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CONNECTEDNESS AND PERCEIVED INSTRUMENTALITY IN PRE-SERVICE TEACHERS: A COMPARISON OF TWO MEASURES

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BY

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DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of

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ABSTRACT

Individuals select goals to decide on which actions to pursue. They find themselves motivated toward some activities more than others. Time is also influential in making these decisions.

Two models describe some of these differences in motivation by employing alternative perspectives of the world around us. Future time perspective (FTP) theory looks at a person's perception to the framework of time, whereas Expectancy-Value (EV) looks at a person's perception of objects that populate the time space.

This study addressed three questions concerning the instruments designed to measure each of these two different models. Will the implementation of the FTP instrument yield results similar to those previously observed? Will the implementation of the EV instrument yield results similar to those previously? Will two of the sub-dimensions taken from these two models define separate factors or one?

Exploratory factor analyses were conducted on the time-perspective set of questions and on the expectancy-value set of questions. An exploratory factor analysis was also conducted on the sub-constructs of FTP-Connectedness and ALS-Perceived

Instrumentality to examine the hypothesis that the two questionnaire sub-dimensions were measuring two distinct constructs. The findings of the FTP survey analysis described results similar to those found by Husman and Shell (2008). The findings of the approach to learning survey (ALS) analysis described results of diminished resolution as compared to those found by Miller, DeBacker & Greene (2000). The analysis of the sub-scale dimensions of FTPS-Connectedness and ALS-Perceived Instrumentality described separate constructs.

This study lends support to the assertion that Future Time Perspective is a model that describes motivational beliefs that are different from Expectancy-Value. It also suggests that our relationship to time-space is in somehow different from our relationship to the motivational objects that occupy that time-space.

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Chapter I

INTRODUCTION

As individuals select goals and decide on courses of action to pursue, they will find themselves motivated toward some activities more than others. Time is subject to individual psychological interpretation. We are aware of our existence in the present as that instant between past and future where we interact with the world around us. It is the place along the flow of time where we can exercise control and influence. We are aware of ourselves as having existed in the past and existing in the future. These pasts and futures play a large part in shaping current behavior (Zimbardo & Boyd, 1999). The ability to represent the future provides us with a major source of motivation (Bandura, 1977).

Two models describe some of these differences in motivation by employing alternative perspectives of behavior. Future time perspective (FTP) theory looks at a person's perception to the framework of time, whereas Expectancy-Value looks at a person's perception of objects that populate the time space.

FTP theory looks at aspects of motivation through the paradigm lens of time (Duane Shell, personal communication, 2005). Research tells us that future time perspective (FTP) affects human motivation and behavior (Seijts, 1998) and has been linked to numerous positive and negative outcomes. When people think about a future event they are extending their consciousness and expectations ahead into a potential future time (Suddendorf & Busby, 2005). If your perception

into the future is short, you may have a vague idea about your long-term goals, but they are not clear and they are difficult to visualize. Conversely, with an extended time perspective, you can easily conceive of the appropriate actions to take.

Preference for a timeframe as opposed to preference for specific situational outcomes distinguishes FTP as temporal. If a person perceives long term future goals as more important than short term goals, the person will be more willing to sacrifice proximal self-pleasing distractions in favor of activities more likely to achieve those future goals.

Expectancy-value theory focuses on motivation through the properties directly attached to individual goals and behaviors. It may be viewed as many theories of motivation including theories regarding interest, goals, self-determination, and self-efficacy. High expectations are influenced by feelings of high self-efficacy and the value assigned to an outcome will be influenced by the importance of that outcome.

It is perfectly reasonable to say, "I do the work in this education class because it will help me become a better teacher." The statement establishes a direct connection between a behavior object (performance in class) and a goal object (becoming a better teacher). It therefore fits nicely within the Expectancy-Value theory. A different approach would be the statement "The future should be considered when making plans." This kind of statement should apply more to the time perspective theory because it refers more to time and not to any specific action. If a pre-service teacher in a teacher-prep-course has confidence is doing

well in the course but does not value the job of a teacher, the student will not feel motivated to engage in the current activities. Conversely, if the student highly values becoming a teacher and desires the ultimate goal of becoming a teacher but has no confidence in his ability to do well in the current class, motivation will also be low. It is only when both the expectancy that a task can be successfully accomplished and the value of the resulting outcome are at least moderately high motivation will be engaged and the student is moved to action.

Expectancy-value theory suggests that people orient themselves to the world according to their expectations and valuations. Behavior, behavioral intentions, and attitudes are seen as a function of prediction and evaluation. The probability that an outcome possesses a desired attribute, and the probability that a certain behavior will have a predictable consequence, will be evaluated in terms of affect, either positively or negatively, regarding that attribute or behavioral outcome (Palmgreen, 1984).

Instruments have been developed to measure variance among individuals in each of these respective paradigms. When comparing the questions in the Future Time Perspective Survey (FTPS, Appendix A), based on the Husman and Shell model of FTP (2008), and alternately in the Approach to Learning Survey (ALS, Appendix B), based on Vroom's Valence-Instrumentality-Expectancy (VIE) theory (Miller, DeBacker & Greene, 2000), it seems plausible that many of the questions could cross over into the alternate theoretical construct.

This study addressed three questions concerning these instruments. Will the implementation of the FTPS instrument yield results similar to those observed

by Shell and Husman? Will the implementation of the ALS instrument yield results similar to those observed by Miller, DeBacker and Greene? Will Connectedness, which comes from the FTPS instrument, define a separate factor from that of Perceived Instrumentality, which comes from the ALS instrument?

Exploratory factor analyses were conducted on the FTPS set of questions and on the ALS set of questions and an exploratory factor analysis was conducted on the sub-constructs of FTP-Connectedness and ALS-Perceived Instrumentality to examine the hypothesis that the two questionnaire sub-dimensions were measuring two distinct constructs. The findings of the FTPS analysis described results similar to those found by Husman and Shell (2008). The findings of the ALS analysis described results of diminished resolution as compared to those found by Miller, DeBacker & Greene (2000). The analysis of the sub-scale dimensions of FTPS-Connectedness and ALS-Perceived Instrumentality described separate constructs.

This study lends support to the assertion that Future Time Perspective is a model that describes motivational beliefs that are different from Expectancy-Value. It also suggests that our relationship to time-space is in somehow different from our relationship to the motivational objects that occupy that time-space.

Chapter II

REVIEW OF LITERATURE

Within the theoretical domain of motivation, many approaches have been presented to explain factors that influence an individual's movement from a less desirable condition to one that appears more desirable. A common theme in this area involves how much a desired outcome is worth, and what the individual either will or can do to achieve it. Two theories that address this theme are Future Time Perspective (FTP) and Expectancy–Value (EV). Even though both theories look at very similar aspects of human behavior, the descriptions and paradigms employed are quite different. What follows is a brief review of these two theories and an attempt to come to a determination regarding how their differences may be identified and measured.

Future Time Perspective

When speaking about time as a perceptual phenomenon, we must recognize that, in addition to its objectively scientific attributes, time is subject to individual psychological interpretation (James, 1890/1950). As functioning living beings, we are aware of our existence in the ever-present "now." We perceive it as that instant between past and future where we see, hear, and touch the world around us. It is also the one and only place along the time continuum where we are able to exercise direct control and influence.

Because we are also sentient beings, we are aware of ourselves as having existed in the past, through our memory, and existing in one or more possible futures through our aspirations, ideas, and speculations. These psychological pasts

and futures play a large part in shaping current behavior (Zimbardo & Boyd, 1999). It is the way in which individuals perceive the concept of time that is fundamental in understanding how our goals and motivations lead to action (Kauffman & Husman, 2004). The ability to represent the future provides us with a major source of motivation (Bandura, 1977).

The psychological concept of time has been examined in various disciplines for many years (Zimbardo & Boyd, 1999). Several views have been considered in attempting to describe a time perspective model. Kastenbaum (1961) defined it as simply a general concern for events that happen in the future. Wallace (1956) described time perspective as the length of time extending into the future where a person visualizes personal future events. According to Lewin, time perspective may be thought of as "the totality of the individual's views of his psychological future and his psychological past existing at a given time" (1951, p.75). In his observation, the way individuals respond and act is “influenced by the manner in which they see the future [as manifested] by their expectations, fears, and hopes" (Lewin, 1939, p. 878). By processing these cognitive representations of expected future outcomes, individuals may then generate, modify or abandon their current behaviors and strategies (Bandura, 1977).

Research indicates that future time perspective (FTP) produces a profound effect on human motivation and behavior (Seijts, 1998). Foreshortened FTP has been linked to delinquency (Stein, Sarbin, & Kulik, 1968), addiction (Alvos, Gregson, & Ross, 1993; Apostolidis, Fieulaine, & Soulé, 2006; Manganiello, 1978; Smart, 1968), participation in high-risk behaviors, (Rothspan & Read,

1996; Zimbardo, Keough, & Boyd, 1997), and duration of homelessness (Eppel, Bandura, & Zimbardo, 1999; van Doorn, 2006). Conversely, FTP measures have been linked to beneficial outcomes and conditions, which include increased motivation and achievement (De Volder & Lens, 1982; Wolf & Savickas, 1986), program investment (Peetsma, 2000), and positive affect toward instrumental goals (van Calster, Lens, & Nuttin, 1987).

Theories and Current Directions in FTP

Researchers have proposed a variety of models and measures that address the concepts of time perspective and time orientation. The three models presented here describe a representative variety of approaches currently employed in this field of study. It is the third model, outlined by Shell and Husman (2001), which will be used in the current study.

Strathman Model. One way of framing Time Perspective is as a unitary factor (Daltrey & Langer, 1984). Alan Strathman described the single dimension of *Consideration of Future Consequences* (CFC), which refers to "the extent to which individuals consider the potential distant outcomes of their current behaviors and the extent to which they are influenced by those potential outcomes" (Strathman, Gleicher, Boninger, & Edwards, 1994, p. 743). The approach looks at an individual's perception of the importance of immediate outcomes as opposed to more distant future outcomes and how that perspective influences present behavior. Strathman and his colleagues developed the Consideration of Future Consequences (CFC) instrument as a measure of time perspective that identifies how consideration for future consequences affects

decisions about current behaviors. Questionnaire items representative of this instrument include, “Often I engage in a particular behavior in order to achieve outcomes that may not result for many years,” and “Since my day to day work has specific outcomes, it is more important to me than behavior that has distant outcomes” (Strathman, et al., 1994, p. 752). It appears that these items of the CFC dimension combine qualities of both value for future outcomes and the connection between those outcomes and present behavior. It is similar to the “Connectedness” and “value” dimensions described below in the Shell and Husman model. It has shown predictive usefulness when related to concerns for future general health, smoking rates, alcohol use, and environmental behavior (Strathman, et al., 1994).

Zimbardo Model. In order to describe time perspective in a broader sense that includes past, present, and future, Philip Zimbardo and his colleagues describe time perspective using a multidimensional model. In their explorations, time perception is organized into five dimensions, where two dimensions represent aspects of past, two represent aspects of the present and one represents the future. They describe “the manner in which individuals and cultures partition the flow of human experience into distinct temporal categories” (Zimbardo, et al., 1997, p. 1008).

The five constructs in the Zimbardo model describe different dimensions of how individuals relate to time. *Past Negative* is a construct that implies a rather pessimistic attitude towards the past and/or a possible fixation on negative life events. *Past Positive* is marked by a sentimental and positive view of the past

indicating that attitudes about the past are more favorable and romantic. *Present Hedonistic* is associated with the desire for spontaneous pleasure with little consideration of risk, or concern for what may happen in the future. It points to a "thrill seeking" attitude towards time and a life that focuses on pleasures that can be obtained immediately. *Present Fatalistic* is defined by a lack of optimism for the future and a belief that uncontrollable forces determine one's fate. The present-fatalistic time perspective reflects a view of life that is hopeless, fatalistic and influenced more by luck than by personal control. *Future* is characterized by a desire to make plans and follow through in achieving long-term goals. A future perspective implies a personality that is focused on future goals and rewards and expresses a willingness to forgo immediate pleasures in the pursuit of future outcomes (Zimbardo & Boyd, 1999).

In this view of FTP, motivational influence is described as the relative value of future outcomes based on their temporal distance from the present which are combined with perceptual valuations of experiences in the past, and the feelings of being connected to those experiences.

The Zimbardo instrument has been used to investigate time perspective relationships ranging from drug use and other risky behaviors (Apostolidis, et al., 2006; Keough, Zimbardo, & Boyd, 2001) to well-being (Drake, Duncan, Sutherland, Abernethy, & Colette, 2008) to post-traumatic reaction (Martz & Livneh, 2007).

Shell & Husman Model. Duane Shell and Jenefer Husman adapted and developed a multiple factor model of FTP that includes the four dimensions of

Extension, *Connectedness*, *Value* and S*peed* (Husman & Shell, 2008). Extension and Connectedness align with De Volder and Lens's (1982) *cognitive* aspect of FTP, which deals with the disposition of the individual toward time intervals and the awareness one possesses for connecting present behaviors to goals. Value and Speed, on the other hand, align with De Volder and Lens's *dynamic* aspect of FTP, which addresses how relative values are ascribed to goals and how those values change as deadlines approach. To elaborate, the four qualities of the Shell and Husman model will be examined individually.

Description of the Time-Space. The construct of *Extension* is described in terms of how far into the future a person tends to project thoughts (Daltrey & Langer, 1984). When people think about a future event, like an upcoming party on Saturday night or how life may be after graduation, they are extending their consciousness and expectations ahead into a potential future time (Suddendorf & Busby, 2005). This may be visualized as analogous to piloting a boat in the fog where Extension represents how far ahead into the fog the boat pilot can see. Measuring FTP-Extension may be likened to measuring the atmospheric qualities of the fog rather than measuring the qualities of the objects in it. If your Extension into the future is short, like that of a pilot peering into dense fog, you may have a vague idea that your goal or destination is out there somewhere, but you find that it is out of sight and difficult to locate. Conversely, with an extended time perspective you are sailing under clear skies, can see your objective clearly, and can effectively plot your course of action. The instrument items are designed to measure a long Extension as greater than six months and a short Extension as less

than six months (e.g., “In general, six months seems like a very short period of time.”).

Speed is the subjective passage or “press” of time as it relates to planning and self-regulation. It is related to how manageable the future seems, how great the tendency to procrastinate appears and the extent to which need for external regulation exists (Husman & Shell, 2008). The construct is represented by the following questionnaire item: “I find it hard to get things done without a deadline” (p. 172).

Value is the relative motivational importance placed on goals based solely on their locations from the present along the time line. It is similar to the “standard [discounted utility] model of inter-temporal choice” (Read, Loewenstein, & Kalyanaraman, 1999, p. 259) in that the farther into the future a goal is positioned, the less value will be assigned to that goal as a motivational object. Within this framework of diminishing value, however, variations among individuals exist regarding the slope of depreciation. A preference for distal goals over proximal goals is assigned higher scores on this dimension. It is preference for a timeframe as opposed to preference for a specific situational outcome that distinguishes this dimension as temporal. If a person perceives long term future goals as being more important than short term goals, when compared to other individuals, the person will be more willing to sacrifice proximal self-pleasing distractions in favor of activities more likely to achieve those future goals. For example, a student with a tendency to value future goals over short-term goals will be more likely to pass-up a “really cool party” in order to better prepare for

an important final exam. Returning to our ship metaphor, if the lookout only searches the water immediately ahead of the boat, he or she could very well see the fish for the next meal and miss the iceberg located farther out until it is too late to do anything about it.

It is difficult to distinguish between preference for future goals and preference for goals that happen to be located in the future, and developing an instrument that addresses preference for timeframe can be indeed problematic. Value, as a temporal dimension in the instrument developed by Husman and Shell (2008), is based on the work of De Volder and Lens (1982). This construct began by assigning time regions to 23 of Nuttin's motivational objects. Objects like "high social status" and "an interesting career" were given a distant temporal location, while objects like "getting good grades" and "going out" were assigned to a more proximal location. The very nature of assigning time frames to specific objects used in this line of research raises the question of whether preference is attached to time over object or object over time. The questions in the Husman and Shell instrument attempt to further clarify the focus of valuation from object to timeframe by referring to goals in as vague a manner as possible while clearly defining a conspicuous region of time for them to occur.

The *Connectedness* construct was introduced by Shell and Husman as a separate dimension of FTP (Husman, 1998). Aspects of the dimension are similar to Strathman's *Concern for Future Consequences* in that they both describe a general tendency to "plan for the future." Strathman viewed his construct as a single dimension with some questionnaire items addressing the connection of

behavior to outcome, while other questionnaire items address the perceived value of the outcome. Shell and Husman treat Connectedness as a sub-dimension that is separate from value. In the Shell and Husman view, Connectedness describes an individual's perceived ability to affect the future by engaging in actions in the present. It is the abstract belief of Connectedness between time-space called *present* and the time-space called *future* that distinguishes the construct (Shell & Husman, 2001). Referring again to our ship in the fog analogy, Connectedness could be likened to comprehending the intent of a series of channel markers stretching from your present position through a treacherous passage to a safe destination. Following each marker to the next will guide you to where you want to go, even though you are unable to directly see your destination.

FTP as a Predictor of Motivation. Regardless of the individual differences and approaches described in these three models of FTP, the survey questions in each of these models strive to address beliefs that are related to time. These beliefs influence decisions concerning present activities, which are ultimately intended to yield a desirable future. Because the survey questions address the person's perceptions of the nature of time and the relative values assigned to regions within the time-space, predictions of motivation will be general or global in nature. The constructs are viewed as moderately stable across situations and demonstrate an ability to forecast a level of relationship between current behaviors and future outcomes across a wide variety of conditions.

The Connectedness measure of FTP in the Shell and Husman model, however, appears to exhibit commonality with the instrumentality dimension of the Expectancy-Value theory.

Expectancy-Value

Expectancy-value theory may be conceptualized as an amalgamation of many diverse theories of motivation including theories regarding interest, goals, self-determination, and self-efficacy. For example, high expectations for success are influenced by a high sense of self-efficacy for a particular task if the individual is oriented toward mastering those task goals (Wigfield & Eccles, 2002; Wigfield, Tonk, & Eccles, 2004). Similarly, the value assigned to an outcome will be influenced by the importance of the outcome as perceived by the individual and by an extended and enduring intrinsic interest in the outcome. When combined with the freedom to choose tasks, which support the pursuit of an endeavor in a meaningful way (Flowerday & Schraw, 2000), motivation to engage in that task will be high because it is perceived as directly instrumental in accomplishing the desired goal.

As conceived by Eccles and her collogues, the construct is multiplicative in its relation to motivation and is often expressed by the formula: Expectancy × Value = Motivation. The three variables in this equation each range from zero (low) to one (high). Mathematically this implies that as both *expectancy* and *value* approach a value of one, motivation will likewise approach a high score of one. However, if either one of the variables approaches zero, motivation will correspondingly approach a lower value. Therefore according to this theory, an

individual's motivation to action is defined as the product of the perceived value of an outcome and the expectation of success in achieving that outcome. This relationship can be illustrated by the following example.

If a pre-service teacher in a teacher-prep-course has confidence in his ability to do well in the course but does not value the job of a teacher, the student will not feel motivated to engage in the task activities. Conversely, if the student highly values becoming a teacher and desires the ultimate goal of becoming a teacher but has no confidence in his ability to do well in the current class, motivation will also be low. It is only when both the expectancy that a task can be successfully accomplished and the value of the resulting outcome are at least moderately high that motivation will be engaged and the student is moved to action.

Motivation to achieve success and avoid failure was viewed by Atkinson (1957) as an internal calculus of risk-taking behavior. Incentive toward action is thought that is part of Expectancy-value theory (EVT). Major credit is attributed to the work of Martin Fishbein in the 1970s and is directly linked to uses and gratifications theory. EVT theory was proposed to clarify and explain an individual's attitudes with respect to objects and actions (Fishbein & Ajzen, 1974). It was an attempt to describe the unconscious, subjective calculations involving all of an individual's beliefs and values that produce a single response. This response is subsequently displayed as observable behavior. It is described numerically as the sum of all possible pairs of expectancies multiplied by their respective value assignments. (Figure 1).

Figure 1: ***Expectancy-Value Equation***

$$A = \sum_{i=1}^{n} b_i v_i$$

Note: A = activation response toward a specific behavior, b_i = perceived belief concerning task efficacy, v_i = corresponding perceived value of expected outcome

Theories and Current Directions in EV

Eccles and Wigfield Expectancy-Value Model. *Expectancy*, as described by Expectancy-Value theory, is an individual's belief in the ability to successfully perform a task that will lead to an outcome. *Value* describes the perceived desirability of the outcome that will result from performing the task. Expectancy–value is, therefore, a measure of a certain behavior–outcome combination, based on the perceived situation and subjective value of the behavior as it relates to the outcome and the self-efficacy of the individual in completing the task (Wigfield et al., 1997).

Expectancy-value theory suggests that people orient themselves to the world according to their expectations and valuations. Behavior, behavioral intentions, and attitudes are seen as a function of prediction and evaluation. That is to say, the probability that an outcome possesses a desired attribute, and the probability that a certain behavior will have a predictable consequence, will be evaluated in terms of affect, either positive or negative, regarding that attribute or behavioral outcome (Palmgreen, 1984).

This is very close to Albert Bandura's (1986, 1991) description of self-regulation, which he characterized as involving three component behaviors of "self" beliefs: *observation*, *evaluation*, and *reaction*. *Self-observation* and behavioral monitoring would be used to recognize the attributes of motivational objects; *self-evaluation*, sometimes called *self-judgment,* would be used to place relative value on the outcomes and behaviors required to achieve them; and *self-reaction* would be used to choose and execute the particular behavior required to move toward the desired outcome.

Vroom's Valence-Instrumentality-Expectancy Theory (VIE). The construct of instrumentality is a key addition in the classic Expectancy-Value equation (Atkinson, 1957; Vroom, 1964). Introduced by Victor Vroom (Eerde & Thierry, 1996), the construct elaborates the expectancy side of the Expectancy-Value theory in that it further describes how successful performance of a task relates to outcome (e.g., "I do the work assigned in this class because my achievement is important for attaining my dreams") (Malka & Covington, 2005, p. 67). Instrumentality refers to the degree of perceived usefulness or utility of the present task in the attainment of present and future goals (Vansteenkiste, et al., 2004). In the sample question, it is apparent that the focus of instrumentality concerns the successful completion of a task and its relation to the outcome, rather than to a perceived ability in performing the task. It is a subtle but arguably significant change to the Expectancy-Value model. While both expectancy and instrumentality describe connections of behavior to outcome, *expectancy* describes the connection between effort and performance, whereas *instrumentality*

describes the connection between achievement and outcome (Sheppard & Taylor, 1999).

Comparing Measures of FTP and VIE

Both the FTP and VIE models attempt to predict motivation by linking behaviors to outcomes, but they differ in one important aspect. FTP focuses on general, or global, connections between behaviors and goals based on the individual's perception of the nature of time. The perceived properties of time itself are the factors that influence perceptions of behaviors and goals. By contrast, VIE focuses on the motivational properties attached directly to specific goals and behaviors, without taking into consideration any temporal aspects. The difference lies in which theoretical lens is used to observe the phenomenon.

The unavoidable interrelatedness of time and motivational objects. It is impossible to completely separate Expectancy-Value from the context of time because behaviors and goals are inseparably linked to specific locations within the temporal continuum. Behaviors are inflexibly restricted to the temporal "now" and by definition, goals are inescapably located in the future. The difference is subtle and ultimately a matter of focus. Within the Expectancy–Value framework, the emphasis is focused on the relative value of the specific goal regardless of its position in the time-space, and the perceived likelihood that performing a task will result in achieving that goal.

Héfer Bembenutty (2008) looked at the expectancy–value analysis with respect to delay of gratification by comparing delay and non-delay alternatives (immediate gratification vs. delayed gratification) in terms of *liking*, *importance*

and *expectancy*. Consistent with Expectancy-Value theory, she concluded that learners' willingness to delay gratification depends on their expectancies, beliefs, and values regarding the activities and outcomes in question. Although the motivational determinants were located differentially in time, the motivational effect of the distal object (e.g., getting a good grade) and the proximal object (e.g., going to a party) was measured in terms of the relative value and expectancy of the specific objects and behaviors rather than the importance of their placement along the time continuum.

Similarly, it is difficult, if not impossible, to describe one's connection between present and future, or the amount an individual values future over present, without including specific outcomes positioned somewhere in the time space. Kelli Keough and her Stanford colleagues (Keough, et al., 2001) looked at delayed vs. non-delayed gratification using the lens of time perspective as it related to recreational drug use. In their study of 2727 participants, those who reported more frequent alcohol, tobacco, and drug use also reported higher score of Present Time Perspective (PTP) and lower scores on FTP as measured by the Zimbardo Time Perspective Scale (ZTPS).

A similar comparison of immediate gratification vs. delayed gratification was made by Peter Hall and Geoffrey Fong (2003) using both goal setting and FTP models. In this study, two intervention groups and one control group were observed. One treatment group was given instructions designed to enhance the relative value of specific health goals resulting from physical effort over the immediate pleasure of not putting out the effort. The other treatment group was

given instructions designed to generally focus on the value of distal outcomes over proximal outcomes, in addition to the goals instruction. Results showed greater outcome measures of the FTP group above those of the goal-setting group.

Additional evidence of FTP-EV interaction is found in a study of Belgian high school students. Findings indicated that emphasizing the instrumental value of a current task was more effective on student motivation when students possessed a more positive attitude towards their future in general. They also found a negating effect on instrumentality in students who had a negative attitude towards their future (van Calster, et al., 1987).

Research seems to indicate that motivational influence can be ascribed to an individual's perceptions and values of specific objects as well as to an individual's perception and relationship to time. The question remains as to how these concepts may be reliably differentiated and measured as independent constructs.

FTP-Connectedness vs. VIE-Instrumentality

It would seem that even though these two approaches now address different paradigms and have diverged into different frames of reference, some of the constructs used in these two models appear to be looking at similar relationships. Perhaps the most notable intersection, which is the focus of this study, is the one between the constructs of FTP-Connectedness and VIE-Instrumentality. The questions in this study regarding instrumentality are taken from the Approach to Learning Survey (ALS) developed by Miller, et al. (2000). They assert to measure the level of belief that successful performance on a task

will lead to a valued outcome. Questions concerning Connectedness, which are part of Future Time Perspective Survey (FTPS) by Husman and Shell (2008), assert to measure the individual's belief that the present is fundamentally connected to the future.

If these survey instruments are in fact measuring two different phenomena of belief, they should identify individuals who possess all four possible combinations of strong or weak connection of present to future, combined with strong or weak feelings of instrumentality of task to outcome. If the survey instruments are instead measuring the same belief system, no such difference should be observed. Furthermore, individual questions on each survey should not demonstrate a differential commonality and all items should co-vary as a single factor.

The purpose of this study is to test the tacit assumption that Connectedness, as measured by the FTPS, and perceived instrumentality, as measured by ALS, are in fact separate and distinct constructs, and specifically that measurement instruments designed to assess different constructs will diverge into independent factors.

Hypotheses and Predictions

This study presumes that the conceptual models of FTP and VIE described above are valid and that instruments designed to measure the constructs described within their respective models will yield distinct, if somewhat related, results. The study further presumes that individual questionnaire items regarding the constructs of ALS-Perceived Instrumentality and the temporal construct of FTP-

Connectedness will factor onto their theoretical constructs as described in previous works.

This study hypothesizes that the instruments addressing FTP-Connectedness and of ALS-Perceived Instrumentality will demonstrate individual and distinct factor loadings, and correlations between the two instruments will exist when the individual's general beliefs about present actions with respect to the future agree with beliefs about specific actions and specific futures.

H1: An exploratory factor analysis of the FTPS instrument, conducted on the current sample, will similarly replicate a four-factor solution as published by Husman and Shell (2008).

H2: An exploratory factor analysis of the ALS instrument, conducted on the current sample, will similarly replicate a five-factor solution as published by Miller, et al. (2000).

H3: The two theoretically consistent constructs of FTP-Connectedness and ALS-Perceived Instrumentality will demonstrate a two-factor solution with some shared variance between the factors.

Chapter III

METHOD

Sample and Participant Selection

The number of participants in this study was 208. The targeted sample size of 200 was chosen to support statistical power for the Exploratory Factor Analysis (EFA) comparison between FTPS-Connectedness and ALS-instrumentality subscales (17 total questions). This represents a subject-to-item ratio of almost 12:1 (Costello & Osborn, 2005). The EFA checks of the FTPS and ALS demonstrate subject-to-item ratios of 7:1 and 10:1 respectively fall within the rule-of-thumb sample size employed by researchers (Costello & Osborn, 2005; Miller, et al., 2000).

Assessments and Measures

Two assessments were used to collect data for this study. The Future Time Perspective Survey (FTPS) developed by Husman and Shell (2008) was used to collect information for time perspective and the Approaches to Learning Survey (ALS) (Miller, et al., 2000) was used to collect data for expectancy value. Both questionnaires were given in their entirety and in order to reduce disruption to the participants, the questions were randomized within their individual sets and combined into a single instrument.

Presentation was balanced with half receiving version A, with the FTPS questions appearing first (Appendix C) and half receiving version B, with the ALS questions first (Appendix D). All questionnaire items were measured on a

five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The FTPS is a combination of four subscales, which consist of *Speed*, *Extension*, *value* and *Connectedness*. Each of these subscales intends to measure a separate aspect of FTP. The FTP-Speed subscale addresses the subjective "press" of time. It is defined as the score on three questions dealing with the approach of deadlines and the need to begin a task. FTP- Extension looks at how far into the future an individual extends the time-space. The five questions in this subscale are concerned with the point in time that is six months into the future, and whether the time-space on either side seems near or far. FTP-Value looks at the relative importance of values depending on where in the time-space they exist. For example, when success or pleasure has greater value if it is farther into the future, it would indicate a more future orientation on the value scale. FTP-Connectedness is defined as the score on items (12 questions) that address an individual's perception of just how present is related to future.

The ALS is a combination of five subscales, which consist of *learning goals*, *performance goals*, *perceived instrumentality, intrinsic valuing* and *extrinsic valuing*. Each of these subscales intends to measure a separate aspect of Expectancy Value. The ALS-Learning Goal subscale consists of three questions that address task completion that has its own reward. The ALS-Performance Goal subscale consists of six questions about task completion as it relates to others' perception of social worth. Perceived Instrumentality is defined as the score on items (5 questions) that look at task completion as it relates to goals and

aspirations. The ALS-intrinsic Value subscale consists of three questions that address the internal value of the subject matter in question and ALS-extrinsic value consists of three questions dealing with the value of the subject matter as it relates to goals.

Procedures

Selection of the participants. Undergraduate pre-service teachers were chosen in order to maintain similarity as much as possible to the sample populations used in both by Husman and Shell (2008) and the Miller et al. (2000). Both the Husman and Shell studies and the Miller et al. study used samples drawn from a population of undergraduate university students taking courses in educational psychology in preparation for a career in education. The participants in the current study were drawn from a similar population of undergraduate pre-service teachers enrolled in educational psychology.

As partial fulfillment of their educational psychology course requirements, all UNM pre-service teachers in the program are required to experience an "actual" psychology study as research participants. No coercive measures were imposed on the participants beyond that of the class requirement, and participants were able to deselect themselves at any time during the process.

Description of the Questionnaire. Participants were given a packet of material which included a cover sheet and brief explanation of the study (Appendix E), the consent form (Appendix F), either version A or version B of the *Pre-Service Teachers Multiple Construct Survey*, which contained all of the item questions in the ALS (Miller, et al., 2000) and the FTPS (Husman & Shell,

2008) combined into a single instrument; the final page in the packet consisted of a demographics form (Appendix G).

The explanation of the study was a single page cover letter in large font describing the purpose of the study, the type of instrument they will using and a framework mindset to use for some of the questions. This was followed by an "Informed Consent Cover Letter for Anonymous Surveys." This gave more detailed information concerning the study and the researchers involved. It also described participant rights and grievance procedures in place should the participant feel that the study was in any way harmful or inappropriate. Because the study was anonymous, no request or requirement of a signature was made.

The next three pages consisted of one of the versions of the questionnaire. Both versions were identical in appearance and presented 60 questions using a Likert style format ranging from 1 (strongly disagree) to 5 (strongly agree). The only difference in the versions of the questionnaires was that Version A presented the Time Perspective questions first whereas Version B presented the Approach to Learning questions first.

The final page of the questionnaire packet contained demographic questions including age, gender, current level of education, current educational psychology class, hours of employment while taking classes, age group of future students, subject area endorsement, and expected start of student teaching. Ethnic or cultural identity was not asked.

Administration of Assessments. The participants were instructed by their educational psychology instructors to contact the Ed Psych experimental

laboratory to schedule a session in the lab. At their assigned appointment, the participants were given a general orientation and informed that they would participate in one or more experiments, of which the current study was included. Experiment sessions accommodated six to eight participants at a time and data collection took place over the span of two semesters. Because of the extended nature of the data collection, a new set of questionnaires was provided to the lab each month. This was done to ensure that questions 16 and 26 in version A and questions 49 and 59 in version B contained the specific month, which was six or seven months in the future.

Participants were informed that because two theories of motivational beliefs are being compared, they may feel that they are answering some redundant questions. They were instructed to recognize this as an unavoidable result of this type of study and to answer each question as independently from each other as possible.

Method of analysis

Demographics. In order to describe the participants more fully, general demographics were requested. Personal information consisted of age and gender. Current life situation included level of education and level of job demands while taking college classes. Questions regarding future teaching consisted of grade of future students, specialty area, and when student teaching would begin. Ethnic identity was not collected, which proved to be a limitation of the study.

Primacy effect. This study investigates the comparison of subscales taken from two questionnaires that may be closely related. It was considered possible

that questions on one of the questionnaires might influence or bias responses on the other questionnaire. To check for this possibility, half of the participants answered questions from the FTPS first while the other half of the participants answered questions from the ALS first.

Internal consistency of subscales. Cronbach's alpha was used to test for internal reliability on each of the four FTPS subscales and the five ALP subscales. This measure describes the mean of the correlations between all sets of half the items comprising a scale. Because several scales consisted of only three items, it was expected that alphas for these scales will be less stable. Skew and kurtosis measures were also taken to test for normality.

Factor Analysis of Data. An Exploratory Factor Analysis was chosen to compare the subscales of FTP-Connectedness and ALS-perceived instrumentality. This method was used in order to allow items to freely load on both factors. It was assumed that this analysis for the current study resided in a more exploratory context as it regards the comparison of instruments from differing theoretical origins.

The EFA was also chosen to examine the results of all subscales of the FTPS and ALS questionnaires as a theory screening exercise. This method was chosen because the purpose of examining the instruments in their entirety was to demonstrate similar published findings rather than to perform conformation analysis on constructs that may still be under development.

Examination using the Pattern Matrix. In the Factor Pattern Matrix, the elements are similar to standardized regression coefficients. Each matrix element

represents the importance that the variable contributes to the factor with the influence of all other overlapping variables partialled out (Stevens, 2002). That is, each element is an estimate of the unique contribution of each factor to the variance of the variable (Tabachnik & Fidell, 2007). In the Factor Structure Matrix, the elements are simple Pierson-like correlations of the variables with the factors (Stevens, 2002). For the structure matrix, no influences from other variables are partialled out. If the factors are orthogonal, the structure in the pattern matrix will be identical to the structure matrix. In this study the factors are assumed to exhibit a measure of correlation, therefore, the pattern matrix was chosen for interpretation as each element accounts for the unique contribution of each factor to the variance of each factor to the variable.

Chapter IV

RESULTS

This study tested the assumption that one measure derived from FTP theory and a seemingly related measure derived from EV theory are measuring independent phenomenon as defined by their underlying theoretical foundations. This chapter presents the results of the data collection, preparation and analyses that were used in addressing the research questions of the study.

The following research questions were addressed in this study: Will an exploratory factor analysis of the Future Time Perspective Survey (FTPS) demonstrate a similar pattern structure as previously published by Husman and Shell (2008)? Will an exploratory factor analysis of the Approach to Learning Survey (ALS) demonstrate a similar pattern structure as previously published by Miller et al. (2008)? Will the two theoretical subscales of FTP-Connectedness and ALS-Perceived Instrumentality describe separate factors?

Examination of the Data

Demographics. Two hundred eight university undergraduates participated in the study. One hundred forty six (70%) were female, 61 (29%) were male and one did not report. All were taking educational psychology classes, which consisted of a human development course (82, 39%) or a classroom learning course (102, 49%) to fulfill the educational psychology requirement of their teacher training program. Some were concurrently enrolled in both classes (23, 11%). Most of the participants reported that they intended to pursue a career in elementary education (100, 48%) or secondary education (63, 30%). A few

reported an intent to pursue a more specialized teaching endorsement (Early Child = 11, 5%, Middle School = 20, 10%, K-12 = 10, 5%, and Adult Basic Education = 4, 2%). The participants reported the goal of becoming a good teacher ($M = 4.79$, $SD = 0.55$) and helping students achieve their potential ($M = 4.84$, $SD = 0.47$) as being very important. Most were traditional students (69% < 25 years, $M = 25.27$, $SD = 7.79$) but ranged in age from 18 years to 59 years. About a quarter of the participants had already begun student teaching (47, 23%), while the majority expected to begin student teaching within one or two semesters (116, 56%).

Check for primacy effect. Approximately half (N = 105) of the questionnaires presented the FTP questions first while the other half (N = 103) presented the ALS questions first. A t-test was performed on the four theoretical sub-dimensions of the FTPS and five theoretical sub-dimensions of the ALS. Examination of t-tests for all nine sub-dimensions presented significance results of 0.08 or greater. After applying the Bonferonni correction for multiple tests to the standard 0.05 significance level (Abdi, 2007), the resulting significance alpha of 0.006 was used. It was determined that no significant differences were present due to order of presentation (Table 1).

Check for internal consistency. Cronbach's alpha was used to assess the reliability of the instrument subscales of FTPS and ALS. This alpha is an estimate of the correlation expected between two tests drawn at random from a pool of items like the items in this test (Cronbach, 1951). Investigation revealed that the alpha coefficients compared favorably for the subscales of FTP-Connectedness (Husman & Shell, 2008) and ALS-Perceived Instrumentality (Miller et al., 2000)

with respect to previously reported results (Table 1). These results suggest that measures of internal consistency remained relatively stable across samples (Thorndike, Cunningham, Thorndike, & Hagen, 1991).

Table 1:

Primacy Check t-Test and Cronbach's α

	Subscale	Mean	SD	t-Test for Equality of Means	t-Test Significance (2-tailed)*	Cronbach's α for current study	Cronbach's α from published data **
FTPS							
	Speed	3.11	0.89	1.58	0.12	0.64	0.72
	Extension	3.14	0.73	-0.08	0.93	0.68	0.74
	Value	3.33	0.56	0.76	0.45	0.66	0.72
	Connectedness	4.36	0.47	1.73	0.08	0.83	0.82
ALS							
	Learning Goal	4.33	0.33	-0.47	0.64	0.64	0.84
	Performance Goal	2.24	0.96	-0.28	0.78	0.68	0.90
	Perceived Instrumentality	4.46	0.64	-1.34	0.18	0.85	0.91
	Intrinsic Value	4.04	0.82	-0.29	0.77	0.83	0.84
	Extrinsic Value	4.31	0.72	-1.41	0.16	0.80	0.89

* Bonferonni correction for t-test Significance: $\alpha = 0.006$

** Published data: FTPS - Husman & Shell, 2008; ALS - Miller et al., 2000.

Assumptions of normality. The data were evaluated for normality. One of the four FTPS constructs and four of the five ALS constructs displayed skewed distributions. All of these constructs were weighted towards the high end of the scale, resulting in a negative skew for those dimensions (Table 2).

With the exception of Connectedness and learning goal, all of the dimensions exhibited evidence of kurtosis (Table 2) falling outside the range of 2.51 to 3.57 (Ott, 1977).

Table 2

Descriptive Statistics

	Subscale	Means	SD	Skewness[1]	Kurtosis
FTPS					
	Speed	3.11	0.89	-0.196	-0.392**
	Extension	3.14	0.73	0.160	-0.238**
	Value	3.33	0.56	0.183	0.093**
	Connectedness	4.36	0.47	-0.613*	-0.259
ALS					
	Learning Goal	4.33	0.33	-1.462*	3.018
	Performance Goal	2.24	0.96	0.320	-0.883**
	Perceived Instrumentality	4.46	0.64	-1.426*	2.247**
	Intrinsic Value	4.04	0.82	-1.175*	1.730**
	Extrinsic Value	4.31	0.72	-1.542*	3.169**

* Statistically Significant for Skewness at $\alpha = 0.05$

[1] N = 208, Standard Error = 0.169, $Z_{\alpha(2\text{ tailed})} = 1.96$

** Falls outside limits of kurtosis (2.51 to 3.57)

Even though non-normality was observed, this was determined not to pose an insurmountable obstacle because the normality assumptions for exploratory factor analysis are not as stringent as for other multivariate procedures. "If variables are normally distributed, the solution is enhanced. To the extent that normality fails, the solution is degraded but may still be worthwhile" (Tabachnik & Fidell, 2007, p.613). As a result, the findings drawn from this sample may have diminished resolution but meaningful results were still present.

Factor Structure of the FTPS Data

Analysis of FTPS Data. An Exploratory Factor Analysis (EFA) of the FTPS data in the current study was conducted. The results presented here affirmatively address the first hypothesis that an exploratory factor analysis of the

FTPS instrument will similarly replicate a four factor solution as published by Husman and Shell (2008).

The SPSS option for handling missing data using the "exclude cases listwise" option was taken. Six cases were eliminated because one or more of the questionnaire items were unanswered, which resulted in 202 cases retained. Factors extraction was performed using principle axis factoring (PAF). This has been demonstrated to be robust to threats of multivariate non-normality (Costello & Osborne, 2005). Bartlett's test of sphericity was conducted to confirm the suitability of the data set for factor analysis (Stevens, 2002). Results for the FTPS items indicated that the covariance was suitable ($\chi^2 = 1575.94$, $df = 351$, $p < 0.001$).

Promax oblique rotation was selected in order to examine evidence for correlations among the factors to simplify and clarify the interpretability of the factor structure. The PAF was performed using SPSS (2008) on 27 items from the Husman & Shell (2008) FTPS instrument. Eight factors were extracted, which accumulated 44.8% of the variance over the factors. The Kaiser criterion and examination of the scree plot indicated that eight factors be retained (Stevens, 2002).

Upon examination of the pattern matrix (Table 3), it was observed that two questionnaire items, SHC06 & SHC12, represented the only items in their respective factors with a factor loading greater than 0.32, and the items SHV04, SHV05 and SHC04 had no factor loadings in any factor greater than 0.32. Absolute values for factor loadings greater than 0.32 was chosen as the rule of

thumb criterion for interpretation as a measure of the factor (Tabachnik & Fidell, 2007).

Table 3:

Pattern Matrix for Husman & Shell FTP Scale – 8 Factor

Pattern Matrix								
	Factor							
	1	2	3	4	5	6	7	8
SHS01	-.123	.154	.101	.031	**.480**	.020	-.107	.062
SHS02	.033	-.046	.079	-.051	**.619**	-.066	-.041	.045
SHS03	.036	-.061	-.052	.017	**.761**	.114	-.018	-.126
SHE01	.140	.053	-.056	**.570**	-.007	-.096	.070	-.081
SHE02	-.034	.047	.093	-.015	-.113	-.146	**.418**	-.037
SHE03	.074	-.012	-.074	.249	-.010	.035	**.640**	.120
SHE04	-.061	.054	.115	**.460**	-.018	.086	.220	-.189
SHE05	-.024	-.058	-.046	**.894**	.014	-.059	-.075	.011
SHV01	.141	-.112	**.468**	.133	.091	.060	-.066	.218
SHV02	-.101	-.078	**.375**	.114	-.129	.198	.092	.167
SHV03	-.135	.110	**.543**	.030	.056	-.128	.021	.031
SHV04	.062	.078	.091	.132	-.042	-.076	-.168	.064
SHV05	-.089	.141	.270	-.006	.096	.191	.118	.021
SHV06	.123	-.039	**.686**	-.214	-.109	-.046	-.011	-.083
SHV07	.029	-.011	**.763**	-.004	.092	-.005	.038	-.021
SHC01	**.740**	.157	-.019	.047	.067	-.063	.024	.087
SHC02	**.702**	.024	.060	.176	.016	-.062	-.062	-.092
SHC03	**.462**	-.066	-.078	.026	-.081	.132	-.120	.197
SHC04	.111	.073	-.058	.035	-.049	.249	-.089	-.021
SHC05	.042	**.361**	.128	.175	-.110	.224	-.249	-.049
SHC06	.419	.099	.046	-.147	-.020	-.035	.023	**.589**
SHC07	.005	**.774**	-.121	.019	.026	.099	-.005	.064
SHC08	**.669**	-.075	.064	-.077	-.040	.088	.112	.140
SHC09	.188	**.615**	-.061	-.115	.032	-.011	.066	.216
SHC10	-.059	**.829**	.112	.035	.023	-.180	.025	-.016
SHC11	.100	**.439**	-.030	-.082	-.046	.222	.078	-.288
SHC12	.035	-.039	-.035	-.090	.060	**.839**	-.074	-.024

Note: Loadings greater than 0.32 are bolded. Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization. Rotation converged in 8 iterations.

All five of these questionnaire items were eliminated and the factor analysis was performed again. This time the PAF analysis using promax oblique rotation resulted in six factors and accumulated 44.5% of the variance. Because eliminating these five questionnaire items resulted in a loss of 0.3% of the explained variance, it was determined that the item's removal was justifiable.

It was observed that the FTP-Extension theoretical sub-dimension (Table 4) resulted in two moderately correlated (0.374) factors (Table 5). This may be due to a subtle distinction in the nature of these questionnaire items. Three of the items in the construct appear to deal with valuing the relative proximity of a specific, quantifiable period of six months. For example in the version of the questionnaire administered in February, item SHE01states, "August seems like a long way off." The other two questionnaire items ask about the relative proximity of more subjective measures of time duration. Item SHE02 states, "It often seems like the semester will never end."

Investigation of the FTP-Connectedness theoretical construct (Table 5) also revealed two separate but highly correlated factors (0.662). Items within one of these factors seem to address the idea of connecting the present to the future through actions. Questionnaire statements in this factor take on the form of "One should be taking steps today to help realize future goals." The other related factor seems to address a general awareness or consideration for the idea of "future." Items in this factor take the form of "I don't think much about the future."

Table 4:

Pattern Matrix for Husman & Shell FTP Scale – 6 Factor

Pattern Matrix						
	Factor					
	1	2	3	4	5	6
SHS01	.093	.094	.039	-.084	**.436**	-.091
SHS02	-.069	.078	-.052	-.011	**.650**	.015
SHS03	-.012	-.084	.065	-.038	**.710**	-.031
SHE01	.033	-.042	**.525**	.118	.036	.075
SHE02	-.025	.101	-.045	-.065	-.058	**.497**
SHE03	.001	-.087	.324	.033	-.025	**.562**
SHE04	.136	.096	**.514**	-.155	.018	.176
SHE05	-.115	-.034	**.909**	.022	.007	-.141
SHV01	-.096	**.483**	.104	.165	.031	-.009
SHV02	-.016	**.388**	.155	-.061	-.190	.096
SHV03	-.019	**.515**	.030	-.062	.048	-.029
SHV06	.029	**.636**	-.203	.033	-.032	.060
SHV07	-.004	**.797**	.010	-.011	.093	.038
SHC01	.264	.021	.003	**.623**	.086	.023
SHC02	.178	.078	.138	**.514**	.056	-.071
SHC03	-.018	-.080	.026	**.549**	-.133	-.152
SHC05	**.529**	.144	.154	-.009	-.120	-.213
SHC07	**.872**	-.124	-.014	-.051	.028	.061
SHC08	-.012	.074	-.080	**.708**	-.060	.096
SHC09	**.592**	-.060	-.125	.201	.000	.057
SHC10	**.740**	.096	.012	-.080	.029	-.031
SHC11	**.566**	-.078	-.014	.022	-.011	.009

Note: Loadings greater than 0.32 are bolded. Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization. Rotation converged in 6 iterations.

FTPS four theoretical factor solution. Because of the correlational structure of the abovementioned factors (Table 4), it was decided to perform the PAF assuming four factors based on established theoretical constructs.

This PAF analysis, using Promax oblique rotation, resulted in a clear separation of the four constructs, which was predicted by theory (Table 6). It yielded 38.7% of the explained variance for a loss of 5.8% as compared to the 6 factor solution (Table 4). This abridged set of FTP-Connectedness items was used for the comparison with ALS-perceived instrumentality.

Table 5:

Correlation Matrix for Husman & Shell FTP Scale

Factor	1	2	3	4	5	6
1	---					
2	.179	---				
3	.282	.191	---			
4	.662	.218	.276	---		
5	-.215	.019	-.217	-.205	---	
6	.159	.054	.374	.187	-.184	---

Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization.

Factor Structure of the ALS Data.

Analysis of ALS Data. An EFA of the ALS data in the current study was also conducted. The results presented here address the second hypothesis that an exploratory factor analysis of the ALS instrument will similarly replicate a five factor solution as published by Miller, et al. (2000). The results did not replicate the findings of Miller and his colleagues, but enough definition in the ALS-Perceived Instrumentality subscale remained that it was possible to examine the third hypothesis of this study.

The SPSS option for handling missing data using the "exclude cases listwise" option was taken. Four cases were eliminated because one or more of the questionnaire items were unanswered, which resulted in 204 cases retained.

Table 6:

Pattern Matrix for Husman & Shell FTP Scale – 4 Factor

	Factors			
	1	2	3	4
SHS01	.035	.096	-.029	**.458**
SHS02	-.066	.074	-.058	**.622**
SHS03	-.028	-.085	.041	**.722**
SHE01	.124	-.029	**.578**	.046
SHE02	-.081	.018	.241	-.112
SHE03	.021	-.139	**.608**	-.088
SHE04	-.004	.067	**.624**	.036
SHE05	-.069	.037	**.719**	.037
SHV01	.050	**.505**	.086	.027
SHV02	-.071	**.378**	.205	-.190
SHV03	-.062	**.518**	-.003	.059
SHV06	.063	**.616**	-.177	-.044
SHV07	-.002	**.789**	.012	.095
SHC01	**.762**	.054	.018	.045
SHC02	**.599**	.121	.092	.044
SHC03	**.431**	-.010	-.057	-.136
SHC05	**.506**	.150	.023	-.060
SHC07	**.781**	-.168	.028	.042
SHC08	**.554**	.107	-.013	-.112
SHC09	**.747**	-.088	-.089	-.005
SHC10	**.645**	.056	-.005	.063
SHC11	**.567**	-.107	.000	.010

Note: Loadings greater than 0.32 are bolded. Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization. Rotation converged in 5 iterations. The factors were interpreted as 1=Connectedness, 2=Value, 3=Extension, and 4=Speed.

Bartlett's test of sphericity was conducted to confirm the suitability of the data set for factor analysis (Stevens, 2002). Results for the ALS items indicated

that the covariance was suitable ($\chi^2 = 2838.51$, $df = 190$, $p < 0.001$). Factors extraction was performed using PAF and Promax oblique rotation was selected in order to examine evidence for correlations among the factors.

Twenty items from the Miller, et al. (2000) ALS instrument were examined. Three factors were extracted, which accumulated 60.3% of the variance over the factors. Both the Kaiser Criterion and examination of the scree plot indicated that three factors should be retained (Stevens, 2002). This number of factors was considerably fewer than was expected from theory. The first remarkable observation of this part of the analysis is that, with exception of the items in ALS-performance goal, most of the items in the constructs loaded onto one factor (Table 7). This may be due in part to the reduced variance caused by the negative skew described above. Further examination of the pattern matrix suggested that two of the questionnaire items, which were intended to represent ALS-Perceived Instrumentality (ALPI1 & ALPI2) loaded onto a separate factor (Table 7).

Two other items from that theoretical construct (ALPI3 & ALPI4) cross-loaded onto that same factor, and the final item (ALPI5) came very near the cut-off value of 0.32 onto that same factor (Table 7). This describes an indeterminate complex factor loading, which may compromise the clarity of the relationships. However, the nature of the loadings was still found to be sufficient to represent the factor of interest (Stevens, 2002). It was therefore determined that the ALS-Perceived Instrumentality construct retained enough resolution to be usable for the comparison with FTP-Connectedness.

Table 7:

Approach to Learning Survey – 3 Factor

Pattern Matrix

	Factor		
	1	2	3
ALLG1	**.632**	.029	.129
ALLG2	**.594**	-.070	.307
ALLG3	**.673**	-.016	.128
ALPG1	.012	**.844**	-.036
ALPG2	-.100	**.759**	.055
ALPG3	-.114	**.718**	.076
ALPG4	.087	**.827**	-.010
ALPG5	.050	**.871**	.012
ALPG6	.034	**.720**	-.052
ALPI1	.000	-.002	**.793**
ALPI2	-.170	.032	**.918**
ALPI3	**.482**	-.034	**.350**
ALPI4	**.542**	.056	**.409**
ALPI5	**.532**	-.014	.284
ALIV1	**.963**	.050	-.308
ALIV2	**.827**	-.006	-.179
ALIV3	**.811**	-.033	-.182
ALEV1	**.529**	-.045	.031
ALEV2	**.798**	.008	.138
ALEV3	**.828**	.024	-.145

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.
Rotation converged in 4 iterations.

Comparison of Connectedness and Perceived Instrumentality subscales.

An EFA was performed on the selected items in the FTPS-Connectedness subscale combined with the items in the ALS-Perceived Instrumentality subscale to compare individual item loadings. The results presented here affirmatively address the third hypothesis that an exploratory factor analysis of the two

theoretical constructs of FTP-Connectedness and ALS-Perceived Instrumentality will demonstrate a two-factor solution with some shared variance between the factors.

The SPSS option for handling missing data using the "exclude cases listwise" resulted in 202 cases retained. The PAF extraction, using promax oblique rotation, revealed three factors, which accumulated 49.7% of the variance. Although the Kaiser criterion indicated that three factors be retained, the scree test indicated that two factors be retained because the magnitude of the eigenvalues leveled off sharply after two factors.

Because FTP-Connectedness resolved into the same two factors as described above (Table 4), it was decided to impose a two-factor solution and run the PAF again. The resulting solution using Promax oblique rotation displayed a clear separation of the FTP-Connectedness and ALS-Perceived Instrumentality constructs that were very nearly orthogonal (Table 8) representing 44.9% of the explained variance. These factors also demonstrated a moderate correlation of 0.390.

Summary

The primary research question in this study asked if FTP-Connectedness, which was developed as part of the research on time perception, and ALS-perceived instrumentality, which was developed as part of the Expectancy-Value theory, were actually measuring two different constructs, or if they were instead addressing one concept viewed in two different ways. The data in this study support the assertion that FTP-Connectedness, which addresses how a person

relates to the concept of time, is different from ALS-perceived instrumentality, which addresses how a person relates to the concept of motivational objects. The data also demonstrated that even though they are separate constructs, they are moderately related (0.390). Intuitively, this would be expected because of the necessary temporal connection of behaviors and goals.

Table 8:

Connectedness and Perceived Instrumentality – 2 Factor

Pattern Matrix

	Factor 1	2
SHC01	**.782**	-.079
SHC02	**.590**	.109
SHC03	**.436**	.006
SHC05	**.517**	.084
SHC07	**.752**	-.040
SHC08	**.588**	.044
SHC09	**.710**	-.042
SHC10	**.639**	.006
SHC11	**.531**	-.003
ALPI1	.008	**.744**
ALPI2	-.004	**.691**
ALPI3	.016	**.703**
ALPI4	.022	**.796**
ALPI5	-.020	**.743**

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.
Rotation converged in 5 iterations.

This study also demonstrated support for the structural make-up of the FTPS questionnaire as previously reported by Husman and Shell (2008). Support was not evident for all five factors of the Approach to Learning Survey (Miller, et al., 2000), which demonstrated non-normal distributions on four of the five

dimensions. Enough resolution remained, however, to be serviceable in the primary research question described above.

Chapter V

DISCUSSION

The Connectedness subscale of Future Time Perspective (FTP) assumes that the concept of time includes the belief that the temporal "now" maintains a perceptual connection to one or more temporal futures. It also assumes that individuals differ in belief regarding the strength of that connection. The "Connectedness" dimension of the Future Time Perspective Survey (FTPS) was designed to access this belief regarding one's connection of the present to the future and that this aspect of time perception has a distinctive and measurable influence on motivation.

Similarly, the concept of "perceived instrumentality" is built on the notion that relevant actions are connected to outcomes. Beliefs regarding the instrumentality of specific actions are connected to results that have assigned values and are built on the assumption that motivational objects are the focal point to which actions are connected.

In order to tap into these phenomenological beliefs, the FTPS and ALS instruments were designed to quantitatively measure variations of these beliefs and each deliver results based on their individual paradigms. The purpose of this study was to establish whether the sub-constructs of Connectedness and perceived-instrumentality in the two instruments are measuring different rather than one single construct.

Comparison of FTP-Connectedness to ALS-Perceived Instrumentality

This study affirmatively satisfies the third hypothesis, which asked if the questionnaire items of FTP-Connectedness and ALS-instrumentality were measuring two separate and distinct constructs. In so doing, the study also lends support to the theoretical assertion that individuals relate to the idea of time differently from the way they relate to the motivational objects positioned within that framework of time.

This may ultimately be a valuable tool in identifying variations in the motivational power of academic goals among students as they relate to current tasks. For example, some students may be more motivated to complete an assigned task simply because they value the connection of present to future while other students may need additional guidance in perceiving that connection.

Composition of the FTPS Data

The first hypothesis of this study that current FTPS sample data will similarly replicate a four-factor solution was satisfied. The items as applied to the current sample aligned in a similar pattern structure in agreement with the results reported by Husman and Shell (2008). This was determined even though the two theoretical dimensions of Connectedness and Extension each loaded onto two separate factors. They did however display a high degree of correlation within their respective theoretical dimensions.

FTP-Connectedness appears to be composed of two highly related ideas. One has to do with a general awareness of, or concern for, the future. The other has to do with the connection of present planning to future goals. These ideas may

be separate but would seem to be dependent on each other. For example, it is necessary to have an awareness of the future as a framework in order to recognize the importance of making plans, and making plans would be irrelevant without the awareness of the time-space as a place to populate motivational objects.

It is possible that cultural differences play a role in how "concern for time" presents itself as a separate construct from connection of present actions to the future goals. The University of New Mexico has a high percentage of Hispanic and Native American students (Hsp = 43.5%, NA = 12%) (UNMFB, 2010) relative to other universities around the country such as The University of Texas at Austin (Hsp = 16%, NA = 0.4%) (UTD, 2010) and University of Nebraska (Hsp = 2.7%, NA = 0.6%) (EP, 2010) where the validation studies were performed. Possibly non-Anglo cultures have an alternate view of time, which is somehow captured by the existing FTP-Connectedness instrument. This might include a tendency to view time as cyclical rather than linear, which has been reported in Native American ethnic groups (Bastian & Mitchell, 2004). Perhaps further investigation of how variations in the perception of the structure of time will lead to a more precise understanding of this phenomenon. James Jones (1988) refers to the idea that time perception may be distinguished into linear time and non-linear time. Linear time is characterized by temporal intervals and cause-effect sequences. By contrast, non-linear time is centered primarily in the present and relatively unresponsive, or possibly unaware, of the future. Jones further suggests a cultural differentiation may be involved. Perhaps peoples living in milder climates, such as the tropics, evolved cultures that place lesser emphasis on

future needs as a survival strategy. If sustaining goods are available year-round and there is an absence of threatening environmental change, it could be more useful to put your creativity and energy into proximal activities. In contrast, uncertainties of climate and the cyclical availability of sustaining goods may influence cultures to place high values on strategic planning that requires an awareness of the future. This idea is further described by Jones and Brown (2005) as P-time, for polychromic-time, versus M-time, for monochronic-time. P-time carries the sense of doing multiple things at once, respecting on social interactions, and focusing on the transactional tasks of the present. M-time, by contrast, looks at time as a tangible artifact, or dimension, with measurable qualities, and is characterized by doing only one thing 'at a time,' following schedules, and planning.

FTP-Extension also seems to consist of two related ideas. It appears that in this sample of participants, the manner in which individuals relate to "the semester" or "half a year" appears to be different from the way they relate to "six months" or a specific month, which lies six months in the future. It may be that time spans, which are less definitive than a precise point in the future, are more difficult to assign into categories of near and far. Alternatively, the idea of "semester" and "half a year" may convey a feeling that is somehow different from that of "six months." Either way, the correlations suggest that the concepts merge into a single construct that represents the idea of Extension.

Composition of the ALS Data

The second hypothesis of this study that the current ALS sample data will similarly replicate a five-factor solution described by Miller, et al. (2000) was not satisfied. As noted earlier, ALS may have reduced resolution which could impede arriving at a clean interpretation. Although speculative, some factors may account for some of the inflation of scores present in this sample as compared to those found by Miller and his colleagues. The economic and political climate of the country in the spring of 2010 was greatly more unsettled and uncertain than that prior to 2000, when Miller and his colleagues published their results. Students may feel less secure about finding employment even with their degree, and this may create a sense of urgency that makes present activities more relevant to their desire to achieve their future goals as teachers. Ethnic and cultural differences found in the current sample may also have affected beliefs of perceived instrumentality. Both of these limitations may prove to be appropriate areas for future investigation.

Implications of the Findings

The broad and overarching field of student motivation contains many models and theories intended to improve student academic performance and achievement. This study lends additional substance to the literature by supporting the assertions that the Future Time Perspective and Expectancy-Value models describe related dimensions of achievement motivation that are separate and distinct constructs. As a frame of reference, it may help students as well as teachers gain a better understanding of the multiple facets involved in student

motivation. This, in turn, may lead to alternative methods of instruction that would enable students to better grasp the relevancy and importance of their studies. It may also lead to teaching methods specifically tailored to various student beliefs or worldviews about time.

As a measure of beliefs, FTP addresses factors of motivation that are at a more general level. That makes the FTPS instrument a useful addition because it can be applied to a range of possible applications and situations when it is difficult or inappropriate to apply the measures to specific, or even vague, goals and behaviors.

Limitations

Even though the previously reported skew observed in several of the constructs was determined to be acceptable for the purpose of this study, it is likely that the resolution of the data was reduced and may have obscured the level of nuance that was possible. Additional refinements to the ALS instrument or its implementation may yet yield facets of factor relationships that were not possible here.

The population for this study was chosen specifically because of their goal of becoming teachers and their enrollment in an educational psychology course. This was done to provide common goal and behavior reference points for the approach to learning survey. It was also done to align with the populations used in both the Husman and Shell (2008) and Miller, et al. (2000) studies. It should be noted that this choice creates a considerable limitation to these findings in that they are not be generalizable to other populations.

In addition, because ethnographic data were not collected as part of the demographics, it is impossible to substantiate any of the speculations of cultural differences discussed earlier in this chapter.

Recommendations

FTP as envisioned by Husman and Shell appears to maintain a four dimensional structure. Future research might investigate how each dimension affects motivation and achievement separately and how they may interact to mediate or moderate influence on other aspects of motivation.

Future research may consider exploring alternative non-linear views of time and how these different concepts play into how motivation is perceived in cultures that do not include a classical western linear view of time with beginning and ending points. It would be interesting to see how individuals would perceive the Extension of time, or the press of time, when that time space takes on cyclical properties.

One particularly intriguing set of studies might be to compare equally appealing outcomes in either distal or proximal locations in the future to see if goal selection may be predicted from the time perspective inventory.

Summary

This study lends support for the four dimensional structure of FTP as conceived by Duane Shell and Jenefer Husman. In this administration of the FTPS, five questions were eliminated because either they did not sufficiently load onto any construct at the criterion level, or they represented the only item to define their representative construct. Removal of these items did not appreciably

change the amount of explained variance. The resulting 6 factor solution was examined for inter-correlation within Extension and Connectedness and it was determined that even though two of the theoretical subscales seemed to describe multiple constructs, these were sufficiently correlated to suggest that the four theoretical factor solution was most appropriate.

This study gives us a more confident understanding of the perception of time as a valid description of individual beliefs. These beliefs about the concept of time are separate from those expressed in Expectancy-Value theory and variations in both sets of beliefs can influence the motivations that drive behavior.

Specifically, when we speak of *Connectedness* as a concept of time, we are describing a perceived relationship between a more distal region of time-space and one that is more proximal. It is different from *perceived instrumentality*, which as a construct of the Expectancy-Value theory, looks at relationships among specific goals, behaviors and intermediate achievements imbedded within the framework of time.

Because of this separation of ideas, it is possible to devise new avenues of research that can further explore facets of time perception. These possibilities include aspects where time as a medium has influence on the flow of motivation in ways that are qualitatively different from constructs that only attach behavior to motivational objects such as goals.

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APPENDICES

APPENDIX A

HUSMAN & SHELL (FTPS) CODEBOOK

Husman & Shell (FTPS) Codebook

Variable	*Dir*	***Speed***
SHS01	+	I find it hard to get things done without a deadline.
SHS02	+	I need to feel rushed before I can really get going.
SHS03	+	I always seem to be doing things at the last moment.
Variable	*Dir*	***Extension***
SHE01	-	(Current month plus 6 months) seems like a long way off.
SHE02	-	It often seems like the semester will never end.
SHE03	-	Half a year seems like a long time to me.
SHE04	+	In general, six months seems like a very short period of time.
SHE05	+	(Current month plus 7 months) seems very near.
Variable	*Dir*	***Value***
SHV01	+	Given the choice, it is better to get something you want in the future than something you want today.
SHV02	-	Immediate pleasure is more important than what might happen in the future.
SHV03	+	It is better to be considered a success at the end of one's life than to be considered a success today.
SHV04	+	The most important thing in life is how one feels in the long run.
SHV05	+	It is more important to save for the future than to buy what one wants today.
SHV06	+	Long-range goals are more important than short-range goals.
SHV07	+	What happens in the long run is more important than how one feels right now.
Variable	*Dir*	***Connectedness***
SHC01	-	I don't think much about the future.
SHC02	+	I have been thinking a lot about what I am going to do in the future.
SHC03	-	It's really no use worrying about the future.
SHC04	-	What one does today will have little impact on what happens ten years from now.
SHC05	+	What will happen in the future is an important consideration in deciding what action to take now.
SHC06	-	I don't like to plan for the future.
SHC07	-	It's NOT really important to have future goals for where one wants to be in five or ten years.
SHC08	-	One shouldn't think too much about the future.
SHC09	-	Planning for the future is a waste of time.
SHC10	+	It is important to have goals for where one wants to be in five or ten years.
SHC11	+	One should be taking steps today to help realize future goals.
SHC12	-	What might happen in the long run should NOT be a big consideration in making decisions now.

APPENDIX B

APPROACHES TO LEARNING SURVEY (ALS) CODE BOOK

Approaches to Learning Survey (ALS) Code Book

Variable	*Dir*	***Learning Goal***
ALLG1	+	I do the work assigned in this class because I like to understand the material I study.
ALLG2	+	I do the work assigned in this class because I want to improve my understanding of the material.
ALLG3	+	I do the work assigned in this class because I want to learn new things.
Variable	*Dir*	***Performance Goal***
ALPG1	+	I do the work assigned in this class because I don't want others to think I'm not smart.
ALPG2	+	I do the work assigned in this class because I want to look smart to my friends.
ALPG3	+	I do the work assigned in this class because I don't want to look foolish or stupid to my friends, family or teachers.
ALPG4	+	I do the work assigned in this class because I don't want to be embarrassed about not being able to do the work.
ALPG5	+	I do the work assigned in this class because I don't want to be the only one who cannot do the work well.
ALPG6	+	I do the work assigned in this class because I can show people that I am smart.
Variable	*Dir*	***Perceived Instrumentality***
ALPI1	+	I do the work assigned in this class because my achievement plays a role in reaching my future goals.
ALPI2	+	I do the work assigned in this class because my achievement is important for attaining my dreams.
ALPI3	+	I do the work assigned in this class because understanding this content is important for becoming the person I want to be.
ALPI4	+	I do the work assigned in this class because learning the content plays a role in reaching my future goals.
ALPI5	+	I do the work assigned in this class because learning this material is important for attaining my dreams.
Variable	*Dir*	***Intrinsic Value***
ALIV1	+	Learning this material is enjoyable.
ALIV2	+	I find learning this subject matter personally satisfying.
ALIV3	+	The concepts and principles taught in this course are interesting.
Variable	*Dir*	**Extrinsic Value**
ALEV1	+	Learning this material is important because of its future value.
ALEV2	+	Mastering the concepts and principles taught in this class is of value because they will help me in the future.
ALEV3	+	Being able to use the ideas reflected in the assignments and projects in this course will be of value to me in the future.

APPENDIX C

PRE-SERVICE TEACHER MULTIPLE CONSTRUCT SURVEY

(Version A)

Pre-Service Teacher Multiple Construct Survey

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree

(Circle the most appropriate number.)

1	It is more important to save for the future than to buy what one wants today.	1 SD 2 3 4 5 SA
2	Immediate pleasure is more important than what might happen in the future.	1 SD 2 3 4 5 SA
3	One should be taking steps today to help realize future goals.	1 SD 2 3 4 5 SA
4	It is important to have goals for where one wants to be in five or ten years.	1 SD 2 3 4 5 SA
5	What might happen in the long run should NOT be a big consideration in making decisions now.	1 SD 2 3 4 5 SA
6	It often seems like the semester will never end.	1 SD 2 3 4 5 SA
7	I always seem to be doing things at the last moment.	1 SD 2 3 4 5 SA
8	The most important thing in life is how one feels in the long run.	1 SD 2 3 4 5 SA
9	It's NOT really important to have future goals for where one wants to be in five or ten years.	1 SD 2 3 4 5 SA
10	Planning for the future is a waste of time.	1 SD 2 3 4 5 SA
11	Half a year seems like a long time to me.	1 SD 2 3 4 5 SA
12	One shouldn't think too much about the future.	1 SD 2 3 4 5 SA
13	Given the choice, it is better to get something you want in the future than something you want today.	1 SD 2 3 4 5 SA
14	I don't think much about the future.	1 SD 2 3 4 5 SA
15	What one does today will have little impact on what happens ten years from now.	1 SD 2 3 4 5 SA
16	**(Current month plus 7 months)** seems very near.	1 SD 2 3 4 5 SA
17	I find it hard to get things done without a deadline.	1 SD 2 3 4 5 SA
18	What will happen in the future is an important consideration in deciding what action to take now.	1 SD 2 3 4 5 SA
19	I have been thinking a lot about what I am going to do in the future.	1 SD 2 3 4 5 SA
20	I don't like to plan for the future.	1 SD 2 3 4 5 SA
21	In general, six months seems like a very short period of time.	1 SD 2 3 4 5 SA

Pre-Service Teacher Multiple Construct Survey

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree

(Circle the most appropriate number.)

22	It's really no use worrying about the future.	1 SD 2 3 4 5 SA
23	Long-range goals are more important than short-range goals.	1 SD 2 3 4 5 SA
24	What happens in the long run is more important than how one feels right now.	1 SD 2 3 4 5 SA
25	It is better to be considered a success at the end of one's life than to be considered a success today.	1 SD 2 3 4 5 SA
26	**(Current month plus 6 months)** seems like a long way off.	1 SD 2 3 4 5 SA
27	I need to feel rushed before I can really get going.	1 SD 2 3 4 5 SA
28	Learning this material is important because of its future value.	1 SD 2 3 4 5 SA
29	I do the work assigned in this class because I don't want to look foolish or stupid to my friends, family or teachers.	1 SD 2 3 4 5 SA
30	I do the work assigned in this class because I want to look smart to my friends.	1 SD 2 3 4 5 SA
31	I do the work assigned in this class because my achievement is important for attaining my dreams.	1 SD 2 3 4 5 SA
32	I do the work assigned in this class because my achievement plays a role in reaching my future goals.	1 SD 2 3 4 5 SA
33	I do the work assigned in this class because understanding this content is important for becoming the person I want to be.	1 SD 2 3 4 5 SA
34	I want to excel in helping students achieve their potential.	1 SD 2 3 4 5 SA
35	I have always known that I wanted to teach.	1 SD 2 3 4 5 SA
36	I find learning this subject matter personally satisfying.	1 SD 2 3 4 5 SA
37	Being able to use the ideas reflected in the assignments and projects in this course will be of value to me in the future.	1 SD 2 3 4 5 SA
38	I do the work assigned in this class because understanding this content is important for me becoming the educator I want to be.	1 SD 2 3 4 5 SA
39	Mastering the concepts and principles taught in this class is of value because they will help me in the future.	1 SD 2 3 4 5 SA
40	I do the work assigned in this class because I don't want to be embarrassed about not being able to do the work.	1 SD 2 3 4 5 SA
41	I do the work assigned in this class because I don't want to be the only one who cannot do the work well.	1 SD 2 3 4 5 SA
42	I do the work assigned in this class because I like to understand the material I study.	1 SD 2 3 4 5 SA

Pre-Service Teacher Multiple Construct Survey

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree

(Circle the most appropriate number.)

43	I do the work assigned in this class because I want to learn new things.	1 2 3 4 5 SD SA
44	I do the work assigned in this class because I don't want others to think I'm not smart.	1 2 3 4 5 SD SA
45	I do the work assigned in this class because my achievement is important in becoming a good teacher.	1 2 3 4 5 SD SA
46	The most important thing about being a teacher is the summers off.	1 2 3 4 5 SD SA
47	Learning this material is important because of its value in helping me performing my job as a teacher.	1 2 3 4 5 SD SA
48	Just knowing that I can always get a job is the most important thing about teaching.	1 2 3 4 5 SD SA
49	I do the work assigned in this class because my achievement plays a role in reaching my career goals.	1 2 3 4 5 SD SA
50	I do the work assigned in this class because learning the content plays a role in reaching my future goals.	1 2 3 4 5 SD SA
51	I do the work assigned in this class because I want to improve my understanding of the material.	1 2 3 4 5 SD SA
52	Mastering the concepts and principles taught in this class is valuable because they will help me achieve my career goals.	1 2 3 4 5 SD SA
53	I do the work assigned in this class because learning this material is important for attaining my dream of becoming a teacher.	1 2 3 4 5 SD SA
54	I do the work assigned in this class because learning the content plays a role in reaching my career goals.	1 2 3 4 5 SD SA
55	Becoming a good teacher is a very important goal for me.	1 2 3 4 5 SD SA
56	I do the work assigned in this class because learning this material is important for attaining my dreams.	1 2 3 4 5 SD SA
57	Learning this material is enjoyable.	1 2 3 4 5 SD SA
58	Ideas I have learned through the assignments and projects of this class will be of value to me with things I want to accomplish in my career.	1 2 3 4 5 SD SA
59	The concepts and principles taught in this course are interesting.	1 2 3 4 5 SD SA
60	I do the work assigned in this class because I can show people that I am smart.	1 2 3 4 5 SD SA

APPENDIX D

PRE-SERVICE TEACHER MULTIPLE CONSTRUCT SURVEY

(Version B)

Pre-Service Teacher Multiple Construct Survey

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree

(Circle the most appropriate number.)

22	I do the work assigned in this class because my achievement plays a role in reaching my career goals.	1 SD 2 3 4 5 SA
23	I do the work assigned in this class because learning the content plays a role in reaching my future goals.	1 SD 2 3 4 5 SA
24	I do the work assigned in this class because I want to improve my understanding of the material.	1 SD 2 3 4 5 SA
25	Mastering the concepts and principles taught in this class is valuable because they will help me achieve my career goals.	1 SD 2 3 4 5 SA
26	I do the work assigned in this class because learning this material is important for attaining my dream of becoming a teacher.	1 SD 2 3 4 5 SA
27	I do the work assigned in this class because learning the content plays a role in reaching my career goals.	1 SD 2 3 4 5 SA
28	Becoming a good teacher is a very important goal for me.	1 SD 2 3 4 5 SA
29	I do the work assigned in this class because learning this material is important for attaining my dreams.	1 SD 2 3 4 5 SA
30	Learning this material is enjoyable.	1 SD 2 3 4 5 SA
31	Ideas I have learned through the assignments and projects of this class will be of value to me with things I want to accomplish in my career.	1 SD 2 3 4 5 SA
32	The concepts and principles taught in this course are interesting.	1 SD 2 3 4 5 SA
33	I do the work assigned in this class because I can show people that I am smart.	1 SD 2 3 4 5 SA
34	It is more important to save for the future than to buy what one wants today.	1 SD 2 3 4 5 SA
35	Immediate pleasure is more important than what might happen in the future.	1 SD 2 3 4 5 SA
36	One should be taking steps today to help realize future goals.	1 SD 2 3 4 5 SA
37	It is important to have goals for where one wants to be in five or ten years.	1 SD 2 3 4 5 SA
38	What might happen in the long run should NOT be a big consideration in making decisions now.	1 SD 2 3 4 5 SA
39	It often seems like the semester will never end.	1 SD 2 3 4 5 SA
40	I always seem to be doing things at the last moment.	1 SD 2 3 4 5 SA
41	The most important thing in life is how one feels in the long run.	1 SD 2 3 4 5 SA
42	It's NOT really important to have future goals for where one wants to be in five or ten years.	1 SD 2 3 4 5 SA

Pre-Service Teacher Multiple Construct Survey

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree

(Circle the most appropriate number.)

43	Planning for the future is a waste of time.	1 SD 2 3 4 5 SA
44	Half a year seems like a long time to me.	1 SD 2 3 4 5 SA
45	One shouldn't think too much about the future.	1 SD 2 3 4 5 SA
46	Given the choice, it is better to get something you want in the future than something you want today.	1 SD 2 3 4 5 SA
47	I don't think much about the future.	1 SD 2 3 4 5 SA
48	What one does today will have little impact on what happens ten years from now.	1 SD 2 3 4 5 SA
49	**(Current month plus 7 months)** seems very near.	1 SD 2 3 4 5 SA
50	I find it hard to get things done without a deadline.	1 SD 2 3 4 5 SA
51	What will happen in the future is an important consideration in deciding what action to take now.	1 SD 2 3 4 5 SA
52	I have been thinking a lot about what I am going to do in the future.	1 SD 2 3 4 5 SA
53	I don't like to plan for the future.	1 SD 2 3 4 5 SA
54	In general, six months seems like a very short period of time.	1 SD 2 3 4 5 SA
55	It's really no use worrying about the future.	1 SD 2 3 4 5 SA
56	Long-range goals are more important than short-range goals.	1 SD 2 3 4 5 SA
57	What happens in the long run is more important than how one feels right now.	1 SD 2 3 4 5 SA
58	It is better to be considered a success at the end of one's life than to be considered a success today.	1 SD 2 3 4 5 SA
59	**(Current month plus 6 months)** seems like a long way off.	1 SD 2 3 4 5 SA
60	I need to feel rushed before I can really get going.	1 SD 2 3 4 5 SA

APPENDIX E

COVER SHEET AND STUDY DESCRIPTION

Connectedness and Perceived Instrumentality in Pre-Service Teachers

Thank you for participating in this study of pre-service teacher beliefs and motivations.

Purpose of the Study

This study is about comparing different measures of motivational beliefs for those entering the teaching profession. The measurement models are based on different theories, each of which claim to measure related, but different, concepts.

The purpose of the study is to either support or refute the claim that these surveys questions measure different aspects of an individual's motivational beliefs.

What to Expect

On a scale from 1 to 5, you will rate how much you agree or disagree with 60 statements (Like for example; "Learning this material is enjoyable").

As in this example, you will find many statements referring to 'this course' or 'this subject matter.' In making your assessment, please assume this to be about the educational psychology course you are currently taking.

You may or may not feel that some statements are saying the same thing or asking the same question. This is an unavoidable result of combining survey items from different sources. As much as possible, please rate each statement separately and independent from any other statement.

APPENDIX F

CONSENT FORM FOR PARTICIPANTS

University of New Mexico

Informed Consent Cover Letter for Anonymous Surveys

STUDY TITLE

Connectedness and Perceived Instrumentality in Pre-Service Teachers

You are being asked to participate in a research study that is being done by William H. Jackson, who is the Principal Investigator and Terri Flowerday, from the Department of Education - Education Psychology Program. This research is studying relationships between two questionnaires that measure belief about time and goals that relate to motivation.

You are being asked to participate in this study because you are pre-service teacher and you are taking an educational psychology class. Two hundred people will take part in this study at the University of New Mexico. Albuquerque campus, New Mexico

You will be asked to complete a questionnaire that asks to rate your opinion about statements such as "I do the work assigned in this class because I want to learn new things." You may refuse to answer any questions at any time. This questionnaire will take about 20 to 30 minutes to complete.

There are no names or identifying information associated with this survey. There are no known risks in this study, but some individuals may experience discomfort when answering questions. All data will be kept for 3 years in a locked file in Mr. Jackson's office and then destroyed. Your involvement in the study is voluntary, and you may choose not to participate. If you choose not to participate in this study, your teacher will be able to provide alternate methods of fulfilling your class research requirement.

This study involves comparisons of measurement instruments and has no intended individual benefit, however if you are curious to learn more about the study, the principle investigator will be happy to discuss the methods, results or theories concerning the study. If published, results will be presented in summary form only.

If you have any questions, concerns or complaints at any time about the research study, William H. Jackson, or his associate Terri Flowerday will be glad to answer them at 505-466-1455, 6:00pm to 9:00 pm. If you need to contact someone after business hours or on weekends, please call 505-466-1455, 6:00pm to 9:00pm and ask for William Jackson. If you would like to speak with someone other than the research team in regards to any complaints you have about the study, you may call the UNM IRB at (505) 272-1129.

By returning this survey, you will be agreeing to participate in the above described research study.

Thank you for your consideration.
Sincerely,

Researcher's Name
William H. Jackson
Researcher's Title
ABD

IRB # 09-551
Version 12/1/09

APPENDIX G

DEMOGRAPHIC INFORMATION FORM

Pre-Service Teacher Demographic Information

Sequence #_____ Date: _____

Age:

1. What is your age? _____(years)

Gender:

2. (circle the appropriate) (1) Male (2) Female

Education:

3. Did you get a high school diploma or a GED? (circle the appropriate)
   (1) HS diploma (2) GED (0) Neither HS nor GED

4. Have you already completed a college degree? (circle the appropriate)
   (1) Yes – Have Degree (2) No – Not Yet

   (IF you have a degree: What degree?) _____

5. In what educational psychology class are you currently enrolled?
   (1) Human Development (2) Learning in the Classroom (3) Currently Enrolled in Both

Employment:

6. How many hours per week do you work at a full or part time job while you are taking classes? (circle the most appropriate)

   (1) Less than 5 hours per week
   (2) 5 to 15 hours per week
   (3) 16 to 25 hours per week
   (4) 26 to 35 hours per week
   (5) 36 to 45 hours per week
   (6) Greater than 45 hours per week

7. Are you currently a primary wage earner for yourself or your family? (1) Yes (2) No

Teaching Specific:

8. What age or grade do you plan to teach? (circle the most appropriate)

   (1) Early Childhood (Birth – Grade 3)
   (2) Elementary (Grades K-8)
   (3) Middle Level (Grades 5-9)
   (4) Secondary (Grades 7-12)
   (5) All Grades (Grades K-12)
   (6) Adult (Adult Basic Education)

9. What subject do you mostly plan to teach? (circle the most appropriate area)

   (1) Elementary (All Subjects)
   (2) Science / Mathematics
   (3) Languages / English / Communications
   (4) Technology / Vocational / Business
   (5) Social Studies / History
   (6) Physical Education / Health
   (7) Music / Dance / Drama

10. When do you plan to begin student teaching? (circle the most appropriate)

    (1) NOW– already begun
    (2) Next semester
    (3) Next Year
    (4) In two years
    (5) In three or more years

APPENDIX H

IRB DETERMINATION OF EXEMPT STATUS

THE UNIVERSITY of
NEW MEXICO

Main Campus Institutional Review Board
Human Research Protections Office
MSC08 4560
1 University of New Mexico–Albuquerque, NM 87131-0001
http://hsc.unm.edu/som/research/HRRC/

09-Dec-2009

Responsible Faculty: Terri Flowerday
Investigator: William Jackson
Dept/College: Individual Family Comm Educ IFCE

SUBJECT: IRB Determination of Exempt Status
Protocol #: 09-551
Project Title: Connectedness and Perceived Instrumentality in Pre-Service Teachers
Approval Date: 09-Dec-2009

The Main Campus Institutional Review Board has reviewed the above-mentioned research protocol and determined that the research is *exempt* from the requirements of Department of Health and Human Services (DHHS) regulations for the protection of human subjects as defined in 45CFR46.101(b) under category , based on the following:

1. UNM IRB Exemption Determination form received 11/6/09
2. Protocol "Connectedness and Perceived Instrumentality in Pre-Service Teachers" received 11/6/09
3. Informed Consent Cover Letter for Anonymous Survey version 12/1/09
4. Recruitment information sheet received 12/8/09
5. Pre-Service teacher Multiple Construct Survey received 11/6/09
6. Pre-service Teacher Demographic Information received 11/6/09

Because it has been granted exemption, this research project is not subject to continuing review.

Changes to the Research: It is the responsibility of the Principal Investigator to inform the IRB of any changes to this research. A change in the research may disqualify this project from exempt status. Reference the protocol number and title in all documents related to this protocol.

Sincerely,

J. Scott Tonigan, PhD
Chair
Main Campus IRB