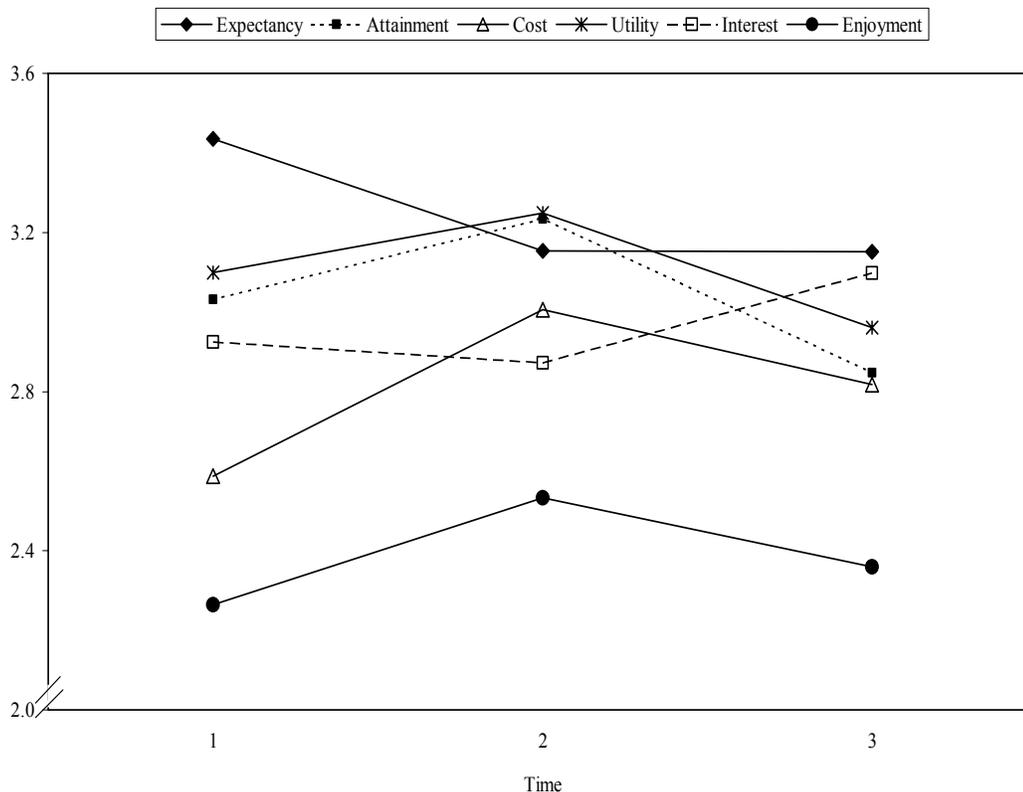
Figure 6: Changes in motivational construct means over time. The means of the students' ratings for each of the constructs have significant quadratic trends over the three testing times. Note that the trends for interest and enjoyment are incongruous.

Are Interest and Enjoyment Separate Constructs?

Paired t-tests were conducted to support the notion that interest and enjoyment may be separate constructs (see Table 13). For each of the three testing times, interest and enjoyment were significantly different from each other. The means plots shown in Figure 6 illustrate that the mean ratings as well as the trends for interest and enjoyment were distinct. The means of enjoyment were consistently lower than those of interest. Also, while enjoyment increased slightly at the second testing time and decreased at the third time, interest changed in the opposite directions. These differences support the assumption

that they are not interchangeable, as suggested by the description of intrinsic value. They may, in fact, be separate constructs.

Table 13

Paired T-tests of Interest and Enjoyment

		Paired Differences (Interest-Enjoyment)				
Time	r	M	SD	SEM	df	t
1	.525***	.661	.554	.057	95	11.683***
2	.642***	.340	.443	.046	90	7.312***
3	.607***	.738	.494	.052	89	14.162***

***p < .001

The values for interest and enjoyment were highly intercorrelated, however, at each of the three testing times as shown in Table 14. Considering this, it is possible that the two are dimensions within intrinsic value, instead of distinct constructs. I conducted a factor analysis to explore this relationship further (see Table 15). For each of the three measurement times, a principal component analysis extracted two factors with eigenvalues over 1 and a Varimax rotation was applied. The analysis clearly divided the enjoyment and interest items as the first and second factors, respectively. For the items from the first measurement time, the initial eigenvalue was 4.01 for the first factor, which accounted for 50.1% of the variance. The next factor had an eigenvalue of 1.28, explaining 15.9% of the variance. Table 15 fully describes the items along with their factor loadings and communalities.

At the second measurement time, the analysis again yielded two factors. As Table 15 shows, the first factor had an eigenvalue of 3.85 and it explained 48.1% of the variance. The second had an eigenvalue of 1.03 and explained 12.9% of the variance. The factor analysis did not divide these factors as clearly. The first consisted of three enjoyment items

and one interest item. In the second factor were the remaining three interest items and one enjoyment item.

Table 15 illustrates that the items from the third measurement time had an eigenvalue for the first factor equal to 3.58 explaining 44.8% of the variance. The analysis clearly divided the factors again with all of the enjoyment and interest items comprising the first and second factor, respectively. The eigenvalue for the second factor was 1.11 and it explained 13.9% of the variance. Table 15 depicts the numbered items.

Summary of Quantitative Results

In general, the quantitative results provided support for each of the hypotheses with some exception to the first. The regression models with task-specific measures of expectancy and value predicted achievement (grades) and self-reported behavior. However, the predictions were inconsistent and not as strong as expected. Although expectancy beliefs strongly predicted grades and value beliefs strongly predicted self-reported behavior, both of these constructs were not significant predictors in the same model. Further, the criteria in each of the regression models, self-reported behavior and grades, were not correlated. Solomon and Rothblum (1984) also found similar results when comparing self-reported procrastination behavior with grades.

Table 14
Intercorrelations of Interest and Enjoyment Items (coefficient and sample size)

			1	2	3	4	5	6	7
Questionnaire 1	Interest	1. Item #6	--						
		2. Item #9	0.497** (96)						
		3. Item #18	0.603** (96)	0.577** (96)					
		4. Item #22	0.435** (96)	0.459** (96)	0.659** (96)				
	Enjoyment	5. Item #7	0.553** (95)	0.403** (95)	0.465** (95)	0.224* (95)			
		6. Item #11	0.423** (96)	0.411** (96)	0.368** (96)	0.284** (96)	0.719** (95)		
		7. Item #14	0.366** (96)	0.229* (96)	0.371** (96)	0.277** (96)	0.561** (95)	0.539** (96)	
		8. Item #23	0.302** (96)	0.260* (96)	0.350** (96)	0.174 (96)	0.553** (95)	0.369** (96)	0.400** (96)
Questionnaire 2	Interest	1. Item #13	--						
		2. Item #18	0.278** (90)						
		3. Item #21	0.487** (91)	0.533** (90)					
		4. Item #26	0.139 (91)	0.280** (90)	0.350** (91)				
	Enjoyment	5. Item #5	0.428** (90)	0.230* (89)	0.453** (90)	0.209* (90)			
		6. Item #9	0.506** (89)	0.291** (89)	0.344** (89)	0.322** (89)	0.510** (88)		
		7. Item #16	0.379** (91)	0.233 (90)	0.473** (91)	0.452** (91)	0.554** (90)	0.561** (89)	
		8. Item #22	0.389** (90)	0.403** (89)	0.524** (90)	0.347** (90)	0.376** (89)	0.361** (88)	0.558** (90)
Questionnaire 3	Interest	1. Item #8	--						
		2. Item #12	0.271** (90)						
		3. Item #20	0.389** (90)	0.458** (90)					
		4. Item #25	0.306** (89)	0.311** (89)	0.282** (89)				
	Enjoyment	5. Item #9	0.422** (90)	0.382** (90)	0.342** (90)	0.230* (89)			
		6. Item #15	0.296** (89)	0.211* (89)	0.203 (89)	0.285** (88)	0.612** (89)		
		7. Item #17	0.298** (90)	0.337** (90)	0.295** (90)	0.227* (89)	0.555** (90)	0.421** (89)	
		8. Item #28	0.429** (89)	0.450** (89)	0.263* (89)	0.256* (89)	0.693** (89)	0.479** (88)	0.572** (89)

*p < .05, **p < .01, ***p < .001

Table 15

Items and Factor Loadings from Principal-Components Analysis with Varimax Rotation

Items on Each Questionnaire	Factor Loadings		Comm-unalities
	1	2	
Questionnaire 1 (n = 95)			
7. Completing this section of the project will be enjoyable for me	**.863**	.264	.814
11. Finding and listing the curriculum standards will be enjoyable to do	**.774**	.263	.668
14. I think I will enjoy listing the Workplace Readiness Standards	**.743**	.182	.585
23. I will enjoy deciding on and describing a target population	**.705**	.112	.509
22. I am interested in understanding the difference between the Workplace Readiness Standards and the Curriculum Content Standards	.004	**.844**	.714
18. I am interested in understanding what the standards, strands and progress indicators mean	.281	**.842**	.788
9. It is interesting to learn how to access the various curriculum standards	.238	**.739**	.602
6. It will be interesting to know what the standards are for my subject area	.415	**.654**	.600
Questionnaire 2 (n = 87)			
5. It will be fun to come up with two different ways to assess each of the standards I selected	**.810**	.120	.670
13. The variety of ways to assess students is interesting to me	**.763**	.139	.602
9. I am going to enjoy creating some of the assessment types that I learned	**.751**	.221	.612
16. Creating complete assessments will be enjoyable for me	**.664**	.430	.625
26. It is interesting that assessment should be aligned with standards and instruction	.005	**.756**	.575
18. It is interesting that certain standards are more appropriate than others to address my instructional program	.142	**.733**	.557
21. Assessments and scoring rubrics are interesting to me	.476	**.668**	.672
22. I am going to enjoy selecting specific standards that I will cover in my portfolio	.439	**.609**	.564
Questionnaire 3 (n = 88)			
9. I think I will enjoy working on the next section of the SBA project	**.851**	.233	.779
28. Describing how my assessment plan fits with my educational philosophy will be fun for me	**.803**	.279	.723
15. I am going to enjoy completing this project	**.760**	.109	.590
17. I'm going to enjoy explaining why the assessments I chose were the best decision	**.721**	.220	.568
20. I am interested in teacher-made assessments	.110	**.789**	.634
12. It is interesting that assessments can align with the standards and also with my educational philosophy	.261	**.699**	.557
25. It's interesting that there are different types of assessments to measure students' skills and knowledge	.113	**.632**	.412
8. Educational philosophies are interesting to me	.333	**.566**	.431

Note: **Boldface** indicates highest factor loadings

To determine if each of the motivational constructs changed in different ways while the participants were completing their projects, I conducted ANOVAs for each of these constructs. As expected, the motivational components showed unique changes over time, each with quadratic trends. The findings were with those from the pilot study. The results of the ANOVA also demonstrated that the constructs of interest and enjoyment changed in opposition over time. These results suggest that interest and enjoyment are different constructs and should not be used interchangeably to define intrinsic value.

Further comparison of interest and enjoyment continued to provide support for the hypothesis that the two are separate constructs. Paired t-tests showed that the measures of interest and enjoyment were significantly different at each of the three measured times. Although this is not conclusive evidence, it does suggest that they may be different. Additionally, the ANOVA showed that the students' ratings of interest and enjoyment changed in opposite directions over time.

To gain more decisive evidence, I conducted a factor analysis with the questionnaire items. Each of the factor analyses using the interest and enjoyment questionnaire items produced two factors. The resulting factors from the first and third measurement times clearly separated the interest and enjoyment items. The results from the second analysis, however, produced two factors containing three items that measured one of the constructs and one item that measured the other construct. Overall, I found strong support for the assumption that interest and enjoyment are separate constructs. This evidence was useful in that it clarifies the conceptualization of interest, enjoyment, and intrinsic value.

Qualitative Results

Questionnaires and interviews were conducted in order to gain insight into the various influences on the motivational components theorized in modern expectancy-value theory (Eccles, et al, 1983). I used open-ended items in the pilot study in order to get more detail regarding the differences between interest and enjoyment. Though many of the students used the terms interchangeably, there were nonetheless differences over time. These results provided information missed by the quantitative methods. Additionally, the responses made by the students prompted necessary revisions in the wording of the items used in the current study. The open-ended questions in this study were also more general so that the participants can more freely express their feelings about working on the project.

There were four questionnaires administered to each of the 96 participants. The timing of the administration varied according to the class schedule and the due dates of the project parts. The goal was to distribute the questionnaires before students began the segment described in the items but after they completed the previous segment. At the end of each questionnaire was an open-ended question asking the participants to expand on what aspects of the project influenced their motivation, positively or negatively. There were many comments written about the project as a whole, as well as about specific parts of the project. The students wrote their statements directly on the questionnaires. Therefore, I described all of the open-ended results using the questionnaire numbers instead of the measurement times illustrated in Figure 3 (Time 1, Time 2, and Time 3).

I entered the comments written by the students into NVivo, software for coding and analyzing qualitative research. I used free nodes that directly addressed the research

question, such as the motivational components and expressions of belief changes (see Figure 4 for the coding structure). Each statement made by the participants were coded according to the part of the project being described, the motivational components expressed, as well as other influences on students' task-specific motivation. Appendix G provides examples of each code used. Each category of free nodes formed a tree node. I then organized the free nodes into a hierarchical structure (illustrated in Figure 4). Finally, I analyzed the statements looking for patterns in the responses. These patterns provided a wealth of information about the influences on students' motivation to complete their task.

The fourth questionnaire had an additional open-ended item. This item asked students if they were motivated to use their completed projects and then asked them to explain their answers. I coded those responses under the larger categories (tree nodes) of "Yes," "No," "Some of it," and "Uncertain." I organized the free nodes, which coded the various explanations of the participants' reasons, within the corresponding tree nodes. For example, coded statements that explained why participants would use some of the completed project were organized within the tree node "Some of it." Many of the free nodes describing their reasons were the same as those already established for the analysis of the other open-ended statements. For example, some of the participants explained that they did not answer "yes" because they felt that the project was "not practical," a free code already used describing influences on motivation (see Appendix G for examples of statements).

The pilot study did not employ interview techniques. However, the intention to use interviews in this study was to add information to support the quantitative findings considering that the open-ended statements from the pilot yielded rich descriptions of the

constructs under study. I conducted the semi-structured interviews during the last two weeks of the course. Appendix F lists the interview protocol and follow-up questions. The students had completed most of the project at the time of the interviews and were better able to answer questions addressing changes in beliefs as they completed the tasks of the project. The interviews took place over the phone or in the researcher's office. I used semi-structured interviews so that the participants would feel free to explicate their feelings in a conversational style. The semi-structured interviews also provided an opportunity for the follow-up questions to go along with the flow of the conversation. Of the 96 participants, 53 consented to the interview and 20 actually took part in the process (17 females and 3 males). Participants not interviewed either failed to provide contact information in a timely manner or missed the scheduled time for their interviews.

I coded the statements from the interviews also using the same structure illustrated in Figure 4. The free nodes used were, for the most part, the same free nodes used in the open-ended statement analysis. In addition to the tree nodes (the larger categories encompassing the free nodes) used in the basic structure (illustrated in Figure 4), tree nodes were created to identify the specific themes from the interview. Appendix G lists statements that exemplify each node. The added tree nodes describing the interview themes were "Initial Reaction," "Effort Expected," "Changes in Beliefs," "Outside/Other Influences," "Modifications to the Project," and "If You were to Assign Something" (see Appendix F for the interview protocol). I discovered patterns and communalities in students' responses in the analysis using NVivo, a qualitative research software package. These results again provided a rich description of the motivational influences that affected students as they completed their projects.

Open-Ended Statements

There were a total of 237 comments that were coded describing the theorized motivational constructs and either the project segments or the project as a whole. The participants commented most frequently about the curriculum standards (36.7%), general statements about the entire project (22.4%), and creating the assessments (17.3%). The 56 remaining responses (23.6%) described the remaining tasks combined—the educational philosophy, target population, blueprint, lesson plan, and rationale explaining their assessment choices. With respect to the motivational components, the 237 comments were the least frequently about their interest in the project (7.2%). The students mostly expressed a belief about the usefulness (utility value) of the project (23.2%). The frequency of responses about the remaining motivational components was about the same (21.9% for attainment, 18.6% for enjoyment, 14.8% for cost value, and 14.4% for ability beliefs). Table 16 illustrates the types of comments made by the participants about the influences on their motivation.

Table 16

Students' Open-Ended Statements about Motivation

Motivated	Questionnaire				Not Motivated	Questionnaire			
	1	2	3	4		1	2	3	4
General Motivational Statements about the Project									
Able to do it/easy	8	1	4	4	Not able to do it/ difficult/ intimidating	7	5	7	3
Important to learn/ new material	10	1	3	3	Not important/ already done it	8	4	3	6
Useful/ practical	16	21	8	16	Not useful/ practical	1	8	1	3
Worth the time and effort	2	2	2	2	Not worth the tine and effort	16	9	6	16
Interesting to me/ geared towards my interests	8	3	1	2	Not interesting	5		2	6
Enjoyable/ fun being creative	1	1	2	3	Not enjoyable	14	8	4	13
Directions are clear/ well designed & structured	11		1	5	Directions not clear/ poor design & structure	1		4	5
Good amount of work					Too much work	5	2	1	
External/requirements/ grades	6	5	1	2	External/requirements/ grades			1	
Other obligations/ fast-paced		1			Other obligations/not enough time	4	3		
Specific Statements about Project Tasks									
Working on lesson plan/ taxonomy blueprint	7	5	1	5	Working on lesson plan/ taxonomy blueprint	5	8		4
Creating & learning about assessments	1	13	7	9	Creating & learning about assessments	1	14	8	14
Learning about/ critiquing the standards	20	6		4	Working with/ printing out/ critiquing the standards	37	17		12
Writing/ thinking about educational philosophy	3		2	5	Writing/ thinking about educational philosophy	1	1	3	1
Communicating to others (admins, parents, etc.)			3	5	Communicating to others (admins, parents, etc.)	1	1	5	10
Statements about Intrapersonal and Interpersonal Variables									
It's better for me when projects have steps	1				Rather work at my own pace		1		
I like projects & creating things			1		Hard to focus/ pay attention/ get started	2			1
Writing it out helps me to think	1				Don't like reflections/ writing			1	1
Good feedback/ fast response/ peer evaluations	2	1	1	2	Not enough feedback/ feedback too slow	2		6	5
Positive interactions with/perceptions of teacher			2	1	Negative interactions with/perceptions of teacher		2	4	6

Positive and negative influences on the motivational components. The two motivational constructs mentioned the most were utility and then attainment. One of the main reasons students stated that they were motivated was that the project as useful and practical (76.4% of the utility value statements were positive). Two examples are "The idea that this project can be used in the future was more motivating" and "Knowing that I will have a complete lesson plan by the end of the project is motivating because I can use it in future teaching." A bulk of the comments also was about how important it was to get a thorough understanding of assessment practices (80.4% of the attainment value statements). One such statement was "I know this will improve my preparedness in becoming a better teacher." Though more comments were positive regarding utility and attainment (55 and 52 statements, respectively out of the 237) the negative comments made were often repeated by a number of students. Examples of the 13 negative utility and 10 attainment statements are "I don't believe that most teachers actually use the standards in such a way" and "I felt like it wasn't important and was less inclined to work on it." These students felt that because the project required a lot of extra work on the assessments portions, that it was unrealistic. In addition, because they needed to focus their assessments on specific standards that they selected, some felt that the focus was too narrow to be important to their learning. It is interesting to note that utility and attainment had mean ratings that were similar in the quantitative analysis as well (see Figure 6).

When describing cost value, many students felt that one task in the project was not worth the time and effort it took to complete (82.9% of the cost value statements). These comments overwhelmingly described copying and/or critiquing the curriculum standards from the students' field—although copying the standards was intended to be introductory

and easy to complete. As an example, "Relisting the standards seemed time consuming without actually stimulating knowledge." Although my aim was to code statements into unique motivational categories, this proved more difficult for statements pertaining to the cost value. When describing why the project was worth the time and effort to complete, other motivational components seemed to influence students' beliefs about cost value. For example, students who stated that working on the project was worthwhile also tended to mention the utility value (usefulness) of the project: "I am motivated by knowing that putting effort and work into my papers now I [sic] will be benefiting by it [sic] in the long run!"

Of the 34 statements expressing ability beliefs, there was about an equal number of positive and negative statements. The 16 students who expressed positive ability beliefs tended to mention how easy the felt the project was. Examples of such statements are "The ease with which it can be completed makes more easily motivated to complete it" and "It doesn't seem very difficult anyway." Students who expressed inability to complete the project commonly cited confusion about the directions as the source of their apprehension ("Some parts I feel I don't know what to do exactly").

Differences in interest and enjoyment responses. There was a difference in the number of interest and enjoyment statements (17 and 44 statements, respectively). Students overwhelming stated that they did not enjoy working on the project (86.4% of the enjoyment statements). These students mostly referred to working with the standards ("The standards are annoying"), specifically cutting and pasting the standards in their own work. Also decreasing their enjoyment was the overall amount of work assigned. Many students' comments mirrored "It felt tedious at times." In spite of the one student's general

comments, "I doubt most people would consider it enjoyable or fun to do," there were a few students (13.7%) who found the constructivist aspects of the project to be fun. One excellent example was "Coming up with the alternative assessment was the best part just because I like project [sic] and coming up with things like that..." Another student wrote, "I am excited to begin creating an assessment."

There were almost an equal amount of statements describing interest (56.3%) and a lack of interest (43.8%) in the project. Students who were interested in the project were not familiar with the topics covered (e.g., "I am interested in the entire project because it is all new to me"). Students who expressed a lack of interest tended to feel that way because they were already familiar with the topics being learned (e.g., "I thought the educational philosophy section was kind of dull seeing [sic] I had done similar essays to it [sic] before"). The course was open to students from different fields, so the students entered the course with large differences in prior knowledge about assessments and standards.

Changes in beliefs. Some statements (10 total) expressing a change of belief were coded to provide additional insight as to why, and in what manner, students' motivational beliefs changed as they worked on the project. Though the interview provided more information regarding students' changes in beliefs over time, there were a few open-ended statements that were noteworthy, such as "I am more motivated to work on the project after completing each section"; "I have become less motivated as the project continues"; and "Now I know not to undermind [sic] the form of assessments." One student anticipated that his feelings would change for the better: "I felt uncomfortable [reading] about the reliability & validity aspects but I think the more I work on it the better I'll feel."

Other motivational influences. There were 188 statements describing other contributions to motivation. Most of them (68.1%) described characteristics of the task (e.g., "The project is well designed with multiple parts and important information"). Considerably fewer (16.5%) described 'teacher influences' (e.g., "Feedback from the professor makes me more motivated to work on this project"). Descriptions of contributors to the lack of motivation included 15 statements describing Other Responsibilities (e.g., "Towards the end of the project I have a lot of other things due for other classes, as well as more personal problems to deal with"), one statement describing a student's *perceptions of her teacher* ("...I felt like my professor didn't believe in a certain part of it"), and 10 statements describing *personality traits* (e.g., "I have a short attention span so it was more difficult to work through").

Using the completed project. When students were asked if they were motivated to use the completed project, exactly half of the 82 who responded wrote that they were motivated to use it (e.g., "Yes because I worked very, very hard on it and it came out much better than I expected") or that they were motivated to use parts of it (18.3%). Only eleven of the students stated that they would not use the project. Most of those comments were similar to this student's: "Not really. Everything I put into my portfolio has been done in another class." Fifteen of the students were not certain if they would use it because they were still confused about assessments, standards, what teaching would be like, or whether they even completed the project correctly (e.g., "Not so much because I am still confused by what the portfolio entails and what it's good for"). A few students did not even realize that what they completed was a portfolio. For example, one student wrote, "We never were required to make a portfolio, so no. If it was mandatory to make a portfolio, I'd be more

motivated to use it." It was likely that he held a very strict definition of what a portfolio was despite the flexible description from his text.

In conclusion, the students' comments described positive motivational influences more than the negative influences that inhibited their motivation. The constructivist and useable nature of the project greatly enhanced their feelings about working on the project. Moreover, the comments that described a lack of motivation were generally the same. Those students did not like copying the standards or the amount of the work required. Also, many were confused about the requirements. Importantly, outside factors such as time constraints, interactions with the instructor, and prior knowledge seemed to have a great influence on the lack of motivation as well.

Interviews

Most of the 738 passages from the interview transcripts that were general to the project (18.2%) or described the specific tasks the students had to undertake for the project centered on the standards (17.2%) and then the assessments (14.6%). These included both positive and negative influences on the motivational components. The influences on attainment value (27.1%), ability beliefs (20.1%), and cost value (17.5%) were described most frequently during the interviews. Like the analysis of the open-ended statements, the interviews revealed additional influences on motivation such as the learning environment, personality traits, and influences from both classmates and students in different sections. Also as suggested by responses to the open-ended statements, the interviews suggested that some motivational components affect other motivational components. For example, the

interviews also revealed that the usefulness (utility value) of the project influenced cost value.

Positive and negative influences on the motivational components. When describing their lack of ability (27.1% of the statements about ability), most students stated that their confusion about the directions or the inadequacy of feedback made them feel less able to do well on the project.

> It's frustrating when you don't have that ability. You know, you felt like—ok, I'm kind of blind here. You know, you do get the revised versions but then you don't really have that much time to go over it, you know...So at this point, I really would like to meet with the teacher and see what she means herself...kind of more of a feedback thing. But she doesn't have time for it, because she has, what, 20 people in the class and we meet everyday and it's already another assignment.

Like ability beliefs, most students' descriptions of the motivational components were positive. Students who believed that the project was important (85.7% of the attainment value statements) mostly cited their understanding that the material was important ("I needed to get a better understanding of the standards and everything"). Students were also very motivated (80.7% of the utility value statements) by potentially using their project, or using the information it provided, in the future ("...I think it's very useful—even if I don't use my exact assessments—at least I have an idea of how to go about making them"). As in the analysis of the open-ended statements, I sought to code the motivational components into unique categories. However, when describing why the project was worth the time and effort to complete, other motivational components seemed to influence cost value for some students. For example, "...to me, that's where I got—that's where I was like 'well then, it's

worthwhile.' If this is something that I can actually implement into my classroom in the future then it's worthwhile for me to actually put the effort in." Students tended to feel the project was worth their time and effort (70.5% of the cost value statements) because of its utility and attainment value.

Differences in interest and enjoyment responses. There were 168 statements describing interest and enjoyment in the project as a whole or in the individual tasks. Ninety statements described influences on students' enjoyment whereas the remaining 46.4% described influences on their interest. When students described their interest and enjoyment in the project, there were clear differences in how they conceptualized those constructs as well as what the nature of the influences were. Over half (55.8%) of the statements described a lack of enjoyment working on the project. When this student described why she did not enjoy writing the educational philosophy, she commented, "...it's kind of a chore but it's good, too—because it makes me lay out my actual educational philosophy. So it's like a chore that is useful but it's not fun while I'm doing it." Some, however, stated that they enjoyed explaining their points of view in the educational philosophy or in the rationale (where they needed to defend their assessment choices). One student said, "I actually thought [the rationale] was...this might have been one of, like, my favorite parts. Um...that was uncool to say [laughs]." Another stated, "...[the rationale] turned out to be the longest part I'd [sic] written yet. So, that was good. I definitely—while I was doing it—found myself wanting to explain more and not just feeling like I had to."

Unlike their feelings about enjoyment, students overwhelmingly made positive statements of interest (81.3%) because, as with the statements from the open-ended

analysis, they liked that the project directly tapped into their own personal interests and fields of study. For example,

> ...with each assessment type that we learned about—[the teacher had] us actually do a form of that assessment for our lesson plan. So then at least we've done something that we're already interested in, that we, you know, created a lesson on. Rather than just saying, 'ok, we'll make up, uh, selected response tests for the next 10 minutes on this topic'.

They were also interested in topics that they had never learned before ("I really never thought about that part of teaching. I never did. I never thought about standardized testing and me having to make up tests. I...that part, I really never thought about until now"). When describing why they enjoyed working on the project, many stated that they enjoyed being creative in how they set up their lesson plans and assessments so it would be fun for their students ("...I liked doing that because it kind of gave me a little outlet to get my own assessment down"). Students who were not interested in the project (18.8%) described the tasks that required the least challenge, such as describing the target population or listing the standards ("I think [those parts] were just picking out what you wanted to do and grade level and stuff like that. I mean it's not super interesting..."). Those who did not enjoy working on some of the project segments tended to cite time constraints and the large amount of work (in addition to outside responsibilities). As one student explains,

> ...it was more the stress of all of everything else and I couldn't really enjoy it. It just really—like I said, it was very stressful. I did spend a lot of nights sitting and writing. Sometimes at the end of the night, you get to a point where you just don't even care [laughs], you know. But so much effort in it and so much time and

everything and [trails off]. I tried to do everything ahead of time and it just, you know, everything comes down to—it's only a few weeks and not matter how early you start working on it, it's still kind of –at some point, you get caught with a lot of assignments as the same time that need to be done.

Changes in beliefs. The 84 statements describing changes in beliefs over time were generally in a positive direction. Many students (34.5%) who mentioned changes in their ability began believing that the project would be difficult because of the assigned amount of work. Once they began working on the segments, they felt more capable of completing the entire project. However, this student's beliefs about ability changed in the opposite direction. She stated that the project was more difficult than she originally thought and further explained, "I would sit down and 'la, la, la, la' but then when I really thought about what the real purpose of it was—yeah, it was more difficult than I thought it would be."

Further, the interviews revealed that there were changes in the intensity of the participants' beliefs. One student describing how her attainment value (25% of the statements) increased stated, "I thought it was more important than when I started." When describing the utility value of the project (14.3% of the statements), one student said, "...I thought it was going to be useful, yeah. I did think it was going to be useful but not nearly—like, you know if I thought it was a 5, now I think it's like, 15, you know." An equal number of students mentioned how the cost value of working on the project changed over time. For example, this student explained how his initial feelings changed:

When I approach any syllabus, I'm like 'great another project' [said sarcastically]. Now that it's done, I know the...standards a lot better. I know the—I'm more familiar with the strands and standards and all of that.

Very few students commented on changes in their enjoyment (6 statements). One student said, "[The educational philosophy] was actually my favorite part to write." When I asked her why, she said, "I guess just 'cause I was able to express how I would run my own classroom. That's something that I'm always excited about." Even fewer (4) statements expressed a change in interest. For example, "I was like, uh, 'I don't want to do it' but it was kind of like 'ok, this is something I'm just going to have to do'. But then when I got into it, it was more interesting."

Other motivational influences. In addition to the motivational components described in the theory, 284 statements described other influences on the students' motivation. Similar to the findings from the open-ended statements, some students reported that their personality traits (3.9%) influenced, in part, their motivated behavior. This student's personality described her strategy for doing well in the class:

> I usually try and do a little bit more because—I feel like I can read a teacher pretty well—and like, you know, if most of the people in the class are going to do a PowerPoint, and then, like, I'll do a PowerPoint and then try and do like a poster to go with it—or, you know, I try and do a little bit extra to stick out a little bit.

Also as in the open-ended comments, outside responsibilities (7.4%) and, more so, course section-specific characteristics of the task influenced students' motivation (45.4% of the comments). Most specifically, the length of the assignment had a large impact on students' motivation to work on it. This was different for each section. Students in sections 3 and 4 were required to critique the standards, for example. Also, the amount of detail students

were required to put in their assessments or lesson plans varied from simply describing them to creating them to be complete and useable.

Teacher influences were prominently (29.6%) mentioned as a contributing factor in students' motivation as well. Feedback was an important influence in this regard. Here, untimely feedback affected the cost value for this student working on the project:

> ...we would do the work, and then come to class and we'd just totally done it wrong. So, after the second or third time that happened, it was kind of like 'why put forth the effort if it's just going to be wrong and then we're going to go over it?'

Additionally, students' perceptions of their teacher (5.6%) affected, in this example, student effort:

> It seems like she really doesn't understand it. So, I don't know if that's the case or not. But it's how it came off to me. So, I would say that might have made me less motivated to work on it. Because it seemed like it wasn't a big deal. Which, even though it's a major course grade and that's the big thing of the course, I felt like if my instructor doesn't get it then I don't really need to.

Other factors in the learning environment that influenced motivation were interactions with other classmates and knowledge of the requirements of other course sections (8.0% combined). For example, other classmates influenced the amount of effort this student decided to put in her project:

> ...if I heard other people saying, 'like, yeah, I don't really care' I just kind of faked it. And that makes me think, they're not going to do as well, so I don't have to work as hard to make myself look better [laugh].

Also, after she learned what students in different course sections were doing, she felt less motivated: "...the other class had significantly less work to do and we know it. That is certainly affecting motivation, I believe." The students in this class were required to give more details in their segments. More specifically, they were required to critique some of the standards instead of only identify them. There were also several additional assignments not related to the assessment project.

Summary of Qualitative Results

The findings from the qualitative analyses supported the theory and both analyses yielded similar results. Overall, students were more positively motivated to complete the project. When comparing their interest and enjoyment statements, there were clear differences in students' beliefs. Students tended to find the project interesting, though not always enjoyable to work on. There were a number of statements that expressed a change in belief over time. The statements covered all of the motivational components and were generally in a positive direction. Some of the changes expressed an increased intensity in beliefs, which were also in a positive direction. As expected, the use of the qualitative methods provided support as well as a rich description illustrating students' feelings. Additionally, there were findings that described other influences on students' motivation. These statements related to the structure of the task, personality traits, and interpersonal experiences. The developmental cluster of modern expectancy-value theory describes influences such as these (Eccles et al., 1983).

Chapter 5: Discussion

Modern expectancy-value theory is a leading theory of academic motivation that considers various sources of students' achievement behaviors. The theorists in this perspective explore developmental, cultural, and domain-specific characteristics of their motivational constructs. In this study, I investigated the theoretical constructs in as they changed over a short period of time. I also centered this investigation on the completion of an authentic academic task. I examined motivation within the context of the academic environment, and I used task-specific measures of the theorized motivational constructs.

Findings in the Study

The purpose of this study was to learn more about modern expectancy-value theory and its motivational components. I wanted to learn about the components of task value more specifically and their similarities to the interest and enjoyment constructs theorized in other motivational perspectives. Another purpose of the study was to learn about modern expectancy-value theory—how it changed over a short period of time and in the context of the learning environment. I measured the motivational components separately and determined how they changed, independently, while students were completing an authentic academic task. Another purpose of this study was to test the model using task-specific measures of the motivational constructs.

Will Task-Specific Measures Lead to Strong Predictions of Behavior and Achievement?

I hypothesized that the task-specific components that contributed to academic motivation would significantly predict achievement, supporting modern expectancy-value

theory. The results varied, however, according to the criteria. When students' grades were the dependent variables, the students' expectancy beliefs significantly predicted their project segment grades at the first measurement time. The students' task value beliefs did not predict the grades. Considering that students in graduate school are less likely to earn low grades, it may be that using grades as a criterion was not an adequate measurement of academic achievement. Possibly, students who have been in school for many years are quite adept at earning high grades without the need to find value in their assigned tasks.

Although I expected academic motivation to influence both self-reported behavior and grades, there were no intercorrelations between these two outcome measures. Further, when students' self-reported behavior was the criterion in the regression models, students' task value beliefs were a significant predictor at each of the three testing times. Expectancy beliefs, however, did not significantly predict the students' self-reported behavior. The more consistent results found with self-reported behavior as the criterion might have arisen because I assessed both the dependent and independent variables with self-reported measures. Although it was unclear why expectancy beliefs failed to reach significance when predicting self-reported behavior, there was reason to suggest that self-reported behavior may more accurately describe what occurs when students are motivated (or unmotivated). As an example, two students who are unmotivated may procrastinate and exert minimal effort. Though the two students exhibited the same behavior, one may do quite well while the other fails. Conversely, a student who is motivated and works hard may still earn a low grade. There are a number of external factors involved in the resulting grades—such as poor grading practices by the instructor—that have little to do with students' beliefs or behavior. Examining the achievement behaviors that result from

motivation (such as help-seeking or participation during class) may provide more insight into students' achievement outcomes than looking solely at grades.

Do the Motivational Components Change Over Time?

I measured the components that contributed to academic motivation at a task-specific level and addressed the second purpose of this study. I investigated how motivational constructs changed while students worked on an academic task. The results supported my hypothesis that most of the constructs would vary in unique ways over each of the measurement times. The results from the open-ended responses from the pilot study suggested that there would be a quadratic trend in the changes in the constructs over time. The data from this study revealed significant linear and quadratic trends in all of the constructs. The use of the task-specific measurement on the separate constructs provided more information than would the use of more global measures. Although I expected that some of the components would exhibit significant quadratic trends, all of the curvilinear changes were significant.

Although expectancy changed over time, the mean ratings generally remained higher than those of the other constructs. Students possibly score their expectancy beliefs higher than the value beliefs because they are accustomed to performing well academically. Because these students were in a graduate program and enrolled in a summer course, they most likely did not expect to fail or do poorly. The linear trend of expectancy was also significant. The mean ratings dropped during Time 2 and, although they rose again at Time 3, they were not nearly as high as it was at Time 1 (see Figure 6). Although students were likely to have a high belief in their expectancies for success, confusion about the task, the

realization of their time constraints, and feedback over time possibly influenced the drop in the mean ratings.

The mean ratings for utility and attainment were not significantly different until Time 3. I believe that students' attainment value was greatly influenced by the utility value they placed on the task. In the open-ended comments and particularly during the interviews, students often mentioned that the project was important to them because they could use it one day. Additionally, students who thought that the project was not practical also felt completing it was unimportant to them. Those students' attainment value was most likely influenced by the grade in the course. At Time 3, students' ratings of utility were higher than their ratings of attainment value. Students' concern with grades may have mediated the relationship between utility and attainment. Towards the end of the course, the students—especially if their instructor allowed them to complete drafts first—had a better idea of how well they would do on the project. Therefore, at Time 3, it is possible that the relationship between utility and attainment value was different and included external concerns.

Students' cost value generally changed in the same manner as utility and attainment value (as well as enjoyment). The difference between Time 1 and Time 2, however, was dramatic. The students' initial low ratings of cost value were possibly based on their general distaste of summer classes, the seemingly overwhelming amount of work from the syllabus, and being unclear about the requirements. They probably felt that much of the work assigned to them was busywork. As time progressed, the students began to have a better understanding of the assignment, the concepts, and the purpose of their work. However, by Time 3, it appears that the instructors' intentions for the assignment were not

fulfilled. Many students probably did not find the project as meaningful as it was intended to be, primarily because many of them did not believe it was realistically what teachers did when designing assessments, thus not useful.

The ratings of interest changed in a different way. The students were initially interested in the project and that interest waned over time. I hypothesize that the initial interest was due to the instructors' and my description of the project as something they would be able to use later. However, as students began to work on the project, they may have lost some of their interest because they realized that they had prior familiarity with the concepts. The open-ended statements that described a lack of interest mostly cited prior knowledge as the reason. In addition, because the students were beginning to realize the time constraints they were under, external influences may have affected their interest. The drop in interest was not large at Time 2. The ratings subsequently increased and the linear trend for the interest ratings was significant. Students' increased interest may have occurred because they were nearly finished with the project. Also, their better understanding of assessment concepts could have made what they were doing more interesting to them.

Students' mean ratings of enjoyment in the project generally remained lower than those of all the other constructs. It is possible that these ratings remained low because the students were taking a required summer course. During the interviews and in the open-ended responses, many students commented that they did not enjoy taking a class during the summer. Additionally, students' awareness of the different requirements in the other sections most likely affected their enjoyment of their work. Although there was a slight increase in the enjoyment ratings over time, the linear trend did not reach significance. It is possible that students' enjoyment ratings increased because they were committed to

completing the project. In order to continue working on the project and complete a high-quality product, they possibly needed to find some enjoyment in working on it.

Are Interest and Enjoyment Separate Constructs?

The ANOVA results addressing the second purpose of the study suggested support to my hypothesis that they were different constructs. The ANOVAs and the paired t-tests revealed that the students' mean ratings of the constructs were different over time. Additionally, the results of the ANOVAs revealed that interest and enjoyment changed in different ways over time. The data showed that whereas students' overall interest in the project increased, their overall enjoyment decreased. If I had measured intrinsic value in a way that combined interest and enjoyment, such valuable information would be missed. Additionally, because the changes in interest and enjoyment were in opposing directions, a combination of the two variables would conceal the size and direction of the individual trends.

Although the mean ratings for interest and enjoyment suggested that the constructs are distinct, the variables were highly intercorrelated. The factor analysis, however, provided further support for the distinctiveness of the constructs. With the first and third questionnaires, the factor analyses resulted in two factors—each exclusively made up of interest or enjoyment items. The factor analysis of the second questionnaire also resulted in two factors. However, the interest factor contained one enjoyment item and the enjoyment factor contained one interest item. Interestingly, at the second measurement time, the mean ratings of interest and enjoyment were also the closest.

The qualitative analysis provided insight that also supported some of the purposes of the study. Students' were able to describe different aspects of their motivation and how these aspects of motivation were affected while they worked on the project. Participants reported that they were interested in the project and the topics it covered but that there were certain parts of the project that were not enjoyable to work on. Their reasons for being interested in the project dealt more with learning new topics covered by the portfolio and working within their fields. Conversely, their reasons for enjoying the project focused on being creative with their assessments. Reasons given for not being interested had more to do with prior familiarity with the topics, whereas reasons for not enjoying the task dealt with working on time-consuming segments that were not challenging or with the amount of work within the segments. Most of those comments were about listing and critiquing the standards. Many students stated that when they copied and pasted the standards from the websites, they then spent hours formatting them. Often, the students' listed standards were simply placed in the project without discussion. One student stated that she had to print out the standards twice—once for the rough draft and again for the final draft. Because only one person stated this, I am not certain if this was an actual requirement or if she was mistaken. Also, many students did not understand the purpose of critiquing the standards.

The majority of the responses described reasons why students were motivated to complete the project. The statements that described reasons why students were not motivated had less to do with the project itself and more to do with outside influences such as interactions that took place in the classroom, other sources of stress and time consumption in the students' lives, prior knowledge and experience with the material, and additional extraneous factors. Students in sections 3 and 4, in particular, stated that they had

a lot of work to do on a number of different assignments. A few complained about reading responses that were due every class (although only 3 paragraphs were required). In essence, they felt overwhelmed. These findings support the need to examine students' contextual factors, such as their learning environments and the school culture, in conjunction with the examination of their psychological states when trying to learn about influences on academic motivation.

The tree nodes that I created in the qualitative analysis based on the research questions, the theoretical model of the psychological cluster, and additional information that the students' revealed. After I organized the tree nodes into a hierarchical structure, the remaining tree nodes seemed to create a structure based on developmental influences on motivation. Figure 4 shows the planned tree node structure as well as some of the unplanned tree node groupings. Appendix G provides more information about the types of responses comprising the nodes. Appendix G also lists proposed, additional tree nodes based on the students' responses to the open-ended questions and the interviews. Although the current study focused on the psychological cluster of the modern expectancy-value model, I believe further analysis of my data, with a focus on the developmental cluster, could reveal connections in the motivational influences from both clusters.

Importance of the Study

This study provided some support for a leading theory of academic motivation. The use of task-specific instead of global levels of measurement, revealed some of the differences in the components that make up motivation. Additionally, although self-reported behavior and grades were unrelated, I found a relationship between some of the

motivational components and each of the outcome measures. Measuring academic motivation constructs at a task-specific level provided a different way to study the motivational components (Bong, 1996; Murphy & Alexander, 2000) and the characteristics of academic tasks. Knowledge of the motivating characteristics of academic tasks can potentially empower educators to design tasks that generate more motivated achievement behaviors.

This study also took a different perspective in examining how motivation changed over time by measuring the changes while students completed a project, which is a much shorter period of time than is usually studied. In the literature, there already existed a great deal of research identifying that academic motivation changed over the course of a child's development (e.g., Eccles, 2005a; Fredricks & Eccles, 2002; Jacobs, Lanza, Osgood, Eccles & Wigfield, 2002). In addition, Paulsen and Feldman (1999) explained ways in which students' motivation changed over the course of a school year. Their findings also revealed that the rates of motivational change were domain-specific. Using different techniques to measure academic motivation and motivational components provided new information about the motivational components.

Paulsen and Feldman (1999), as well as subsequent researchers (Hidi & Harackiewicz, 2000; Linnenbrink & Pintrich, 2002; Schraw & Lehman, 2001), asserted that interest and enjoyment were separate constructs. In modern expectancy-value theory, both interest and enjoyment were used synonymously to describe intrinsic value. In this study, I conceptualized the constructs as interest in the topics addressed by the academic task and enjoyment in completing the academic task. The evidence supported the distinctiveness of the two. The conceptualization that I used was similar to the description

in the literature of situational interest (context-specific and unstable) and personal interest (a persistent intrinsic desire) (Hidi & Harackiewicz, 2000; Linnenbrink & Pintrich, 2002; Schraw & Lehman, 2001). With continued investigation of this phenomenon, researchers can clarify the theoretical components of task value, restructure, and strengthen the model.

The mixed-methods approach used in this study allowed me to discover information that also contributed to the body of knowledge concerning academic motivation. The statements made by the participants supplemented the quantitative findings and helped provide a description of what had occurred during the course of the investigation. Learning why an event occurred provided a better understanding of the motivation constructs involved, what increased and decreased students' motivation, and why students' motivation changed.

Although many theories of academic motivation were criticized as being too narrow in scope, or too broad (Bong, 1996), the modern expectancy-value model was structured to be broad enough to include a large number of influences yet narrow enough to be empirically investigated. Additionally, the reach of the model incorporated a number of constructs that were developed in other motivational perspectives (Eccles, 2005a; Eccles et al., 1983; Eccles & Wigfield, 2002). In order to make connections between the various motivational perspectives, the nature of the theorized constructs and their subcomponents need to be measured individually and explored. Researchers need to determine the construct validity of the variables, how they interact, and how they affect students' motivation in order to make academic models more parsimonious. This study took an important step in that direction.

Instructional Implications

The results of this study provided valuable information regarding how characteristics of an academic task influenced students' motivation as they completed their assignments. For example, many of the students described how the timeliness and clarity of the feedback they received on their drafts influenced their motivation and how hard they were willing to continue working on the project. Additionally, students who believed that there was a large amount of work assigned were motivated to employ their best efforts as long as they felt that the task had value to them. Most of the comments from the open-ended statements and the interviews expressed the importance of learning the material as well as its potential usefulness in the future. In addition, because the task was individualized according to the students' field of study, the students were more interested in the product they were developing and they enjoyed the opportunity to be creative while working on it. By designing academic tasks with these points in mind, teachers increase the likelihood that they will assign tasks that boost motivation and, ultimately, achievement.

It is important for teachers to assert a positive influence on students' academic values and beliefs. This study not only provided insight into task-characteristics that could affect motivation, it also described aspects of the learning environment that were influential as well. Given the vast amounts of information that students receive during their schooling, clarity in instruction is absolutely necessary (Vaughn and Linan-Thompson 2003). The meanings and purposes of the academic content need to be fully explained to students (Vaughn and Linan-Thompson 2003). Removing ambiguity gives students a better sense of control over the outcome of the task and helps to alleviate test anxiety. This is true for assessments as well as instructional tasks (Hintze, Christ, & Methe, 2006). For example,

participants in this study valued the assignment less when they were confused about the instructions, unclear about the purpose of the project segments, faced with changes in due dates, or under the impression that their teacher did not believe in what she was teaching, valued the assignment less. Having a fuller understanding of the ways in which academic tasks and the learning environment collectively influenced different facets of motivation can provide teachers with the tools to improve instruction. With this understanding, teachers can increase the likelihood that their students will be more engaged, more motivated to learn, and more likely to utilize improved cognitive strategies and self-regulated behaviors.

Limitations

Among the limitations of the study, the main shortcoming was use of task-specific measures. Such measures make replication difficult, unless the studies employ exactly the same task. The gerneralizeability of these results, therefore, are limited. Additionally, in order for any generalizeable pattern to begin to emerge, a large number of additional task-specific studies using similar methods, answering the same research questions, but with different tasks would need to be conducted. Another limitation that arose from using task-specific measures in this study was that the measures were unpublished and untested. One intention of the pilot study was to gain information that would allow me to revise the task-specific measure for improved use in this study. Although the revised measure was considerably better than the one used in the pilot, there were so many revisions that the two sets of questionnaires were not the same. Therefore, although the findings generally supported my hypotheses, the differences could be due to the questionnaires themselves.

Because I had to create the task-specific questionnaires, there were possibly errors in the wording of the items. Additionally, because I could not repeat every item exactly from one questionnaire to the next (because of changes in upcoming tasks at each time), each of the questionnaires could have been measuring slightly different constructs.

In addition, there are limitations arising from the use of self-report measures. When self-report measures are used, participants do not always read the items carefully before responding. During the data collection, I also noticed that many students—though I gave them the measures (and electronic access to the measures) at least a day in advance—were working to complete them minutes before I collected them. In spite of this problem, considering that the participants were well aware that they could leave the study at any time, their willingness to complete the questionnaires suggested that they wanted to express themselves. Further, the large number of thoughtful open-ended responses suggests that students probably had the time to provide accurate responses on the Likert items as well.

The academic task that the students were working on differed slightly for each section of the project. Although the questionnaires included the common features of the project, I also told the participants to leave blank any item that did not apply to their course. Additionally, I timed the administration and collection of the questionnaires according to the schedule of each of the individual sections. The goal of the timing was to measure students' motivational constructs before they began working on the specified segments of the project. However, some students turned in the questionnaires days after they were collected. So they may have also completed the questionnaires later than I intended. A few students' open-ended responses also suggested that they completed those items after they worked on the specified segments. In addition, the modifications I needed to make for

section 6 possibly resulted in differences in measurement. Although there were only a few course section differences in the measures, there may still be differences that were not discovered.

The teachers varied in their experience both in teaching the course and in working with the project. Three out of the five instructors (representing half of the sections) were teaching the course for the first time. Perhaps more importantly, one of those teachers did not fully understand the project, did not review it before the beginning of the class, and was unable to adequately answer questions about the requirements. For example, she did not tell her students that there was a typo (regarding page length) in the description, although I brought it to her attention so she could correct it before the semester began. As a result, several students were unnecessarily frustrated with a relatively simple segment of the project until I correctly informed them. They thought they needed to write 2-3 paragraphs describing their target population, when only 2-3 sentences were necessary. The same teacher, however, had a great deal of experience teaching in public schools. She shared personal experiences with the students and realistic insight that they found valuable. Several of her students' interview comments positively reflected those interactions.

The remaining two new instructors had never taught any type of class before and incorporated portions from every course section as class requirements in their sections. For example, they had students describe ten assessment practices and provide detailed and complete assessments with five of those ten. Additionally, they had students create a lesson plan and have their assessments based on that as well. I developed the project that was used in section 5. It was a newer version of the project completed by the students in sections 1, 2, and 6 (the result of changes that were made over a number of years each time I taught the

course). The ten descriptions of the assessments were eliminated in this version so that students could create assessments based on an actual lesson plan. The idea was for the project to be more authentic and useful. Therefore, as a result of the combination of projects, and the frequency of the reflection papers, some of those students in sections 3 and 4 felt overwhelmed with the amount of work. Ultimately, this may not have been a major problem, because some of the students in those sections felt that, in spite of the additional requirements, the end result would be a high quality portfolio and well worth the extra effort. Although the students described working on their extensive project as overwhelming, they did not have to complete as many additional assignments as students in the other sections.

Another limitation lies in the limited experience this experimenter had conducting and analyzing qualitative data. For example, I spent a large amount of time understanding how to use the software. In addition, I possibly made errors during the semi-structured interviews that might have compromised the consistency of the questions asked. I made attempts to alleviate this anticipated problem. I kept the interview protocol in view at all times during the interview along with a concept map of the protocol. When participants were verbose, I did not interrupt them as long as they stayed on topic. Keeping the protocol in view helped to keep track of what themes from the interview the participants' comments addressed and what questions I still needed to ask.

Future Research

Continued research using domain- and task-specific measures in motivational research are necessary. Such measures have provided more consistent results than did their

broader counterparts (Bong, 1996; Eccles et al., 1983; Wigfield, 1994; Wigfield & Eccles, 2000). Additionally, influences on motivation that are domain- or task-specific need to be examined more closely. There is also a need for more consistent, significant predictions of self-reported behaviors and achievement. One way to provide additional support for the modern expectancy-value model and to improve predictability would be to incorporate influences from the learning environment into future investigations. Considering that students' beliefs tend to be domain-specific, there is also a strong possibility that characteristics of different learning environments may be specific to certain domains or grade levels. Domain-specific measures of the learning environment coupled with the domain- and task-specific measures of motivation and achievement have the potential to greatly advance motivational research.

In this study, I focused on changes in motivational components over a short period of time. As previously mentioned, the existing research examining changes in motivation focused primarily on developmental changes over long periods of time. Although it is necessary to learn how motivation develops and changes over a student's life span, it is also necessary to understand contextually based changes. Teachers need to understand what happens in the classroom. School leaders need to understand what happens in the school. Considering the encompassing and intersecting learning environments that students live within, future research needs to focus on contextual influences on motivation. Such information can also provide insights into students' general and domain-specific decline in motivation during their development.

Continued research investigating the conceptualization of interest and enjoyment can contribute to discovering more links between modern expectancy-value and other

theories of academic motivation. Additionally, the distinctiveness of ability beliefs and the other components that make up expectancies for success need to be scrutinized more closely. For example, within expectancies for success, the component "ability beliefs" may be multidimensional or found to be a composite of distinct constructs. For the current study, ability beliefs were treated as expectancies for success (also in Nagy et al. 2006) because these constructs have been difficult to differentiate in the literature (Wigfield & Eccles, 2000). Finally, both the results from the ratings scales and the classification of open-ended responses support the conclusion that students held attainment and utility beliefs in similar high regard. Although the distinctiveness of these constructs was not in dispute, the nature of motivational influences of these components should be mapped out. For example, it may be that the conditions that make students feel that a task has high attainment value may also be necessary for students to believe a task has high utility value.

The use of mixed-methods approaches is still burgeoning (Miller & Fredericks, 2006; Earley, 2005; Greene, 2005; Harden & Thomas, 2005; Johnson & Onwuegbuzie, 2004). Miller and Gatta (2006) reviewed some of the issues that arise when using mixed-method (MM) designs. They began by pointing out that

> there is the crucial underlying assumption that if methods and designs can be combined in defensible ways, the overall purpose of any given research study can be enhanced. What this amounts to is claiming that such MM approaches improve the quality of inferences overall; that is, the interpretation of some phenomenon can be better understood if one looks at it in multiple ways. This assumes, further, that there is something "more" to the research question or hypothesis that can be addressed by the use of MM (p. 596).

Though there are a variety of mixed-method techniques, each with its own set of strengths and weaknesses (Miller & Fredericks, 2006; Miller & Gatta, 2006; Earley, 2005; Harden & Thomas, 2005; Johnson & Onwuegbuzie, 2004), using qualitative data to support the quantitative findings strengthens reliability through triangulation (Harden & Thomas, 2005).

Conclusion

The findings of this study provided new information about the components of academic motivation theorized in modern expectancy-value theory. I learned that the expectancy and value constructs change in different ways and have different contextual influences. I also found evidence supporting my hypothesis that interest and enjoyment are not the same constructs. Additionally, this study revealed information about changes in motivation that occurred while students were working on an academic task. Researchers in academic motivation generally do not investigate such short-term changes. However, in light of the information revealed in this study, the findings may prompt future investigations of short-term changes during work on an academic task.

An important contribution of this study is that it examines motivation within a learning environment. Research explorations in academic motivation generally treat the motivational constructs as entities that stand alone. For instance, theorists have often measured motivational constructs at a few points over a number of years and compared students' responses from one year to the next. Although longitudinal investigations shed light on the age-related development of the constructs, theorists should seek even more

information. Studying motivation over the short term and within the context of the learning

environment provides information that teachers can use when they plan their lessons.

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Appendix A:

Pilot Study Item Development

I read the self-efficacy and intrinsic value subscales of the MSLQ because, out of the other scales used in the literature, this was one of the few motivational scales that were accessible. I attempted to incorporate the wording from these items into the pilot study questionnaire. However, these subscales did not measure all of the constructs in which I was interested. Therefore, I created items to assess all of the constructs from modern expectancy-value model and I used the model itself as a guide.

Self-Efficacy Subscale of MSLQ

(I did not consider items that involved comparisons to classmates.)

7. I'm certain I can understand the ideas taught in this course.
10. I expect to do very well in this class.
13. I am sure I can do an excellent job on the problems and tasks assigned for this class.
15. I think I will receive a good grade in this class.
23. I know that I will be able to learn the material for this class.

Intrinsic Value Subscale of MSLQ

(I did not consider items that did not clearly involve a theorized value component.)

1. I prefer class work that is challenging so I can learn new things.
5. It is important for me to learn what is being taught in this class.
6. I like what I am learning in this class.
9. I think I will be able to use what I learn in this class in other classes.
12. I often choose paper topics I will learn something from even if they require more work.
18. I think that what I am learning in this class is useful for me to know.
21. I think that what we are learning in this class is interesting.
25. Understanding this subject is important to me.

This blueprint shows the items I created for the pilot study. For this study, I was less interested in utility value, because the assignment was designed to be useful (the number of items reflect this). Additionally, I was not as interested in cost value as I was in the other motivational components. I was most interested in interest and enjoyment.

Construct	Questionnaire#	Statements		
	1	5. I am confident that I will do well in this class	7. I believe I will do well on every part of the SBA project	14. I believe I am capable of doing well on the SBA project
	2	1. I am confident that I completed each component accurately	6. I believe I will do well on every part of the SBA project that I completed	15. I am capable of completing the next project components
Expectancy	**3**	2. I feel confident that I will do well on every part of the SBA project that I completed	12. I believe I completed each component correctly	14. I am capable of completing the next project components
	4	1. I am confident that I have done well on the last parts of the SBA project	9. I am confident that I have done well on the entire SBA project	10. I believe I am capable of conducting standards based assessment and instruction in the future
Attainment	**1**	8. The SBA project is important for me to complete in order to understand classroom assessments	9. It is important for me to do well on every component of the SBA project	11. It is important for me to do well on this project

	2	7. It is important for me to do well on every one of these components that I just finished	9. It is important for me to succeed on each of the components that I completed	11. Every one of these components was important for me to complete so that I could better understand classroom assessments
	3	3. Each section was important for me to complete so that I could better understand classroom assessments	7. It is important for me to do well on each of the most recent components that I worked on	9. It is important for me to succeed on every component that I finished
	4	5. Succeeding on each of the last components of the SBA project was important for me	12. It is important for me to do well on the completed project	15. The SBA project was important for me to complete so that I could understand classroom assessments
Utility	**1**	4. I think the SBA project will help me learn about what teachers really do	6. I think the SBA project will be useful to me after I finish this course	12. Every component of the SBA project will be useful to me after the course is over
	2	5. Each of the components of the SBA project that I completed will be useful to me as I begin my career as a teacher	13. Every component I worked on gave me a better understanding of what teachers do	
	3	13. Each component I worked on gave me a good understanding of what teachers actually do	15. Each of the components of the SBA project that I recently completed will be useful to me in the real world	

	4	3. I will use each component I completed in this last section even when the class is over	8. I think the SBA project has prepared me to do what teachers really do	14. The SBA project is useful to me as I begin my career as a teacher
Cost	1	2. Completing every part of the SBA project will be challenging to me	15. This project is worth spending a lot of time on	
	2	3. Every component of the project I completed was worth spending a lot of time on		
	3	8. Every component of the project I completed was worth the amount of time I spent on it		
	4	4. Completing the final parts of the SBA project was a good challenge for me	13. The entire project was worth spending a lot of time on	
Interest	1	1. I am looking forward to starting the SBA project	10. The different components of the SBA project seem interesting to me	
	2	2. I found every component of the SBA project that I completed to be interesting	10. The upcoming components of the SBA project seem interesting to me	14. I was interested in each of the project components as I was working on them

	3	5. Every component of the SBA project that I completed was interesting	6. I was more interested in these most recent components than I was on the previous sections	10. The upcoming components of the SBA project seem interesting to me
	4	2. As I completed the final components of the SBA project I was interested in what I was doing	7. I am interested in the completed SBA project	
	1	3. I think I will enjoy working on the SBA project	13. I think I will enjoy working on each component of the SBA project	
	2	4. I enjoyed completing the first few components of the SBA project	8. As I was working on the project components, I enjoyed what I was doing	12. I believe I will enjoy working on the upcoming components of the SBA project
Enjoyment	**3**	1. I enjoyed the sections I just completed better than I enjoyed the previous sections	4. I believe I will enjoy working on the upcoming components of the SBA project	11. The sections of the SBA project I recently finished were enjoyable for me to complete
	4	6. I enjoyed working on all of the last components of the SBA project	11. I enjoyed working on the entire SBA project	

Appendix B:

Data Collection and Course Schedules

section	Monday	Tuesday	Wednesday	Thursday
5/28 5/31 1 & 2		First class Consent forms	Library session NCLB Guest Lecturer Gave Q1 electronically	Gave extra Q1
3 & 4		First class Consent forms	Gave Q1 electronically	Reflection 1 Gave extra Q1
5			First class Consent forms Gave Q1 electronically	
6			First class Consent forms Gave Q1 electronically	
6/4 6/7 1 & 2	Segment 1 parts due collected Q1	Gave Q2		No class
3 & 4		Reflection 2 Segment 1 parts due Collected Q1 Gave Q2		Reflection 3 Segment 2 parts due
5	Segment 1 parts due Gave extra Q1 Collected Q1		Team teaching 1 & 2 Segment 1 parts due Gave Q2	
6	Content standards due		Collected Q1 Gave Q2M & Q3M Interview Consent	
6/11 6/14 1 & 2	Team teaching group 1 Interview consent	Team teaching group 2	Team teaching group 3	Team teaching group 4
3 & 4		Reflection 4 Segment 2 parts due Interview consent		Reflection 5 Segment 2 parts due Collected Q2 Gave Q3
5	Team teaching 3 & 4 Segment 2 parts due Interview consent		Team teaching group 5 Segment 2 parts due Collected Q2 Gave Q3	
6	Assessment research article due			
6/18 6/21 1 & 2	Guest Lecturer Segment 2 parts due Collected Q2 Gave Q3	Team teaching group 5	Interviewing workshop Collected Q3 Gave Q4	Mock parent-teacher conference (& notes) Segment 3 part due Collected Q4
3 & 4		Reflection 6 Parent-teacher conference notes Collected Q3		Guest Lecturer Reflection 7 Segment 3 due Gave & Collected Q4
5	Segment 3 due (draft) Collected Q3 Gave Q4		Final draft of SBA due; Mock parent-teacher conference (& notes) Collected Q4	
6	Traditional & alternative assessments due Collected Q2M & Q3M Gave Q2-4B		Parent-teacher conference notes SBA due (all segments) Q2-4B collected	

Appendix C:

Task-Specific Measures

ID#:_____ Read the instructions for the Standards Based Assessment (SBA) project. Make sure you understand what you need to do for the next section of the project. Please respond to the following statements about your feelings about the project and its components as accurately as possible. Please circle a <u>single</u> number, from 1-4, in order to indicate that you:

Strongly Disagree (**SD**), Disagree (**D**), Agree (**A**), or Strongly Agree (**SA**).

<u>Statements about the Upcoming Section</u>

	SD	D	A	SA
1. Describing my target population were time well spent...	1	2	3	4
2. It is useful to have a list of all of the standards in my subject area..	1	2	3	4
3. I am fully capable of completing this section of the project by the due date..	1	2	3	4
4. Listing all of the standards for my subject area is important for me to do...	1	2	3	4
5. I am sure I will do well on this section..	1	2	3	4
6. It will be interesting to know what the standards are for my subject area..	1	2	3	4
7. Completing this section of the project will be enjoyable for me..	1	2	3	4
8. Listing the standards for my subject area will be worth spending a lot of time on...	1	2	3	4
9. It is interesting to learn how to access the various curriculum standards..	1	2	3	4
10. Describing my target population will be useful to me in my future...	1	2	3	4
11. Finding and listing the curriculum standards were enjoyable to do...	1	2	3	4
12. It is important to me that I complete this section of the project..	1	2	3	4
13. It is worthwhile to spend time listing the Workplace Readiness Standards...	1	2	3	4
14. I think I will enjoy listing the Workplace Readiness Standards...	1	2	3	4
15. I can easily describe my target population...	1	2	3	4
16. I think completing each of the steps in this section is a practical thing to do...	1	2	3	4

☺ Turn over →

Statements about the Upcoming Section (Continued)	SD	D	A	SA
17. It is important to me that I describe my target population...	1	2	3	4
18. I am interested in understanding what the standards, strands and progress indicators mean......................................	1	2	3	4
19. This section of the project will be worth spending as much time as possible on...	1	2	3	4
20. I may use the Workplace Readiness Standards one day...	1	2	3	4
21. When I go to the website that lists all of the standards, I will be able to find the ones for my subject area................................	1	2	3	4
22. I am interested in understanding the difference between the Workplace Readiness Standards and the Core Curriculum Standards..	1	2	3	4
23. I will enjoy deciding on and describing a target population...	1	2	3	4
24. .This section of the project seems important to complete..	1	2	3	4

What else do you think about the Standards Based Assessment Project? Please specify if your comments are specific to particular sections, or are general to the entire project.

25. What aspects of this project make you more or less motivated to work on it?

Thank you for participating!!

ID#:_____ Read the instructions for the Standards Based Assessment (SBA) project. Make sure you understand what you need to do for the next section of the project. Please respond to the following statements about your feelings about the project and its components as accurately as possible. Please circle a single number, from 1-4, in order to indicate that you:

Strongly Disagree (**SD**), Disagree (**D**), Agree (**A**), or Strongly Agree (**SA**).

Statements about the Previous Section	SD	D	A	SA
1. I worked consistently on this section without unnecessary breaks...	1	2	3	4
2. I did just enough work to get an acceptable grade...	1	2	3	4
3. I delayed starting this section..	1	2	3	4
4. I gave my highest effort on this section..	1	2	3	4

Statements about the Next Section				
5. It will be fun to come up with two different ways to assess each of the standards I selected..	1	2	3	4
6. Describing different ways to assess each standard is important to me..	1	2	3	4
7. I can create assessments that will adequately measure the students in my target population...	1	2	3	4
8. Focusing on specific standards to work with prepares me for what teachers actually do..	1	2	3	4
9. I am going to enjoy creating some of the assessment types that I learned..	1	2	3	4
10. It will be worth spending as much time as possible on the lesson plan..	1	2	3	4
11. It is important that I select standards that are appropriate for my instructional program...	1	2	3	4
12. Choosing the appropriate standards for my instructional program were worth the time and effort I spend on it...................	1	2	3	4
13. The variety of ways to assess students is interesting to me...	1	2	3	4
14. Describing different possible ways to assess each standard were helpful to me in the long run....................................	1	2	3	4
15. I can create complete and useable assessment tools...	1	2	3	4

☺ Turn over →

Statements about the Next Section (Continued)	SD	D	A	SA
16. Creating complete assessments were enjoyable for me...	1	2	3	4
17. I can create assessments that will comply with the guidelines I learned in this course..	1	2	3	4
18. It is interesting that certain standards are more appropriate than others to address my instructional program...........................	1	2	3	4
19. It is important for me to do well on this section of the project..	1	2	3	4
20. Creating useable assessments will for this project were useful for me when I begin teaching..	1	2	3	4
21. Assessments and scoring rubrics are interesting to me...	1	2	3	4
22. I am going to enjoy selecting specific standards that I will cover in my portfolio...	1	2	3	4
23. The amount of effort I put into describing different ways to assess each standard were worthwhile..	1	2	3	4
24. I can identify the appropriate standards for my instructional program..	1	2	3	4
25. Creating the different assessment types will be useful to me in my future career..	1	2	3	4
26. It is interesting that assessment should be aligned with standards and instruction..	1	2	3	4
27. It is worth spending a lot of time and effort on creating complete and useable assessments...	1	2	3	4
28. It is important that I actually create different types of useable assessments..	1	2	3	4

What else do you think about the Standards Based Assessment Project? Please specify if your comments are specific to particular sections, or are general to the entire project.

29. What aspects of this project make you more or less motivated to work on it?

Thank you again for participating! You're almost finished!

ID#:_____ Read the instructions for the Standards Based Assessment (SBA) project. Make sure you understand what you need to do for the next section of the project. Please respond to the following statements about your feelings about the project and its components as accurately as possible. Please circle a <u>single</u> number, from 1-4, in order to indicate that you:

Strongly Disagree (**SD**), Disagree (**D**), Agree (**A**), or Strongly Agree (**SA**).

Statements about the Previous Section	SD	D	A	SA
1. I began working on this section immediately	1	2	3	4
2. I gave my highest effort on this section	1	2	3	4
3. I stopped working on this section several times before I finished it	1	2	3	4
4. I did the best quality of work that I could have possibly done on this section	1	2	3	4

Statements about the Next Section				
5. I can adequately explain how my assessment plan fits with my educational philosophy	1	2	3	4
6. Explaining the rationale for my assessment plan is worth spending a lot of time on	1	2	3	4
7. Finishing this section is important to me	1	2	3	4
8. Educational philosophies are interesting to me	1	2	3	4
9. I think I will enjoy working on the next section of the SBA project	1	2	3	4
10. It is practical to describe why the assessments I created are appropriate	1	2	3	4
11. I can easily describe two ways to assess each of the standards I've chosen	1	2	3	4
12. It is interesting that assessments can align with the standards and also with my educational philosophy	1	2	3	4
13. Describing how my assessment plan fits with my educational philosophy were challenging to me	1	2	3	4
14. I think the SBA project were useful to me after I finish this course	1	2	3	4
15. I am going to enjoy completing this project	1	2	3	4

☺ Turn over →

Statements about the Next Section (Continued)	SD	D	A	SA
16. The SBA project is important for me to complete in order to understand classroom assessments...	1	2	3	4
17. I'm going to enjoy explaining why the assessments I chose were the best decision...	1	2	3	4
18. Finishing this project will be worthwhile..	1	2	3	4
19. I am capable of completing the next project components..	1	2	3	4
20. I am interested in teacher-made assessments..	1	2	3	4
21. It is useful to me to describe how my assessment plan fits with my educational philosophy...	1	2	3	4
22. Understanding this section of the project is important to me as I learn what teachers do..	1	2	3	4
23. I am confident that I can describe the assessment procedures for each of the standards that I chose..............................	1	2	3	4
24. This section of the project will be very useful to me...	1	2	3	4
25. It's interesting that there are different types of assessments to measure students' skills and knowledge….....................	1	2	3	4
26. It is important to give a rationale explaining how assessment practices fit within my educational philosophy.............................	1	2	3	4
27. Completing this section of the project is worth the effort it will require...	1	2	3	4
28. Describing how my assessment plan fits with my educational philosophy were fun for me...	1	2	3	4

What else do you think about the Standards Based Assessment Project? Please specify if your comments are specific to particular sections, or are general to the entire project.

29. What aspects of this project make you more or less motivated to work on it?

Thank you very much for your continued participation!! Only one more to go (it's much shorter)....

ID#:_____ Please respond to the following statements about your feelings about the project and its components as accurately as possible. Please circle a <u>single</u> number, from 1-4, in order to indicate that you:

Strongly Disagree (**SD**), Disagree (**D**), Agree (**A**), or Strongly Agree (**SA**).

<u>Statements about the Previous Section</u>	<u>SD</u>	<u>D</u>	<u>A</u>	<u>SA</u>
1. I could have put more effort in this section..	1	2	3	4
2. I began working on this section immediately..	1	2	3	4
3. I worked consistently on this section without unnecessary breaks..	1	2	3	4
4. I did just enough work to get an acceptable grade..	1	2	3	4

What else do you think about the Standards Based Assessment Project? Please specify if your comments are specific to particular sections, or are general to the entire project. You may use the back of the page for more room, if necessary.

5.   What aspects of this project made you more or less motivated to work on it?

6.   Are you motivated to use your completed portfolio? Why or why not?

Thank you very much for taking the time to complete these questionnaires. I wish you the best of success in this class and in your future careers!

--Sincerely, Wanda Swiggett

Appendix D:

Additional Reliability Coefficients

Table D1: Construct Reliability

Construct	alpha	# items	# cases	M	SD
Expectancy	.7989	12	86	3.26	.326
Attainment Value	.7997	12	84	3.05	.366
Utility Value	.8154	12	84	3.10	.355
Cost Value	.8345	12	84	2.78	.413
Interest	.8405	12	86	2.95	.400
Enjoyment	.8983	12	81	2.37	.493
Behavior Subscale*	.8098	12	86	2.66	.479
--Effort	.5056	3	87	2.92	.531
--Persistence	.6704**	3	87	2.56	.741
--Quality	.4781	3	87	2.87	.524
--Procrastination	.6835	3	86	2.30	.695

*Though it is partitioned here, behavior was treated as a single construct
**With item (Q3, #3) removed, α = .6864, M = 2.72, SD = .855

Table D2: Parallel Reliability Coefficients of the Questionnaires

Subscale	alpha	# items	# cases	M	SD
Motivation	.9596	72	77	2.92	.334
Behavior*	.8098	12	86	2.66	.479
All Questionnaires	.9605	84	76	2.88	.333

*With item (Q3, #3) removed, α = .8217, M = 2.70, and SD = .502

Appendix E:

Questionnaire Item Descriptive Statistics

Questionnaire 1 Items

Item Number	Construct	N	Min	Max	M	SD
1	cost	95	1	4	2.93	0.61
2	utility	96	1	4	3.50	0.62
3	ability	96	1	4	3.55	0.69
4	attainment	96	1	4	3.05	0.86
5	ability	96	2	4	3.42	0.63
6	interest	96	1	4	3.11	0.71
7	enjoyment	95	1	4	2.28	0.74
8	cost	96	1	4	2.38	0.82
9	interest	96	1	4	2.73	0.75
10	utility	96	1	4	2.86	0.76
11	enjoyment	96	1	4	2.09	0.67
12	attainment	95	1	4	3.33	0.68
13	cost	96	1	4	2.56	0.75
14	enjoyment	96	1	4	2.15	0.66
15	ability	96	2	4	3.28	0.64
16	utility	96	1	4	3.05	0.69
17	attainment	96	1	4	2.79	0.71
18	interest	96	1	4	2.98	0.70
19	cost	96	1	4	2.49	0.75
20	utility	96	1	4	2.98	0.62
21	ability	96	2	4	3.49	0.54
22	interest	96	1	4	2.88	0.73
23	enjoyment	96	1	4	2.53	0.70
24	attainment	95	1	4	2.96	0.60
	Averages	96			2.89	0.69

Questionnaire 2 Items

Item Number	Construct	N	Min	Max	M	SD
1	persistence	92	1	4	2.80	1.05
2	quality	91	1	4	2.78	0.79
3	procrastination	91	1	4	2.42	0.92
4	effort	92	1	4	3.07	0.69
5	enjoyment	90	1	4	2.39	0.79
6	attainment	91	1	4	2.89	0.66
7	ability	91	2	4	3.16	0.54
8	utility	91	1	4	3.12	0.70
9	enjoyment	89	1	4	2.78	0.64
10	cost	91	1	4	2.91	0.74
11	attainment	91	2	4	3.33	0.56
12	cost	91	1	4	3.03	0.67
13	interest	91	1	4	3.00	0.60
14	utility	90	2	4	3.14	0.63
15	ability	90	2	4	3.18	0.51
16	enjoyment	91	1	4	2.49	0.64
17	ability	90	2	4	3.16	0.50
18	interest	90	2	4	2.89	0.68
19	attainment	91	2	4	3.47	0.52
20	utility	91	2	4	3.42	0.60
21	interest	91	1	4	2.65	0.77
22	enjoyment	90	1	4	2.48	0.72
23	cost	91	1	4	2.95	0.64
24	ability	90	2	4	3.16	0.56
25	utility	91	2	4	3.32	0.58
26	interest	91	2	4	2.95	0.67
27	cost	91	1	4	3.13	0.64
28	attainment	91	1	4	3.24	0.66
	Averages	91			2.97	0.67

Questionnaire 3 Items

Item Number	Construct	N	Min	Max	M	SD
1	procrastination	90	1	4	2.24	0.92
2	effort	90	1	4	3.04	0.73
3	persistence	90	1	4	2.27	0.91
4	quality	90	2	4	3.06	0.68
5	ability	90	1	4	3.08	0.64
6	cost	90	1	4	2.77	0.65
7	attainment	90	1	4	3.04	0.69
8	interest	90	1	4	3.01	0.76
9	enjoyment	90	1	4	2.37	0.73
10	utility	89	2	4	3.08	0.53
11	ability	90	1	4	3.08	0.67
12	interest	90	2	4	2.90	0.50
13	cost	89	1	4	2.60	0.67
14	utility	90	2	4	3.08	0.60
15	enjoyment	89	1	4	2.45	0.87
16	attainment	90	1	4	2.72	0.65
17	enjoyment	90	1	4	2.38	0.63
18	cost	90	1	4	3.00	0.69
19	ability	90	2	4	3.44	0.58
20	interest	90	2	4	3.17	0.57
21	utility	89	2	4	2.98	0.60
22	attainment	89	2	4	2.98	0.56
23	ability	89	1	4	3.00	0.60
24	utility	89	2	4	2.76	0.58
25	interest	89	2	4	3.16	0.54
26	attainment	89	2	4	2.85	0.63
27	cost	89	1	4	2.78	0.67
28	enjoyment	89	1	4	2.22	0.81
	Averages	90			2.84	0.67

Questionnaire 4 Items

		N	Min	Max	M	SD
1	effort	91	1	4	2.60	0.84
2	procrastination	91	1	4	2.27	0.83
*3	persistence	91	1	4	2.63	0.90
4	quality	91	1	4	2.79	0.78
	Averages	91			2.57	0.84

*This item was removed from the analysis

Appendix F:

Interview Protocol

Research Question 1: Do motivational components change while students are working on academic tasks?

1. When you first learned about the project, what was your reaction to it?

Possible follow-up question:

    a. How much effort were you expecting to put into this project? Why?

    b. Do you believe you felt this way because of your personality or because of the nature of the project?

2. **For each segment of the project:** As you continued working on (project segment), how did your feelings compare to your initial reaction?

    Possible follow-up questions:

    a. How did your beliefs about your ability affect this change?

    b. Did you feel that the project was useful? How did your feelings change?

    c. Did you feel that the project was important to complete (not just for the grade)? How did your feelings change?

    d. Did you feel that the project was worth the time and effort needed? How did your feelings change?

3. **For each segment of the project:** What would you change about (project segment), or the way it was presented to you, in order to make you more likely to want to work hard on it?

4. While you were working on the project, what other things influenced how you felt about it (e.g., work for other classes, your feelings about the instructor, your classmates' opinions about the project, etc.)?

Research Question 2: Are interest and enjoyment the same?

5. **For each segment of the project:** What influenced how much you enjoyed working on (project segment)? Why do you think so?

6. Considering how much you (did/ did not) enjoy working on the project, did you still think it was interesting? Did you feel this way about every part of the project?

7. **For each segment of the project:** What influenced how interested you were in the (project segment) (the topics covered by each part)? Why do you think so?

Wrap-up

8. If you were teaching the course, what would you do to measure your students' understanding of the various assessment methods learned? Do you think they would be motivated to work hard on it and do their best?

   Possible follow-up questions:

   a. Do you think they would they find it useful?

   b. Do you think they would they find it important to complete (not just for the grade)?

   c. Do you think they would they find it worth the time and effort?

   d. Do you think they would they find it interesting?

   e. Do you think they would they enjoy working on it?

Appendix G:

Representation of Coding

Used in the Study

TREE or FREE NODE:	Quote from the data follow each node

PROJECT SEGMENT[e]

PHILOSOPHY: I like that we need to write our philosophy since they ask about it in interviews.

TARGET POPULATION: The target population doesn't seem particularly interesting to me.

BLUEPRINT: Oh, definitely, yeah. And like I said at first, I was a little weary but it really didn't take that long once, you know, once you looked at Bloom's Taxonomy and the standards again. I went over it in class. It was much easier.

STANDARDS: I have used them many, many times prior to this and know them fairly well (especially literacy ones).

LESSON PLAN: I liked doing the lesson plan (it was very relevant).

ASSESSMENTS: I am excited to begin creating an assessment for a mathematics unit.

RATIONALE: Evaluating the lesson plan to determine what assessments methods were prevalent. It allowed me to see if the assessment is valid.

WHOLE PROJECT: I believe all of it will be very useful.

INTERVIEW THEMES[e]

INITIAL REACTION[a]: Um, yeah, the day before, the first class, I was sitting with a bunch of my friends who had the same class in a different section, they were complaining about it, they were like 'aw, this looks like so much work'. I kind of went into it with that attitude, and maybe that influenced when I first saw the syllabus.

EFFORT EXPECTED[a]: I wanted to put in a decent amount of effort because I wanted to do well in my class and I didn't mind putting the effort in because I thought it would be beneficial in the long run.

OTHER/OUTSIDE INFLUENCES[a]

TIME/OTHER RESPONSIBILITIES: I was rather unmotivated to do this because I had a lot of work due for my other class and felt a bit overwhelmed.

CHANGE OF BELIEF[a,e]

> CHANGE OF BELIEF: You know, that's funny, I would definitely say yes because I love the multiple intelligences but um, Professor Jones felt that in the academic world, Gardner's a joke and so it kind of killed my dream.

> NO CHANGE OF BELIEF[a]: So, yeah—I think it's—thought it was going to be useful the whole time.

CHANGE THE PROJECT[a,e]

> CHANGE DIRECTIONS/EXAMPLES[a]: The only thing is—yes, I think that I might change it a little bit so we have a little bit more idea of what we're actually doing before we actually do it. but then again a lot of times I know—even me thinking that you learn more when you really have to—I don't know—go out there and kind of figure it out

> CHANGE REQUIREMENTS[a]: I would have them do all of the assessments and bring them to class.

> CHANGE STRUCTURE[a]: I would change the last part so that the reliability and validity was due around the same time that we learned about it.

IF YOU WERE TO ASSIGN SOMETHING[a]: I would encourage more reading material on it…outside sources other than the book—articles, um, show students more of what standardized tests—examples of it look like, what teacher assessments made up look like, what students—after they take assessments—how it's graded. I would focus more on that.

USING THE PORTFOLIO[b,e]

> NOT A COMPLETE PORTFOLIO[b,c]: We never were required to make a portfolio, so no. If it was mandatory to make a portfolio, I'd be more motivated to use it.

YES[b]: Yes. I am student teaching in the fall and can use what I learned in my portfolio

> PUT IN A LOT OF WORK[b]: Yes, since I put a lot of work into this, I definitely want to be able to use it.

> DEMONSTRATES WHAT I LEARNED[b]: Yes, because I think I learned a lot and it shows in my work.

> QUALITY OF WORK-GOOD: Yes b/c I worked very, very hard on it and it came out much better than I expected

SOME OF IT[b]: some of the assessments I will definitely use in the future

> USE AS A RESOURCE[b]: Parts of it- lesson plans/ assessment. Will provide me with a great framework to guide my instruction

NO[b]: No

> NOT REALISTIC FOR USE[b]: Not really- I think it is too specific to one lesson to be useful.

> QUALITY OF WORK-BAD: No. I don't feel like it's my best work because I didn't have enough time to complete the assignments

UNCERTAIN[b]: Maybe. Depends on who is wanting to see it.

MOTIVATIONAL INFLUENCES[e]

ABILITY BELIEFS[e]

> ABILITY: The ease with which it can be completed makes me more easily motivated to complete it.

> ABILITY-NONE: I'm very nervous about it because it seems intimidating

TASK VALUE[e]

COST[e]

> COST-NOT WORTHWHILE: I think it's a complete west of time to have us copy every standard, strand, and progress indicator!

> COST-WORTHWHILE: I was motivated to do the project because It was Friday and I had no class and I didn't want to do anything over the weekend

ATTAINMENT[e]

IMPORTANCE: It is important to me

IMPORTANCE-NONE: Perceived Lack of Relevance

UTILITY[e]

USEFULNESS: I will need to use this info later on

USEFULNESS-NONE: I do not feel the standards are that practical to me as I am going to be a secondary teacher

INTRINSIC VALUE[e]

INTEREST[e]

INTEREST: I am interested in continuing the project and see where it will take me and what I can learn from it.

INTEREST-NONE: I'm not looking forward to other sections

ENJOYMENT[e]

ENOJYMENT: I have enjoyed thinking about the various types of assessment that can be used for a given lesson

ENJOYMENT-NONE: It is frustrating

LEARNING ENVIRONMENT[e]

Other Statements[d]

CONFUSION: I don't entirely understand the projects; The first draft is the one that gets graded[f]

INFLUENCES OF OTHERS: I enjoyed the peer evaluations

GRADES: Basically the harder (more points) the section, the greater the motivation

REQUIRED/EXTERNAL: Examples given were not as extensive as I needed to fully understand what I was required to produce

TIME-NOT ENOUGH GIVEN: The amount of work in the little amount of time makes me less motivated

TEACHER INFLUENCES[e]

INTERACTION WITH TEACHER: I think more time needs to be used in class to discuss this project in greater detail

FEEDBACK: getting feedback from the professor motivates me, in working on the SBA project. This includes oral conversations regarding my questions and written notes in response to my work

PERCEPTION OF TEACHER: I kinda like do wanna please her a little bit because she's like the nicest lady ever [laugh]. So, you know, like, I would feel bad, like not, you know, handing in something good or…or like especially like anything-not like a plagiarizing thing but like I would feel so bad ever, like, thinking…even half of us like think that for a second cause she's like the most honest person ever. So, you know, it made me want to work a little bit harder.

TASK CHARACTERISTICS[e]

AMOUNT OF WORK/LENGTH: the amount of parts is daunting

CONSTRUCTIVISM: more motivated: I need to understand assessment in order to be a good teacher and this is a hands on way of doing so

DESIGN IS NOT GOOD: I think it's easier to plan what the assessment is (or have and idea of it) before we list the standards

DESIGNED WELL: This section wasn't too bad, very reasonable questions/ length

DIRECTIONS ARE CLEAR: There were sample documents to look at. I don't know what else she could have done.

DIRECTIONS NOT CLEAR: Again, clearer directions would have been useful

DRAFTS OR CORRECTIONS: So, when I went back for my final draft, I completely reworked it.

DRAFTS OR CORRECTIONS-NOT[a]: This became very frustrating because I would have to do and re-do each part over again.

MULTIPLE PARTS ARE GOOD: The small sections made me more motivated

MULTIPLE PARTS ARE NOT GOOD[a]: so drawn out! All the steps made it so annoying. I would have rather just done 1 assignment. It would have felt more connected. Breaking it up seemed so disjointed & made it hard to stay interested

NO THOUGHT OR LEARNING: I did not see the importance of merely printing out the standards because it didn't show how I could use them in the classroom.

PERSONALITY TRAIT: Starting the project is the toughest thing, once started and I'm on a roll, it usually isn't as bad

Other Statements[d]

ALMOST FINISHED/GET IT DONE: By the end of it, I just wanted to get it over with

MOTIVATION: I am motivated by the assignment because I have to complete it for my course work.

MOTIVATION-NONE: All in all this project is so much work that it's complete unmotivating

PRIOR KNOWLEDGE: I am interested in the entire project because it is all new to me

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Behaviors[d]

EFFORT: Though do [sic] well is important to my success as a teacher [sic] so I plan to thoroughly and effectively complete the assessment project

PERSISTENCE: Well it's hard to systematically work on it—as far as now cause I work all day and so my time is limited—and so I really make a big effort to sit down and do something on it. I don't leave it to the last minute to do it. So, when I did it that way, it worked out okay

PERSISTENCE-LACK OF: You still don't want to—once you get it done, and you think it's done—you don't want to have to go back and change it. at least I don't. I think it's done, I'm like "ok, on to the next thing"—not to go back.

PROCRASTINATION: I was unmotivated to attempt until I learned more about the project, or the last minute

STRATEGY USE[a]: Like, I ended up making the test first and then going back and doing the project. Um, I did it kind of backwards. It was just easier for me to do it first and then kind of plug in what she wanted.

Note: ALL CAPS signify the tree and free nodes. Tree nodes are in **BOLD**.

[a] Used only in the interview analysis

[b] Used only in the open-ended statements analysis

[c] These statements did not answer the question and were not included in the analysis

[d] These are not actual nodes. They are in this table to organize the free nodes that were not grouped into tree nodes. They may become a tree node in a later analysis.

[e] These nodes do not have sample quotes because they were used only to group free nodes or other tree nodes.

[f] This and some other statements in this node are untrue comments that represent the students' confusion about some aspect of the project.

Appendix H:

Qualitative Representation

Example from Pilot Study

Students' Enjoyment Statements from Pilot Study

Paraphrase: 'Why do you think you will or will not enjoy completing the SBA project?'

Did/Will Enjoy the Assignment	Week				*Did/Will Not Enjoy the Assignment*	Week			
	1	2	3	4		1	2	3	4
General Statements about the Assignment									
It is applicable/ practical/ useful	11		2	2	Not useful	2		2	2
It is informative	2				Purpose /instructions are confusing/unclear	3	4	1	1
It is challenging	1				No reflection/ learning		4	1	
					Time constraints/ Thinking about deadlines	7	4	6	7
Specific Statements about the Assignment Tasks/ Components									
Working on lesson plan			1	1	Tedious/ Routine tasks/ Rigid steps	6	8	4	3
Creating assessments			3	1	Some components are difficult	1		3	
Learning about assessments		1	1	2	Too much work/ effort	1	1	4	3
Learning about the standards		2			Already familiar with concepts covered		2		
The educational philosophy				1	Forced to create some assessment types		2		
					Illogical transition between parts			1	
Statements about Intrapersonal and Interpersonal Variables									
I learn best & enjoy working on projects	1				I work hard but stress out on projects	1		1	
Utilized my creativity			2	1	I am hesitant to start projects	1			
It were fun to work on	1				I didn't finish reading the instructions	1			
					I am lazy/ tired/ burned out	4			
					Not enough guidance			2	
Other									
Blank/ Neutral	6	7	7	12	Did not enjoy this component (no reason)			1	

Curriculum Vita

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EDUCATION
May 2008   **Ph.D. in Educational Psychology**
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January 1998   **M.S. in Teaching**
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TEACHING EXPERIENCE
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PUBLICATION AND PRESENTATIONS
Ritchey, K. D., Bilder, S., Foley, J., Chui, T., Song, H., Zha, P., Swiggett, W., Camilli G.
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Honolulu, Hawaii.
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American Psychological Association, Chicago, Illinois.