Considering an Integrative Theory of the Values Construct: An Empirical Test of the
Values as Goals Proposition Based on Perceptual Control Theory

A dissertation presented to
the faculty of
the College of Arts and Sciences of Ohio University

In partial fulfillment
of the requirements for the degree
Doctor of Philosophy

Kristen M. More
June 2012

© 2012 Kristen M. More. All Rights Reserved.
This dissertation titled
Considering an Integrative Theory of the Values Construct: An Empirical Test of the
Values as Goals Proposition Based on Perceptual Control Theory

by
KRISTEN M. MORE

has been approved for
the Department of Psychology
and the College of Arts and Sciences by

____________________________
Jeffrey B. Vancouver
Professor of Psychology

____________________________
Howard Dewald
Interim Dean, College of Arts and Sciences
Abstract
MORE, KRISTEN M., Ph.D., June 2012, Psychology
Considering an Integrative Theory of the Values Construct: An Empirical Test of the
Values as Goals Proposition Based on Perceptual Control Theory
Director of Dissertation: Jerffrey B. Vancouver

The body of literature surrounding the study of motivation is often criticized for
the plethora of research that has emerged from varying theoretical perspectives. The
purpose of this dissertation was to test part of an integrative theory of the role of values in
motivation based on perceptual control theory. Specifically, the values construct was
reviewed using the process-content framework. The review concluded that values have
been treated in two ways in motivation theory: a) as desired end-states (i.e., goals) and b)
as a level of attractiveness or satisfaction. An empirical examination of the values as
goals hypothesis based on perceptual control theory was conducted. It was expected that
participants would learn to associate a task for which they received praise with the value
of being well-respected (i.e., instrumentality). Additionally, receiving praise for
performance on a task should influence the anticipated value (i.e., valence) of completing
a second task for which participants previously learned they would receive praise and that
receiving praise for performance on a task would influence participant’s future task
choice. Finally, the study explored whether receiving praise on a task prior to learning
influenced the strength of a learned association. Though findings demonstrate support for
a learned association between a task and value system (Hypothesis 1), I failed to find
support for the remaining hypotheses. Thus, I found no evidence to support the
proposition that values function as higher-level goals. Both methodological and theoretical considerations that may have contributed to this lack of findings are discussed.

Approved: _____________________________________________________________

Jeffrey B. Vancouver

Professor of Psychology
Dedication

To my parents Gerald and (the late) Patricia Danalchak who always encouraged me to reach beyond the stars
Acknowledgments

It is with heartfelt thanks that I acknowledge several people whose continued guidance and support made the completion of this dissertation possible. First, I would like to thank my dissertation chair and academic advisor Dr. Jeff Vancouver. I am grateful for his commitment to quality scholarly work, his guidance, and continued support to the completion of this project. I would also like to thank my committee members, Claudia Gonzalez-Vallejo, Dr. Rodger Griffeth, Dr. Paula Popovich, and Dr. Mary Tucker for sharing their respective expertise and improving the quality of my project. Further, I would like to thank my undergraduate research assistants, especially Laura Baskin, without your dedication and commitment; I would still be collecting data!

To my friends and colleagues that challenged me to see this project to completion, especially Catherine Golden, Nicole Gullekson, Lindsay Orchowski, Francisco Solares, Sara Smith and Ann Wilson, I am grateful for your endless support and encouragement. So many of you would not let me give up even when it may have been easier to do so. A special thanks to Jill Pessefall Church, Jamie Evans and my wonderful family who love, support, and inspire me every day. Finally, to my husband, David More, this is one part of our journey that we can say is complete!
# Table of Contents

Abstract .................................................................................................................................................. 3  
Dedication ............................................................................................................................................... 5  
Acknowledgments .................................................................................................................................. 6  
List of Tables .......................................................................................................................................... 11  
List of Figures ......................................................................................................................................... 12  
Introduction ........................................................................................................................................... 13  
  The Content-Process Distinction .......................................................................................................... 17  
  Values and Content Theories of Motivation ....................................................................................... 19  
  Needs, Motives, and Values. ................................................................................................................... 21  
    Taxonomic Content Theories. ............................................................................................................... 22  
    Narrower Content Theories. ............................................................................................................... 27  
  Values and Process Theories of Motivation ....................................................................................... 30  
  Learning Theories .................................................................................................................................. 30  
  Decision Theories .................................................................................................................................. 35  
  Expectancy-Value Models ..................................................................................................................... 39  
  Goal Theories ......................................................................................................................................... 44  
Motivation: A Dynamic Construct ......................................................................................................... 50  
  Goal Processes ....................................................................................................................................... 55  
Values in Motivation: A Dynamic Integrative Approach .................................................................... 59  
  An Integrative, Dynamic Theory of Values. ......................................................................................... 62  
Current Study ........................................................................................................................................... 69
Pilot Study .................................................................................................................................74
Participants .................................................................................................................................74
Measures and Manipulations ........................................................................................................75
Perceived respect manipulation .................................................................................................75
Task Instrumentality ....................................................................................................................75
Task Valence ...............................................................................................................................76
Task Values Questionnaire ........................................................................................................76
Demographics ..............................................................................................................................76
Procedure .....................................................................................................................................76
Pilot Results .................................................................................................................................79
Main Study .....................................................................................................................................83
Participants .....................................................................................................................................83
Design ...........................................................................................................................................83
Materials and Manipulation ........................................................................................................83
Perceived Respect Manipulation ...............................................................................................83
Tasks B & C (Session 1 & 2) ........................................................................................................84
Perceived Respect Manipulation 2 .............................................................................................85
Current State Questionnaire ........................................................................................................85
Task Instrumentality ....................................................................................................................86
Task Valence ..................................................................................................................................86
Demographics ..............................................................................................................................86
Procedure ......................................................................................................................................86
Session One. ........................................................................................................... 87
Session Two. ......................................................................................................... 89
Results ..................................................................................................................... 91
Manipulation Check ............................................................................................... 91
Current State Manipulation. .................................................................................. 91
Task-Value Connection. ......................................................................................... 91
Hypothesis Testing .................................................................................................. 92
Exploratory Hypothesis .......................................................................................... 94
Post Hoc Analyses .................................................................................................. 95
Discussion ............................................................................................................... 98
Methodological Considerations ............................................................................. 99
Value-Task Association: Over-Reliance on Expected Associations ..................... 99
Value Manipulation: Limited or No Impact on the Current State ......................... 101
Value Regulation: A Case for Repeated Measures............................................. 104
Theoretical Implications ....................................................................................... 105
Value Regulation: The Value Matters. ................................................................. 105
Value Regulation: The Hierarchical Nature of Goal Systems............................. 106
Conclusion ............................................................................................................. 111
References ........................................................................................................... 112
Appendix A: Anagram-like Task (Task A) ........................................................... 129
Appendix B: Pseudo-Analysis Output ................................................................. 130
Appendix C: Math Task (Task B) ....................................................................... 131
List of Tables

Table 1. Schwartz's 10 Motivational Types of Values and the Values the Types Represent .................................................................21
Table 2. Summary of Content Theories, Values Terminology, and Definitions .............29
Table 3. Edwards (1955) Four Variations on Expected Value ........................................37
Table 4. Summary of Process Theory Terminology, Theories, and Definitions ..........49
Table 5. Terminology and Definitions for the Components of a Control Theory
Examination of Values ..................................................................................65
Table 6. Main Study Tasks: Session, Purpose, and Relevant Hypotheses ...............70
Table 7. Pilot Session Timeline and Sequence ......................................................77
Table 8. Instrumentality of Anagram Task by Trial .................................................80
Table 9. Valence of Anagram Task by Trial ..........................................................81
Table 10. Participant Breakdown by Condition ....................................................83
Table 11. Instrumentality for the Anagram Task Time 1 .......................................92
Table 12. Valence for the Math Task Time 2 .......................................................93
Table 13. Cross-Tabulation of Praise Condition and Task Choice ......................94
Table 14. Summary of Hypotheses and Results ...................................................95
Table 15. Observed Task Choice .........................................................................96
Table 16. Cross-Tabulation of Sex and Task Choice ...........................................96
Table 17. Cross-Tabulation of ethnicity and Task Choice ...................................97
List of Figures

Figure 1. Prospect Theory Value Function .................................................................39
Figure 2. Basic Goal System .........................................................................................46
Figure 3. Goal System Hierarchy ..................................................................................48
Figure 4. Basic Value System .......................................................................................66
Figure 5. Instrumentality of Anagram Task Across Trials ............................................80
Figure 6. Valence of Anagram Task Across Trials .......................................................82
Figure 7. Sequence of Activities Session One ...............................................................87
Figure 8. Sequence of Activities – Session Two ............................................................89
"Knowledge is a process of piling up facts; wisdom lies in their simplification."

-Martin H. Fisher

**Introduction**

Since ancient times, philosophers, scientists and researchers have been interested in understanding why people behave the way that they do. The behaviors of interest are limitless, for example, why would an individual eat an apple rather than pizza, why do some people participate in religious practices, or what pushes the star athlete to spend extra hours at the gym after the other team members have left for the day? Industrial-Organizational (I-O) psychologists ask similar questions about work behaviors. For example, why do some individuals set specific deadlines and others prefer a flexible schedule or why do some individuals switch from task to task while others prefer to work on one task at a time? The ability to understand, predict, and control human behaviors such as these are the goals of science and of interest to many. In particular, within the social sciences, questions such as those above have led to a large body of literature surrounding human motivation.

The vast interest in understanding human motivation has led to what some have called a “superabundance of motivational theories” (e.g., p., 889, Steel & Knig, 2006). Simply put, the current motivation literature has been criticized for being a pile of facts and numerous researchers have called for an examination of how motivation theories can be integrated (Kanfer, 1990; Steel & Knig, 2006; Vancouver, 2008). Indeed, as proclaimed by Fisher (n.d.) in the opening quote, strong theory involves not only knowledge (i.e., a pile of facts), but also wisdom (i.e., parsimonious integration of those facts) (Bacharach, 1989; Whetten, 1989).
The lesson of integration and simplification is an important one for psychology because of the relatively young age of the science. Formally, the discipline is a little more than one hundred years old and thus, it is easy to remain on a path focused on where the science is going rather than understanding and building on where it has been. But perhaps some questions are best answered by integrating what is already known in new ways. Integration of components of current motivation theories may lead to parsimony across disciplines (e.g., Kanfer, 1990; Locke & Latham, 2004; Steel & Knig, 2006; Vancouver, 2008).

However, the call for integration is not without controversy. In a review of the state of motivation literature, Locke and Latham (2004) describe the plethora of approaches to work motivation as bewildering and in need of organization. On the other hand, Ambrose and Kulik (1999) suggest that the variety of approaches allows research questions to be more focused toward individual concepts (e.g., expectancy, justice, goals) and thus, allowing for a more detailed science. Perhaps, as researchers attempt to integrate theories of motivation, a lesson should be learned from both perspectives. Specifically, tackling the issue of integration is not as simple as combining theories and making one out of two. Integration requires examination of the components of motivation theories and identifying common ground as well as differences.

For example, by examining motivation theories using a common taxonomy, such as the content-process distinction (e.g., Campbell & Pritchard, 1976; Vancouver, 2004), researchers can identify components of existing theories of motivation that would benefit from simplification via integration. The content-process distinction is a fairly well known
one for understanding the state of motivation theory. Therefore, it seems useful as a tool for outlining and comparing theories.

In this dissertation, I use the content-process framework review the values construct and expose one aspect of motivation theories that would benefit from integration. Values, is a concept that is found in many motivational theories, yet has not received a great deal of attention in the theoretical and empirical investigation of motivation and has suffered from definitional inconsistency (Rohan, 2000). Yet, understanding the role of values in motivation, I believe, would increase the parsimony of motivation theory. For example, value appears in various forms in both content theories (also called needs) and process theories of motivation (also called rewards, incentive, valence, and utility). However, motivation researchers in the past have been inconsistent in their treatment of the values construct.

Using the content-process distinction, I describe the way values have been conceptualized in theories of motivation. My review of the use of values in both content and process theories culminates in a fairly common perspective that values are in fact, a type of goal. Thus, I propose that values should be examined through a goal theory lens. In doing so, I focus on a key element of motivation. That is, motivation is a “dynamic internal process that energizes and directs actions and action tendencies,” (p. 6, emphasis in original, Ferguson, 2000). Past theories of motivation have tended to take a static view of values and motivation (Atkinson & Birch, 1974; Kanfer, 1990). That is, researchers tend to focus on the influence of values on behavior given one choice at one point in time (e.g., Feather, 1992); yet, in reality few decisions are made without conflicting goals and
varying priorities that might be constantly changing (Schmidt & DeShon, 2007). Understanding the complexity of dealing with changing goals and priorities requires an emphasis on the dynamic nature of motivation.

Here I consider the dynamics of motivation to explore the values as several components goals proposition. Specifically, I also consider learning theories, which have been an important exception to the static view of motivation, and self-regulation theories, which have also recently begun to take a more dynamic approach (e.g., Vancouver, 2008). It is from this new, dynamic self-regulation perspective, which has already shown a great deal of promise as the integrative solution for motivation theories (Bandura, 1997; Carver & Scheier, 1998; Klein, 1989; Vancouver, 2008), that I use to integrate common elements of content and process theories of motivation and thus, attempt to take one step forward in understanding the role of values in motivated behavior. In particular, I propose the use of perceptual control theory (also called control theory) to explain the role of values in motivation and present an empirical examination of the control theory approach.

I begin by presenting the content-process framework and then use this framework to review how values have been conceptualized in the motivation literature. Next, I provide a self-regulatory framework that will allow values to be examined from a dynamic perspective. Finally, I propose and conduct an empirical examination based on control theory to test three aspects of an integrative framework for the role of values in motivation.
The Content-Process Distinction

Content theories describe motivation in terms of what individuals want or need. Maslow’s (1943) need hierarchy is a classic example of a content theory. More recent content theories describe how individuals want to be treated or not treated. For example, justice theories (Adams, 1965; Greenberg & Lind, 2000) describe conditions under which rewards and/or decision-making processes are considered to be fair, which is presumably something individuals’ want.

Process theories, on the other hand, focus on how individuals meet or work toward need fulfillment. Process theories can be further broken down into three categories: learning theories, decision theories, and goal theories (Vancouver, 2004). Learning theories, such as reinforcement theory, focus on relatively permanent change and are largely founded on the premise of association (Weiss, 1990). Early associations of interest focused around stimulus-response. Later, interest turned to stimulus-stimulus and response-consequence associations. For example, if a stimulus evokes a particular response (e.g., stuffed animal evokes fear) and that stimulus is repeatedly presented with a second stimulus such as the ringing over the bell, over time the bell alone will evoke fear. The relationship between the stuffed animal and the bell is a stimulus-stimulus association. If a particular stance leads to the ball going through the basketball hoop, an association is learned between the stance and the ball going through the hoop (response-consequence).

A second category of process theories, decision theories (sometimes called choice theories) focus on choices individuals make perhaps after associations are made. The
most popular choice theories in I-O psychology are the expectancy-value models (Campbell & Pritchard, 1976; Kanfer, 1990; Vancouver, 2004). Expectancy-value (E-V) models emphasize cognition and the subjective beliefs of the individual in the choice process. For example, a basketball player may develop an association between more hours in the gym and shots made during a game. An expectancy-value model would predict the choices made given a belief in the association between hours in the gym and game performance. A player concerned with game performance will choose to practice more hours in the gym rather than go to the movies with friends, based on the subjective expectancy that practice will lead to better game performance.

A final class of process theories is goal theories. Goal theories, like E-V models, take a more cognitive approach to the study of motivation. Central to these theories is the goal construct. Goals are internally represented desired states that individuals seek to attain or maintain (Austin & Vancouver, 1996). Goal properties such as difficulty (i.e., level of the desired state) and specificity (i.e., clarity of the representation) influence goal-striving behavior (Locke & Latham, 1990).

Interestingly, the concept of “value” appears in both content and process theories of motivation. Content theories (also called substantive theories; Campbell & Pritchard, 1976) focus on identifying variables that influence behavior such as the specific needs and wants of individuals. For example, content theories have included such variables as the individual’s need for safety (Maslow, 1943), growth needs (Alderfer, 1969; 1972) and need for fairness (Adams, 1965; Greenberg & Lind, 2000). Below I explore the role of values in content theories of motivation. More specifically, though the term value is
missing in many discussions of content theories, I make the case that values are central to content theories of motivation.

Though content theories are descriptive in nature, process theories (also called mechanical theories; Campbell & Pritchard, 1976) emphasize the explanation of the means by which individuals use information to obtain their wants and needs. For the most part, process theories consider how individuals obtain and use information in order to seek pleasure and avoid pain (i.e., as in a hedonistic perspective), but usually say very little about what is the source of pleasure or pain. In reviewing the process theories of motivation, I describe the various roles that values have taken in such theories. By reviewing the role of values in both content and process theories, I expose a path for integration and support for understanding one aspect of the role of values in motivation through a control theory lens.

Values and Content Theories of Motivation

Values have been a construct of interest across the social sciences. Among the disciplines that have established interest in the study of values are psychology (e.g., Rokeach, 1973; Schwartz & Bilsky, 1987), sociology (e.g., Hitlin & Piliavin, 2004), political science (e.g., Jacoby, 2006), and anthropology (e.g., Kluckhohn, 1951). Perhaps, the most widely accepted definition of the term in the psychological literature today is that of Schwartz and Bilsky (1987; 1990), who defined values as “(a) concepts or beliefs, (b) about desirable end states or behaviors, (c) that transcend specific situations, (d) guide selection or evaluation of behavior and events, and (e) are ordered by relative
importance,” (p. 551). A great deal of the research interest in the values construct has been content oriented and focused on describing taxonomies of values.

Rokeach (1973) proposed a list of 36 values categorizing them as either terminal values or instrumental values. According to Rokeach, terminal values identify end-states such as a comfortable life, a sense of accomplishment, and family security; instrumental values describe modes of behavior such as working hard, acting courageously, and being responsible. Schwartz and colleagues (1987; 1990; 1992) expanded Rokeach’s list and organized the values into value motivation types. The value types and examples of each are presented in Table 1.

The classification of values into motivational types by Schwartz and colleagues aligns with the premise of most content theories of motivation. Specifically, these types were derived for the purpose of understanding the content of values and identifying a comprehensive, yet simplified structure of values (i.e., which values are compatible and which are not). For example, the values of social power, wealth, authority, and preserving one’s public image would be categorized as power values. Others have taken this same content approach to understanding values and proposed simplified lists of values. The List of Values Survey (LOV; Kahle, 1983; Veroff, Douvan, & Kulka, 1981), popular in consumer psychology, presents nine value types (i.e., sense of belonging, excitement, warm relationships with others, self-fulfillment, being well respected, fun and enjoyment in life, security, self-respect, and a sense of accomplishment). Though classification systems such as these are the forefront of the study of values today, in general, the seminal work of Rokeach (1973) is given credit for catapulting values into a more
prominent role in the psychological literature. Interestingly, however, values appeared before the work of Rokeach in the motivation literature under other names such as needs and motives.

| Table 1 |
|-----------------|----------------------------------------------------------------------------------|
| **Schwartz’s 10 Motivational Types of Values and the Values the Types Represent** |
| (Adapted from Schwartz, 1996) |
| **Power** | Social status, prestige, control or dominance over people and resources, social power, authority, wealth, preserving my public image, social respect |
| **Achievement** | Personal success, capable, ambitious, influential, intelligent, self-respect |
| **Hedonism** | Pleasure, sensuous gratification of oneself, enjoying life |
| **Stimulation** | Excitement, novelty, challenge in life, daring, a varied life |
| **Self-direction** | Independent, through and action choosing, creativity, freedom, curious, choose own goals, exploring |
| **Universalism** | Understanding, appreciation, tolerance, protection for the welfare of all people and for nature, broadminded, wisdom, social justice, equality, a world at peace, a world of beauty, unity with nature, protecting the environment |
| **Benevolence** | Preservation, enhancement of the welfare of people with whom one is in frequent personal contact, helpful, honest, forgiving, loyal, responsible, true friendship, mature love |
| **Tradition** | Respect, commitment, acceptance of the customs and ideas that traditional culture or religion provide the self, humble, accepting one’s portion in life, devout, respect for tradition, moderate |
| **Conformity** | Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms, politeness, obedient, self-discipline, honoring parents and elders |
| **Security** | Safety, harmony, stability of society, stability of relationships and of self, family, security, national security, social order, clean, reciprocation of favors, sense of belonging, healthy |
**Needs, Motives, and Values.**

Three labels that emerge when reviewing content theories of motivation are needs, motives, and values. Though generally characterized as different constructs, the distinction between the constructs is fuzzy. For example, needs are distinguished from values in that needs are biological imperatives that all possess, whereas values have been considered more culturally differentiating (Feather, 1992). However, the biological vs. cultural distinction has become fuzzy as the study of needs has progressed beyond primary biological drives, and values researchers have sought a more universal taxonomy of values. In fact, Feather points out that needs and values have both functional and conceptual overlap which he classifies generally as motives. In this section, I review taxonomic content theories (i.e., theories that attempt to include all major needs, motives, and values) and narrower content theories (i.e., theories that focus on an individual or class of needs, motives, and values) of motivation in order to highlight areas in which there is overlap across the three constructs.

**Taxonomic content theories.** Needs have been defined as internal, unobservable forces (some category of “wants”), which create tensions when the needs are not met, (p.238, Mitchell & Daniels, 2003). Maslow’s need hierarchy theory (Maslow, 1943) is perhaps the most well-known of the need theories. Maslow proposed five hierarchically structured categories of needs: a) physiological needs, b) safety needs, c) belongingness needs, d) esteem needs and e) self-actualization needs. According to Maslow, as a need lower on the hierarchy is fulfilled (e.g., physiological needs), the individual focuses on
higher-level needs such as safety and so forth. Though Maslow’s theory does not explain the psychological processes at work during need satisfaction, the premise of his theory purports movement along the need hierarchy as a result of need satisfaction or reemergence of a lower level need. The concept of need satisfaction is central to other need theories and some process theories that will be reviewed throughout this dissertation.

Maslow’s (1943) need hierarchy, though a popular and well-known theory found little empirical support in the 1950’s and 1960s (Mitchell & Daniels, 2003). However, Latham and Pinder (2005) reported a resurgence of interest in the theory in that recent work has found support for the practical significance of Maslow’s hierarchy. For example, in developing countries, individuals rank fulfillment of lower needs such as physiological and safety needs as more important than growth needs (e.g., Ajila, 1997). Some researchers now suggest that the lack of support for the theory early on may be in part due to the lack of validity in the way the theory has been operationalized in empirical work (e.g., Kluger & Tichochinsky, 2001).

The link between Maslow’s needs and the values construct is fairly clear. Notice that belongingness is a need as identified by Maslow; yet, it also appears as a value in Schwartz’s list of values (Table 1). Similarly, consider the definition of values previously presented. Values are concepts or beliefs. Concepts are, by definition, conceived of in the mind; thus, values and needs are both internal to the person. Furthermore, values are concepts or beliefs about “desirable end states.” Certainly, that which is a desirable end-state is considered a want or a need. In addition, Schwartz and Bilsky’s (1987) definition
of values specifies that values can be ordered in importance. Similarly, Maslow’s theory describes the processes that determine the order of importance of needs for an individual at any one time. Specifically, once one need is met, the individual seeks to satisfy a higher-order need. Thus, though Maslow uses the term needs, in his theory, the term need used in this manner is synonymous with values (Locke, 1976). Classifying values as needs is fairly common in the literature. In fact, some researchers today refer to Maslow’s needs directly as values (e.g., Kahle, 1996).

Similar to Maslow’s need hierarchy, Alderfer (1969, 1972) proposed a content theory of need satisfaction. Alderfer proposed a theory of need satisfaction called existence relatedness growth (ERG) theory. Alderfer’s ERG theory suggests that Maslow’s needs theory can be refined into three categories of needs: a) existence needs, b) relatedness needs, and c) growth needs. According to Alderfer, existence needs represent needs for material items such as food, shelter, and money. Relatedness needs, on the other hand, represent the need to share with others. Finally, growth needs represent an individual’s need to develop oneself and one’s abilities. In contrast to Maslow’s hierarchical theory, ERG theory suggests that different levels of needs can be pursued simultaneously, the order of needs can vary based on the individual, and if higher order needs are not met, individuals will regress to address lower level needs.

Though Alderfer’s ERG theory has not stimulated a vast body of research beyond Alderfer’s own tests of the theory (Landy & Conte, 2004; Levy, 2006), tests of the need hierarchy concept have generally found support for the three levels of needs in ERG theory rather than Maslow’s five levels of need (e.g., Rauschenberger, Schmitt, &
More recently, researchers have sought to investigate the causal relationships between need satisfaction and employee job satisfaction based on Alderfer’s theory (e.g., Arnolds & Boshoff, 2002). Arnolds and Alderfer sought to examine the influence of need fulfillment on self-esteem in order to link self-esteem to performance intentions. The researchers found that the link between need satisfaction, self-esteem, and performance intentions varies based on the type of need. For example, satisfaction of growth needs enhances both self-esteem and performance intentions of top managers and front line employees. Similarly, the satisfaction of need for relatedness to peers enhances self-esteem and performance intentions in front line employees. However, a negative relationship was found between satisfaction of need for relatedness to supervisor, self-esteem and performance intentions.

As with Maslow’s needs construct, the link between Alderfer’s existence, relatedness and growth needs and the values construct is fairly clear. For example, several of the needs in Schwartz’ taxonomy (Table 1) such as safety, belongingness, and self-direction could be interpreted as existence, relatedness, and growth needs, respectively. Similarly, in Alderfer’s theory, needs represent desirable end-states which the individual seeks to satisfy. Furthermore, these needs guide an individual’s behavior as the individual seeks to perform behaviors that will lend support to need fulfillment.

A third need theory prevalent in the I-O literature, Herzberg’s (1966) two-factor theory has been identified as a “premier example of a content formulation” (p. 1044, Jacoby, 1976) in motivation theory. Herzberg’s theory described two categories of human needs: hygiene factors (also called extrinsic factors) and motivator factors (also called
intrinsic factors). Hygiene factors were those factors related to extrinsic sources such as pay and organizational policies and motivator factors were related to intrinsic sources such as achievement and respect. The factors described in Herzberg’s theory are the wants through which an individual gains satisfaction from a job (Herzberg, 1966; Herzberg, Mausner, & Snyderman, 1959). As wants that guide behaviors to desirable end-states, Herzberg’s two factors are similar to the needs constructs described by Maslow and Alderfer and as such could be interpreted to be values.

Empirical study of Herzberg’s theory has provided mixed results (Levy, 2006). Gardner (1977) reports approximately one in three empirical tests of Herzberg’s theory conform to the original findings. The lack of evidence supporting the theory has been attributed to the variety of interpretations of Herzberg’s model (Gardner; King, 1970). Few, however, disagree that Herzberg’s theory was the precursor to advances in theories of job satisfaction.

Beyond the need conceptualizations of values as described above, values have also appeared in the motivation literature as motives. The term motive has been adopted by a number of researchers to refer to relatively stable dispositions, personality dispositions, or learned tendencies that influence the perception of a situation (Campbell & Pritchard, 1976; Feather, 1992). An initial review of the statement above reveals that motives in some way align with values. Specifically, motives are stable dispositions that influence the perception of a situation and values are concepts or beliefs that transcend specific situations. Two broad types of motives are prominent in the I-O psychology literature: intrinsic and extrinsic motives. Intrinsic motives are internal outcomes such as
a sense of accomplishment, and extrinsic motives are external outcomes such as payment for service or pizza for winning a contest (Ferguson, 2000). Intrinsic motives have been identified as higher-order needs such as self-satisfaction and enjoyment (Kanfer, 1990) and have become the central component of intrinsic theories of motivation (e.g., cognitive evaluation theory; Deci, 1980; job characteristics theory; Hackman & Oldham, 1980).

The premise of cognitive evaluation theory (CET; Deci, 1980) is that external factors such as rewards influence internal motives. Interestingly, what is meant by internal motives in CET leads back to a discussion of higher-order needs. Specifically, CET states that individuals have an internal need to feel autonomous (also called need for self-determination) and a need to feel competent. According to CET, external factors that increase or decrease feelings of autonomy and competence influence the individual’s internal motivations. For example, positive feedback has been found to increase an individual’s feelings of competence and thus, influence intrinsic motivation and in a similar manner, negative feedback has been found to decrease an individual’s feelings of competence and thus, reduce intrinsic motivation (Deci, Koestner, & Ryan, 1999; Gagne & Deci, 2005).

**Narrower content theories.** Whereas, Maslow’s (1943) theory conceptualizes five categories of needs, Herzberg’s theory (1966) emphasizes classes of motivating factors, and CET focuses on two specific higher-order needs (need for autonomy and need to feel competent). However, other theories of values in the content literature focus on a single, specific value rather than a group or cluster of constructs. For example, social
justice is a value identified in Schwartz’s motivational types similar to the values of fairness and respect central in equity (Adams, 1965) and justice theories (Greenberg & Lind, 2000). Similarly, Latham and Pinder (2005) identify perceptions of fairness as a value in their review of values in motivation.

Rather than focusing on understanding and classifying values, these content theories focus on the influence of one particular value in motivating behavior. For example, justice theories are of particular interest to I-O psychologists because these theories emphasize the perception of fairness of policies and procedures regarding decisions in organizations. Justice is a value as identified in many of today’s common value lists (e.g., Schwartz & Bilsky, 1987; Schwartz, 1996). Mitchell and Daniels (2003) highlight the strong empirical link between perceptions of injustice and work criterion such as poor performance (e.g., Greenberg, 1988), increased turnover and increased absenteeism (e.g., Schwarzwald, Koslowsky, & Shalit, 1992). Similarly, positive perceptions of justice have been linked to increased commitment and job satisfaction (e.g., Takeuchi, Tekleab, & Taylor, 2000) and lower levels of turnover (Dailey & Kirk, 1992).

Table 2 reviews the varying terms used in content theories of motivation to describe key internally held wants and needs as end-states that guide behavior. The overlap among these constructs supports the proposition that a parsimonious theory of values is warranted. The role of values as described by content theories of motivation is central to the parsimonious theory of values in motivation examined in this dissertation.
Table 2

*Summary of Content Theories, Values Terminology, and Definitions.*

<table>
<thead>
<tr>
<th>Term</th>
<th>Theory/Researchers</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Values</td>
<td>Schwartz &amp; Bilsky (1987; 1990)</td>
<td>“(a) concepts or beliefs, (b) about desirable end states or behaviors, (c) that transcend specific situations, (d) guide selection or evaluation of behavior and events, and (e) are ordered by relative importance,” (p. 551).</td>
</tr>
<tr>
<td>Terminal</td>
<td>Rokeach (1973)</td>
<td>End-states such as a comfortable life, a sense of accomplishment, and family security;</td>
</tr>
<tr>
<td>Values</td>
<td>Rokeach (1973)</td>
<td>Modes of behavior such as working hard, acting courageously, and being responsible.</td>
</tr>
<tr>
<td>Needs</td>
<td>Maslow’s need hierarchy (1943); Herzberg’s two factor theory (1966); Alderefer’s ERG theory (1969)</td>
<td>Internal unobservable forces (some category of “wants”), which create tensions when the needs are not met, (p.238, Mitchell &amp; Daniels, 2003).</td>
</tr>
<tr>
<td>Motives</td>
<td>cognitive evaluation theory, Deci, 1980; task characteristics theory; Hackman &amp; Oldham, 1980</td>
<td>Relatively stable dispositions, personality dispositions, or learned tendencies that influence the perception of a situation.</td>
</tr>
</tbody>
</table>

However, to truly study an integrative theory of values in motivation it is necessary to not only consider the way values have been examined in content theories of motivation, but process theories as well. That is, to understand the influence of values on behavior requires a perspective that explains the process of how individuals work toward, maintain, or attain needs, wants, and/or values that are important to them. Process theories of motivation have integrated values in different ways than content theories. A review of the role of values in process theories further outlines the current argument and, in combination with the way values have been conceptualized in content theories,
provides the foundation for a more thorough integration of the role of values in motivation theory.

**Values and Process Theories of Motivation**

Most process theories of motivation center on the means by which individuals seek pleasure and avoid pain (Weiner, 1992). For example, how do individuals achieve, meet, or maintain wants. Unlike content theories, process theories emphasize the explanation for movement toward a particular outcome. That is, while some content theories may describe the conceptualization of movement to satisfaction (e.g., Maslow, 1943; Alderfer, 1972), the focus of process theories is on the actual movement toward the outcome rather than the outcome itself. In other words, process theories attempt to define the variables that are necessary to explain choice, effort, and persistence (Campbell & Pritchard, 1976). Vancouver (2004) categorized process theories into three specific domains: learning theories, decision (i.e., choice) theories, and goal theories. Interestingly, value appears in all of these theories (though as with content theories, sometimes under different names). The role of values in each of these domains is reviewed to identify disparities as well as common ground among the values construct across these perspectives. In doing so, areas for integration are illuminated.

**Learning theories.** The premise of most learning theories is the study of associations (Pearce & Bouton, 2001). Specifically, when two events are consistently experienced together or in closeness in time, an association between the two events is made (Weiss, 1990). Students of psychology have come to know these two events as stimulus and response. More specifically, a stimulus is anything that arouses the senses
(e.g., a smell, a light, a sound) and a response is a reaction to the stimulus (e.g., blinking, salivating, smiling).

Early learning theories emphasized a conditioning explanation. These theories focused on examination of animal behavior under conditions where associations were learned. For example, Ivan Pavlov, is credited with being the first to demonstrate the learned association between a conditioned stimulus and conditioned response known today as classical conditioning (Schultz & Schultz, 1996). However, classical conditioning holds only in cases of involuntary behaviors such as reflexes and emotional responses and loses its explanatory power for voluntary behaviors (Schultz & Schultz, 1996). Researchers, such as Thorndike (1911), Skinner (1938) and Hull (1943) studied the stimulus-response association for voluntary behaviors and purported that responses followed by a satisfier or reinforcer were rewarding (Campbell & Pritchard, 1976; Ferguson, 2000). Thorndike (1911) for example, primarily focused on the effects of rewards or satisfying outcomes on learning.

Thorndike’s puzzle box is a classic example of early animal studies involving reward. Initially, when put in the puzzle box, the cat learns through trial and error that pushing a lever leads to reward. If after successfully pushing the lever the cat receives food (the reward), pushing behavior occurs faster in the next trial. Thus, the following stimulus, response, reward association is learned:

Enter puzzle box (Stimulus) → Push lever (Response) → Food (Reward)

The association between pushing the lever and receiving food is known as a response-reward (also known as response-reinforcer, response-satisfier, or response-consequence)
relationship. Formally known today as Thorndike’s famous Law of Effect, the results of such studies implied that if the effects of a behavior are satisfying, the behavior will be strengthened and repeated. Those behaviors that are unsatisfying are less likely to be repeated (i.e., not valuable).

Additional support for how the favorable or satisfying property of a reward influences animal behavior has been established by Rescorla (1987). Specifically, that which is more satisfying is more valuable and, thus, will be the option of choice. For example, Rescorla trained rats in two behaviors (pressing a lever and pulling a chain). Each of the behaviors was followed by a reward. After learning, one of the rewards was switched with an unsatisfying reinforcer (e.g., a toxin). The rats were then given the choice to perform one behavior and receive a reward or the other behavior and receive the toxin. Results indicate that the rats learned the association between the response and reward and chose the behavior that was associated with the more favorable reward. Here the favorable property of the reward plays a role in the rat’s choice between the two behaviors. More specifically, it is important to note here that, according to Thorndike’s Law of Effect and Skinner’s behaviorism, it is the reinforcing nature of the reward that influences an organism to act.

Similar to the way previous concepts in this paper have been tied to the values construct, rewards can be compared to values. Specifically, when associations between response and reward are learned, the amount of reward is one factor that figures in to whether the behavior will be performed in the future (Black, 1965; Hull, 1951; Spence, 1956; Ferguson, 2000). The reward guides the selection and evaluation of choosing to
perform one behavior or another. Some researchers have proposed the term incentive for reinforcers that have such motivating effect (Ferguson). Recall the definition of values presented above, that values “guide selection or evaluation of behaviors,” toward desirable end-states. In this sense, rewards and values function in the same manner. Specifically, they act as incentives guiding behavior.

For the most part, early learning theorists interested in human behavior focused on the development of associations with little regard to cognition (e.g., Thorndike, 1911; Hull, 1951). For example, Thorndike’s Law of Effect focused on animal learning without regard to consciousness. However, Tolman (1948) was interested in the study of purposeful activity. Specifically, Tolman argued that once learned, rewards could be conceptualized a priori and were incentives to perform a particular behavior in the future (Ferguson, 2000). That is, Thorndike’s Law of Effect emphasized the stimulus-response-reinforcer relationship whereas Tolman purported that while learning to navigate a maze, the rats developed a cognitive map that could be used on future trials to lead to the reinforce. Tolman suggested that individuals gain knowledge of (i.e., learn) the relationship between a specific behavior and a reinforcer. The key here is that learning involves gaining knowledge. The emphasis is on the knowledge of the relationship rather than the response-reinforcer relationship itself.

Tolman also made the distinction between learning and performance (Weiss, 1990). That is, learning can remain silent until a reinforcer or goal is present. Tolman & Honzik (1930) demonstrated what is now called latent learning in a series of studies of food-deprived rats. Specifically, three groups of rats were under study: a) the first group
of rats had food available at the end of the maze over each trial, b) the second group of rats never found food at the end of the maze, and c) the third group had no food at the end of the maze for the first 10 days, but on the 11th day food was at the end of the maze for that and all subsequent trials. The researchers found after the group was exposed to the reinforcer (food), the rats average error rate decreased and their average speed increased compared to the rats in the first group. Tolman believed that even during trials in which the third group did not receive food (i.e., trials 1-10), learning occurred. According to Tolman during this period, the rats created a cognitive map of the maze that was activated once the food was made available.

Tolman further purported that it is the knowledge that a particular stimulus will lead to a particular event, outcome, or reward that is acquired during learning. Today, the learned knowledge has become known as expectancy (Weiss, 1990; Beck, 2000). Tolman (1932) is credited as being among the first to develop the expectancy concept. Tolman’s expectancy concept has become a central component to a class of decision theories that will be described in the next section.

The primary focus of content theories is that needs/values are desirable end-states that guide behavior, whereas learning theories incorporate value as a rewarding property. That is, the variation in favorableness or attractiveness of a reward or incentive that leads an individual toward a particular end-state is value. Decision theories also incorporate a more property-focused value concept. The review of decision theories that follows will further highlight this concept.
Decision theories. Decision theories most prominent in the motivation literature historically stemmed from two paths. The first grew from early philosophical and mathematical perspectives and are based on economic theories of decision-making. The second is the vast body of literature that grew out of Tolman’s (1932) expectancy concept and Lewin’s (1951) theory of psychological forces. Values are conceptualized in each of these two areas of decision-making. Indeed, a review of the theories will expose parallel uses of value under different names (e.g., utility, valence).

An economic perspective. Value has appeared in economic theories of decision making for centuries. For example, Beach and Connolly (2005) describe Pascal’s (1623-1662) representation of the decision to believe in the Christian God during life as one based on the attractiveness of eternal life in heaven (i.e., a desired end state). Pascal tackled the question of whether or not to believe in the Christian God as a gambling decision. According to Pascal, choosing to believe in God is a very attractive and easy choice. That is, if an individual chooses to believe in God and on Judgment Day when His existence is known for sure, the reward is an eternity in heaven; whereas, if God does not exist, the individual loses only the time spent worshipping during life. Indeed, a very small trade off to potentially lose some time in life to religious activity to gaining an eternity in heaven. On the other hand, should one choose to not believe in God, one gains the time in life spent on religious activities, but on Judgment Day, if God truly exists, is condemned to hell for an eternity, which is far worse than the small amount of time one has gained from not participating in religious activities. Thus, believing in God is the
more attractive choice because ultimately, the potential gain is attaining the desired end state (i.e., value by Schwartz & Bilsky’s, 1987, definition) of eternal life in heaven.

In the example above, belief in God is a cognitive concept that guides the individual’s behavior to a desirable end-state (i.e., eternal life in heaven). To conceptually consider the example using Rokeach’s (1973) terminology, eternal life in heaven is a desirable end state (i.e., terminal value) and believing in God is the concept or belief that guides an individual’s behavior (i.e., instrumental value). In a similar vein, Bernoulli (as cited in Beach & Connolly, 2005) examined the decision between two gambles based on expected monetary gains and losses and concluded decisions should be made among gambles based on expected value. The value is the desired end-state of having more money (or losing less). According to Bernoulli, the expected value of an outcome was calculated by comparing gains and losses in terms of the likelihood of each. Specifically, expected value could be calculated by multiplying the payoff for winning by the probability of winning and the payoff for losing by the probability one would lose (Beach & Connolly, 2005). If after calculating the expected value it was determined that the outcome was positive; then this was an attractive choice and the individual should take the gamble. On the other hand, if the expected value was negative, the outcome was not attractive and the gamble should be avoided. However, Bernoulli recognized the previous statement is perhaps a bit too simplistic. That is, expected value refers to psychological worth, thus, the magnitude of a win or loss as well as the size of a payoff will be perceived differently by different people. Additionally, the actual probabilities of winning and losing are not always known (for example, in the aforementioned belief in God
example). Bernoulli proposed a theory of expected utility whereby the decision to bet is based in part on the perceived psychological value (i.e., utility) of the resulting win. That is, the decision to bet or not will vary for a poor man versus rich man because an increase of $50 may have more psychological worth to a man who has nothing than to a man that has millions.

As a result in the varying conditions (e.g., knowledge of actual probabilities, individual psychological worth), decision researchers have come to use a variety of terms in describing expected value including: expected value, subjective expected value, expected utility, and subjective expected utility. These variations are summarized in Edwards (1955) four variations of expected value presented in Table 3.

Table 3

*Edwards (1955) Four Variations on Expected Value*
(adapted from Beach & Connolly, 2005)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Utility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Isomorphic Utility</td>
<td>A1B1: Expected Value</td>
<td>A2B1: Subjective Expected Value</td>
</tr>
</tbody>
</table>

Specifically, Table 3 exhibits the four conditions of expected value based on knowing the objective (actual) probability of an event or subjectively estimating that probability as well as conditions under which an individual’s psychological perception of worth (utility) is identical to the actual value of winning or losing and when the utility
varies from the actual value of winning or losing. Thus, the differences among the cells represent a path from objective estimation of expected value based on actual worth (expected value) to a completely psychological estimation of value based on subjective probability and an individual perception of utility. It is the subjective expected utility (SEU), a purely psychological construct that is of particular interest to motivation researchers.

Undoubtedly the most influential theory to the decision-making literature is Kahneman and Tversky’s (1979) prospect theory. Prospect theory is a psychological theory of preference that purports the subjective value of a choice is determined with respect to a reference point on a loss–gain continuum. The reference point is usually representative of status quo. Figure 1 depicts the reference point and value function as specified by prospect theory. According to prospect theory, value is not isomorphic with actual value rather it is a subjective perception. Figure 1 shows that to the right of the reference point, the subjective value of a gain rises exponentially, quickly at first and then more slowly. To the left of the reference point the value function is convex, indicating that some increment in losses are relatively painful but that as the loss becomes larger the same change in loss is less critical. This S-shaped curve reflects the psychological nature of value within the prospect theory conceptualization. The S-shaped curve implies that decisions are made based on the change in value where individuals are more risk averse in situations that involve gains and risk seeking in situations involving loss. Economic theories of subjective expected utility have influenced the evolution of a second class of decision theories in motivation called expectancy-value (E-V) models.
Figure 1. Prospect Theory Value Function

**Expectancy-Value Models.** Evolving from the work of Tolman (1932) and Lewin (1951) as well as economic theories of motivation, E-V theories purport that individuals choose to act based on a cognitive evaluation of alternatives. Specifically, individuals act in ways that are expected to produce valued outcomes. More specifically, expectancy refers to the probability that given a particular behavior or level of performance a particular outcome will occur and value is a property of the outcome that reflects desirability (Ambrose & Kulik, 1999; Donovan, 2003; Katzell & Thompson, 1990). Consistent with the learning literature, Tolman (1932) purported that expectancies are learned via associations between a behavior or particular level of performance and an outcome. Consistent with the decision-making literature expectancy is a subjective probability in that it reflects the individual’s belief that the outcome will
occur. Similarly, value can be compared to subjective utility construct that represents the individual’s perception of the favorability or desirability of an outcome. The a priori nature of the subjective evaluation of the value of an outcome is called valence. I propose that as with expectancies, valences are learned.

Lewin and colleagues (Lewin, 1951; Lewin, Dembo, Festinger, and Sears, 1944) proposed a theory of tension reduction that centered on the interplay between person and environment (i.e., $B = f(P, E)$; Lewin, 1951) to explain choice behavior. According to Lewin, within an individual is a psychological life space that is equivalent to the subjective experience of a particular individual at a particular time under a particular set of circumstances. Both the past and the future influence the current life space. Within an individual’s life space are multiple systems that reflect varying psychological needs. Tension refers to a system in need. For example, hunger is a psychological need (i.e., tension) within a particular system in the individual’s life space. Note that this conceptualization of need is different than that of need as conceptualized as an end-state in content theories of motivation presented earlier in this review. Thus, from Lewin’s perspective, release of a tension is equivalent to satisfaction of a need.

Lewin’s (1951) conceptualization of tension as a psychological need describes how level or intensity of need influences the individual’s valence for a particular choice or activity. Lewin’s tension reduction theory states that individuals seek to fulfill needs (i.e, reduce tension). Need fulfillment is in part determined by the attractiveness of particular behaviors or events. Specifically, Lewin theorized that the attractiveness of an outcome (valence) is based on experience and need and valence changes as a result of
participating in behaviors that change the individual’s internal level of tension. According to Lewin, the valence of an activity such as going to the movies is determined in part by the nature of the activity and in part by the current state of tension related to the need for recreation. Given an increase in intensity of the need for recreation, a corresponding increase in the attractiveness of seeing a movie will result. Furthermore, Lewin describes a point of satiation for needs whereby performing an activity beyond the point of satiation (i.e., beyond the point at which there is no longer a tension) has empirically been found to result in mistakes, inattentiveness, and inability to carry out what previously mattered. Lewin attributes such changes in performance to changes in perceived value of the activity. Lewin’s valence concept appears in numerous E-V theories in the psychological literature today.

Though numerous E-V models have emerged from Lewin’s work, the most prominent E-V theory in I-O psychology is Vroom’s (1964) Valence-Instrumentality-Expectancy (VIE) theory (Donovan, 2003; Kanfer, 1990). VIE theory centers on three key constructs: a.) expectancy, b.) valence and c.) instrumentality and purports that individuals’ exert effort on those things that they perceive will lead to valuable outcomes. Specifically, Vroom proposed

\[
\text{Force} = \text{expectancy} \times \sum (\text{valence} \times \text{instrumentally})
\]

where force is defined as the pressure an individual feels to perform or avoid performing a particular behavior. The expectancy component refers to the individual’s perception of the likelihood (i.e., subjective probability) a particular level of effort will lead to a particular outcome. Valence refers to the anticipated satisfaction/dissatisfaction that will
result from performing the task or exerting effort to the outcome and instrumentality is
the likelihood a second outcome will occur based on exerting effort toward the first (i.e.,
focal) outcome. Thus, according to Vroom, individuals exert effort on those tasks that
have a positive force and avoid performing those that have a negative force and
expectancy, valence, and instrumentality are the factors that influence level of force.

Valence as conceptualized in Vroom’s (1964) model has been operationalized in
the literature as attractiveness, importance, and desirability (Van Eerde & Thierry, 1996).
Once again, returning to Schwartz and Bilsky’s (1987) definition of value, a clear
connection between value and valence appears. Specifically, valence is an internal
perception (as are values as concepts or beliefs) of the attractiveness of a choice option
that guides selection or evaluation of behavior and events. Furthermore, just as Schwartz
& Bilsky’s definition of values specifies values are ordered in terms of importance,
valence is a representation of level of importance.

VIE theory has enjoyed an abundance of attention in both theoretical and
empirical works (Donovan, 2003; Kanfer, 1990; Van Eerde & Thierry, 1996). The
application of VIE theory to issues in I-O psychology has been expansive; for example,
VIE theory has been used to examine such issues as occupational choice, training
motivation, turnover, and goal commitment (Ambrose & Kulik, 1999; Donovan; Van
Eerde & Theirry).

Interestingly, Feather (1992; 1995) incorporates values as end-states (as described
in content theories theory section of this dissertation) into VIE theory. Based on Feather’s
theory of values in motivation, it is an individual’s value priorities (e.g., to be honest) that
influence valence (i.e., anticipated value). In other words, it is through valence that values are related to the choice, effort, and persistence of goal-directed behavior. For example,

Just as a hungry person sees food as attractive and an insecure person sees the environment as threatening, so a person who values freedom sees the restoration of threatened freedoms as worthwhile and desirable, and a person who values honesty sees dishonest ways of behaving as reprehensible and not to be undertaken (Feather, 1992, p.112).

A number of studies have found support for Feather’s perspective that values induce valence. Feather and O’Brien (1987) found that work ethic positively predicted job valence and job valence positively predicted job-seeking behaviors of high school graduates. Expanding on his previous work, Feather (1995) found that participants, given a series of vignettes, chose between two action alternatives based on two different value types. Each alternative was designed to represent one of Schwartz (1992)’s ten values types. Feather (1995) found that valence for an alternative mediated the relationship between value type and actual alternative chosen.

However, empirical examinations of VIE theory have been riddled with criticism for design, measurement, and criterion issues. In a meta-analysis, Van Eerde & Thierry (1996) examined the validity of the theory based on 77 studies done between 1964 and 1990 and concluded that the individual components of the model yield effect sizes as high as the complete model and conclude that the varying conceptualizations of the models components and criterion-related issues are a barrier in accurately assessing the validity of the model. Perhaps, these issues are what have led researchers more recently
to examine the components of the model individually and to integrate the theory with other theories of motivation such as equity theory, goal-setting, and decision-making theories (Ambrose & Kulik, 1999; Donovan 2003). Furthermore, unlike the earlier work of Lewin that described the changing nature of valence, Vroom’s work is static in nature (a point Vroom himself admitted) and thus, does not account for the dynamic nature of human motivation.

E-V theories have been well-received by motivation theorists and the psychology community (Mitchell & Daniels, 2003). Indeed, like economic theories of motivation, E-V theories focus on value as a property relating to movement toward (or choice) of a particular outcome rather than the single outcome or end-state itself. Interestingly, the final class of process theories, goal theories, allow for the examination of values as both content and property.

**Goal theories.** Goal theories focus on the desires individuals seek to maintain or achieve. Researchers agree that goals (i.e., internally represented desired states) are central to motivation (Austin & Vancouver, 1996; Kanfer, 1990; Locke and Latham, 1990; 2002) and the goal construct has emerged as the central component of many motivation theories. For example, goal setting theory (Locke & Latham, 1990) is one of the most empirically tested theories of motivation in I-O psychology with support in over 100 tasks (Koppes, 2007). The premise of goal setting theory is that goals regulate action. Specifically, goals function as the basis of an individual’s decision to put effort toward a particular task. Specific and difficult goals result in increased effort put forth by the individual. Feedback regarding progress toward the goal guides the individual’s decision
to increase, maintain, or decrease effort toward a particular goal. The role of the values construct is not directly addressed in goal-setting theory. However, Latham (2007) explains the difference between values and goals as one of specificity. From Latham’s perspective, goals are simply more specific representations of values. The link between goals and values, though not systematically examined has been made by other researchers as well (e.g., Austin & Vancouver, 1996, Cropanzano, James, & Citera, 1993; Chulef, Read, & Walsh, 2001).

Indeed, a comparison of values to goals highlights the similarities between the two constructs. The first component of Schwartz and Bilsky’s (1987) definition identifies values as concepts or beliefs; thus, latent constructs. Values are abstract constructs that are internally represented just as goals are. In addition, values are concepts or beliefs of desirable end-states (i.e., goals) that transcend specific situations. The relationship in terms of specificity between the two constructs is clarified by a review of the structure of goal systems as described by a second set of goal theories prominent in the I-O literature, control theories (Carver & Scheier, 1981; Powers, 1973).

Control theories (Powers, 1973; Carver & Scheier, 1981) describe motivation as a process of regulating goals via feedback within goal systems. For example, a basic goal system (cybernetic unit; Miller, Galanter, & Pribram, 1960; Powers, 1973) is depicted in Figure 2. The goal system functions as a negative feedback loop whereby the system works to attain a desired goal or maintain a satisfied goal. The process is one of discrepancy reduction. That is, within each goal system is a desired goal state (i.e., goal level). As information flows into the system from the environment, the system forms a
perception of the current state of the goal. This is compared to the desired state. When there is a discrepancy between the perceived current state and the desired goal state, the system acts to reduce it. Thus, a disturbance in the environment initiates the goal system and behavior is modified if there is a discrepancy between the desired state and goal state of the target variable. For example, a production worker may have the desired goal of making fifteen widgets per day. At any given time during the day, the worker has a perception of her current state (i.e., made four widgets).

Figure 2. Basic Goal System

The worker’s perception of her current state is compared to the desired state in the comparator function. In the present example, the current state of four completed widgets is subtracted from the goal of fifteen widgets and results in a discrepancy of 11 widgets.
This error results in action via the output function. The result of the action feeds back as new information for the goal system; thus, creating a negative feedback loop. The feedback (i.e., information; Locke & Latham, 1990) is essential to the theory given the regulatory nature of the system. That is, the information that is fed back into the system is again compared to the desired goal state. This process continues in order to attain or maintain the goal. When no discrepancy exists between the current state and goal state within a goal system (i.e., the goal is satiated), the individual does not act. Similar to the reduction in activity when one is satiated and stops eating because he or she is no longer hungry (i.e., no discrepancy between current state and goal state), when 11 widgets are made the individual will cease making widgets and focus one’s attention on a different goal.

An important aspect of control theories (e.g., Carver & Scheier, 1998; Powers, 1973) is the hierarchical nature of goal systems. Goal systems do not function independently. That is, many goal systems are linked and are presumably organized into a hierarchical structure. Figure 3 represents a goal hierarchy.

Within the individual, this hierarchy can range from biological set points to cognitive depictions of desired outcomes and results in an interconnected layout of goal systems (Austin & Vancouver, 1996). Whereas Latham (2007) describes values as less specific goals, the control theory conceptualizes values as higher-level goals within a goal hierarchy. The hierarchical nature of goal systems will serve as the foundation for an integrated approach to values in motivation.
Figure 3. Goal System Hierarchy

Similar to content theories, the process theories reviewed thus far, have used a variety of terms to describe values and/or value elements of the theories. Table 4 summarizes the terminology, theories, and definitions related to values used in process theories of motivation.
### Summary of Process Theory Constructs, Theories, and Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Framework/Theory</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reward</td>
<td>Learning Theories</td>
<td>“a pleasurable event that follows a specified behavior, (p. 183, Ferguson, 2000)</td>
</tr>
<tr>
<td>Incentive</td>
<td>Learning Theories</td>
<td>“A reward to be received based on goal attainment,” (p.198, Ferguson, 2000)</td>
</tr>
<tr>
<td>Subjective Expected Utility</td>
<td>Decision Theories</td>
<td>Purely psychological perception of the likelihood of an event occurring and the worth of that event. (Edwards, 1955)</td>
</tr>
<tr>
<td>Expectancy</td>
<td>E-V Theories</td>
<td>Subjective probability that an action will lead to an outcome (Van Eerde &amp; Thierry, 1996)</td>
</tr>
<tr>
<td>Valence</td>
<td>E-V Theories</td>
<td>The anticipated satisfaction/dissatisfaction that will result from performing the task or exerting effort to the outcome (Donovan, 2003)</td>
</tr>
<tr>
<td>Instrumentality</td>
<td>E-V Theories</td>
<td>The likelihood a second outcome will occur based on exerting effort toward the first (i.e., focal) outcome (Donovan, 2003)</td>
</tr>
<tr>
<td>Goal</td>
<td>Goal Theories</td>
<td>“Internal representations of desired state” (p. 338, Austin &amp; Vancouver, 1996)</td>
</tr>
</tbody>
</table>

A review of Table 2 and Table 4 reveal that upon examination of the way values have been conceptualized in content and process theories of motivation, two central roles of value have emerged. Specifically, values have been described as desired end-states
(i.e., needs, motives, goals) and as a level of importance or satisfaction (i.e., reward, valence, or subjective expected utility). The abundance of uses of the values construct throughout these theories highlights the prominence of the concept in theories of motivation; yet, the variations in the theories presented brings to light the need for the integration and simplification of the role of values in motivation.

However, interestingly one element missing from all the aforementioned treatments of value is its potential dynamic nature. Specifically, I contend that we cannot fully understand the value construct’s role in an integrative theory of motivation until its dynamic nature is acknowledged. I now turn to a review of theory and research that emphasizes the dynamic nature of motivation. The review culminates in further discussion of the regulatory nature of goal/value systems.

Motivation: A Dynamic Construct

Recall from above that motivation is often defined as a dynamic internal process. For, example, Kuhl (1986) pointed out human behavior “appears as an endless sequence of activities,” (p. 307). One might suppose that previous acts influence subsequent acts that in turn affect future acts. Yet, interestingly, many current theories of motivation are static in nature (e.g., expectancy theory, Vroom, 1964) such that the theories predict specific behaviors under specific conditions and ignore the process by which these behaviors occur over time. Taking a dynamic perspective requires understanding that over time, circumstances may change. Specifically, if individuals have multiple goals and have to make choices between conflicting priorities (Schmidt & DeShon, 2007) the
values associated with particular choices may change over time. Yet, these types of changes are not addressed in most theories of motivation.

Clearly, the dynamic perspective has not been completely ignored. Early biological theories included dynamic components (e.g., Cannon, 1939), as did learning theories (e.g., Schulz & Lawrence, 1958), and some decision-making theories (e.g., Lewin, 1951; Bandura, 1986). In terms of biological theories, Cannon’s (1939) concept of homeostasis describes the process by which the body keeps an internal balance of physiological systems (i.e., body temperature, water content in blood, blood glucose levels). Specifically, when an organism recognizes a need for food, consumption occurs. During this process, level of need is monitored via biological subsystems (mouth, small intestine) and feedback from these subsystems alerts the organism when to stop eating. Furthermore, deprivation occurring within the internal environment alerts the organism of the discrepancy that motivates consumption. This internal process is said to be the result of a negative feedback loop (Ferguson, 2000).

Beyond strictly biological examples of dynamic theories, Cabanac and colleagues (1971; 1972) examined the pleasant versus unpleasant perception of a stimulus from a dynamic perspective. These researchers’ work addressed a phenomenon called alliesthesia. Specifically, alliesthesia refers to the perception of the same stimuli as pleasant or unpleasant based on the states in the organism’s internal regulatory system. An experiment by Cabanac and colleagues makes the point clear. Consider two fasting participants: At time one both participants are given an olfactory stimulus (i.e., asked to sniff orange syrup) and both participants report the stimulus to be pleasant. The control
participant is asked to smell the syrup an additional 33 times over the next 60 minutes. Each time the participant rates the stimulus as pleasant on a scale from very unpleasant to very pleasant with little variation. However, after smelling and rating the stimulus twice (both times identifying the stimulus as pleasant), the experimental participant is asked to ingest 100 grams of glucose in water. After glucose consumption, the experimental participants rating of the orange syrup falls from pleasant to just above neutral. Each time the experimental participant is asked to rate the pleasantness of the stimulus over the next 48 minutes, the pleasantness rating continues to follow an overall pattern of decline to a point just above very unpleasant. This decline, according to Cabanac, is the result of changes in the internal state of the individual as a result of consuming the glucose. Thus, alliesthesia is an example of changes in value (i.e., usefulness) based on changes in states in the regulatory system. These results have been replicated in both human (Cabanac, 1971; Cabanac, Massonnet, & Belaiche, 1972; Fantino, 1984) and rat experiments (Grill & Norgren, 1978; Berridge & Grill, 1984; Berridge, Flynn, Schulkin, & Grill, 1984) with varying senses (touch, taste, and smell).

Cabanac and colleagues (1983; 1987; 1990) examined a more complex case of alliesthesia where participants had to choose between two stimuli. Given that humans seek to maintain an internal temperature (approximately 37 degrees C), Cabanac identifies this temperature as the organisms set value. The researchers hypothesized that when given the choice between two alternatives, participants would make choices that maximize pleasure. For example, Cabanac and LeBlanc (1983) pitted two sensory conditions against each other (the temperature of the environment versus incline of a
treadmill). In the first session, researchers imposed variations in temperature (25 °C to 5 °C) and treadmill incline (0 to 24%). Participants rated pleasure and displeasure of the temperature and exercise. In the next session, researchers imposed one condition (temperature or incline) and allowed the participant to manipulate the other. Results revealed that when researchers required participants to walk up a steep incline, the participants reduced the temperature conditions making it cooler. When the researchers reduced the incline of the treadmill, participants set the temperature at more lukewarm settings. Similar effects were found when the researchers manipulated temperature. That is, participants raised inclines when temperatures were relatively cool and lowered the incline with temperatures were relatively high. Cabanac and LeBlanc concluded that in situations that involve more than one task, the state of each task can influence the other and participants seek a combination of the two that will maximize pleasure.

Interestingly, early learning theories are also somewhat dynamic in nature. For example, the strength of an association between two stimuli (e.g., stimulus A and stimulus B) will vary based on the conditions under which the association is learned (Pearce & Bouton, 2001; Wagner & Rescorla, 1972). Specifically, pre-exposure to a stimulus (A) can result in a slowing of learning when stimulus (A) is later presented with stimulus (B) for conditioning. Dynamics is inherent in this conceptualization of learning as exemplified by the influence of the past (pre-exposure) on present learning. The decrement in learning that results due to pre-exposure is called latent inhibition and has found vast empirical support in both animals and humans (Lubow, 1973). For example, Best and Gemberling (1977) demonstrated evidence for this effect by showing that when
a flavored stimulus is presented to rats prior to presenting the stimulus and inducing illness, the rat is less likely to make a connection between the illness and the flavored stimulus.

Furthermore, incentive motivation emphasized that reward value is based on both qualities of the external reward and the organism’s internal state. For example, “hunger makes food a better incentive,” (p. 205, Beck, 2000). Schulz and Lawrence (1958) examined the behavior of satiated (i.e., no deficiency) or hungry (i.e., large deficiency) rats in a puzzle box. When given the opportunity to run through the puzzle box to a reward, satiated rats took longer to get to the food than hungry rats. This was interpreted as indicating that the incentive value of the same amount of food varied based on each rat’s internal physiological state.

In the consumer psychology literature, McAlister’s (1982) dynamic attribution satiation (DAS) model attempted to explain variety seeking behavior by suggesting that individuals have inventories of attributes that influence choice. These inventories change based on consumption or deprivation (lack of consumption plus natural decrements in levels of inventory). According to DAS, choice at any given point in time is made based on a comparison of inventories. For example, McAlister was interested in choice between two products such as Coke and Dr. Pepper. Both of these products have some level of caffeine and fruit flavor. Based on DAS, when given the choice between these two products, individuals will choose that which offers more of the attribute with the lower internal inventory. Specifically, if Coke offers 7 units of caffeine and 3 units of fruit flavor and Dr. Pepper offers 6 units of caffeine and 6 units of fruit flavor, given an
internal inventory of 7 on the caffeine scale and 2 on the fruit flavor scale, the individual will choose to drink Dr. Pepper in order to increase intake of fruit flavor units.

Though grounded in a dynamic regulatory perspective, these theories do not provide a complete account of the psychological factors involved in choice (e.g., learning and expectancy concepts are missing in some way). Self-regulatory theories in general, and control theories in particular, emphasize the dynamic nature of motivation through goal regulation. Using a control theory perspective, researchers can examine the goal processes involved in seeking and maintaining goals over time. Austin and Vancouver (1996) provide a framework for understanding the regulation of goals in their conceptualization of goal processes and Vancouver (2008) provides a self-regulatory perspective that includes learning and expectancies elements.

**Goal processes.** Given the plethora of research in self-regulation surrounding the goal construct, Austin and Vancouver (1996) identified four goal processes at work during regulation: establishment (i.e., learning or adoption), planning, striving, and revising. They define goals as internal representations of desired states, although, goals can originate from external, internal or a combination of sources. Once established, goal striving is the process by which there is movement toward or maintenance of the goal (Schwartz & Bohner, 1996); for example, the act of making widgets or eating food. During goal striving, the individual and environment change due to the interaction between the two (Diefendorff, Hall, Lord, & Strean, 2000). Via this process, goals are attained and maintained (Pervin, 1989; Vancouver & Putka, 2000). Unlike Thorndike’s Law of Effect and reinforcement theories that conceive organisms act because of the
satisfying nature of a reward, goal striving is the process by which an organism acts to reduce an internal discrepancy within a control system. There has been widespread empirical support for this discrepancy-reduction model of goal striving (e.g., Johnson, Chang, & Lord, 2006; Kernan & Lord, 1990; Vancouver & Putka, 2000).

The interconnectedness of the goal hierarchy plays a role in goal striving. This interconnected structure results in changes not only in current states in the focal system during goal striving, but changes in those systems to which it is connected (Schmidt & DeShon, 2007; Vancouver, 1997; Vancouver, Putka, & Scherbaum, 2005). Results of these empirical investigations confirm that complex behavior can arise from individuals seeking to reduce several discrepancies within individual goal systems. For example, Schmidt and DeShon found that when faced with two goals (and therefore, two potential discrepancies), individuals act to reduce the larger discrepancy. As this action reduced the discrepancy of the one goal, it eventually becomes smaller than the discrepancy of the other goal, resulting in the individual switching to the other goal. Vancouver, Weinhardt, and Schmidt (2009) attributed this switching behavior to the changing nature of the value of the goals over time. In particular, they hypothesized that the value of the goal was a function of the incentive tied to the goal and the current level of discrepancy between the current and desired goal state for the task. Incentive value was manipulated between-subjects and only accounted for between-subjects differences in behavior. Discrepancies changed as a function of within-subjects manipulations and the actions of the participants. It was these changes that accounted for the task switching over time.
Interestingly, this positive relative discrepancy effect was the case only when the participants were far from their deadline for the two goals. As the deadline approached, the effect was reversed and individuals focused on the task with the smaller discrepancy. Vancouver et al., (2009) speculated that this reversal is the effect of changing expectancies, which are influenced by both the changing discrepancies and the approaching deadline (i.e., beliefs regarding which goal was more likely to be completed). Vancouver et al. confirmed that their speculations might account for the Schmidt and DeShon (2007) data by constructing a computational model that reproduced the observed effects. Thus, just as Lewin (1951) purported that the person-environment interaction influences choice at a given time, time is an important component in goal striving. At each moment, an individual will have a perception of the current and goal state, and these states, as well as expectancies and valences weigh in the decision to perform a particular task.

The process of goal striving often (but not always) includes a second goal process; that of goal planning. The Vancouver et al. (2009) model includes elements of goal planning. Specifically, goal planning is the process by which established goals are linked to behavioral paths and potential alternatives plans (Gollwitzer, 1996). Gollwitzer describes the primary function of planning as the facilitation of performance on a task or goal. According to Gollwitzer, planning helps to determine when, where, how, and how long we will spend on a particular task. Indeed, goal planning has become a topic of interest in many areas of research including: rehabilitation (e.g., Hart & Evans, 2006), sports (e.g., Meyers, Whelan, & Murphy, 1996), and mental health issues (Febbraro &
Clum, 1998). Thus, understanding the process of planning has become important to researchers interested in human motivation (e.g., Bandura & Locke, 2003; Vancouver & Kendall, 2005; Vancouver, More & Yoder, 2008).

During goal planning, evaluation of the alternative paths might occur. As with goal striving, the interconnectedness of the goal hierarchy plays a role. Specifically, the influence of information from one goal system on another suggests that a particular behavior may relate to one or more goals. For example, consider the individual deciding whether or not to go to basketball practice. The decision to put forth the effort to go to practice may relate to a number of the individual’s goals. The most apparent may be the relationship between going to practice and game preparation. Self-regulatory theories claim that the individual’s decision will be influenced by the size of the discrepancy between the individual’s goal state of game preparation and current state of game preparation. However, the choice to go or not will also influence other goal systems such as the individual’s goal to be a team player. If an individual feels she is prepared for the game, but not going to practice will disturb the maintenance of her goal to be a team player, during goal planning the individual may evaluate the option of going to practice in terms of its influence on that goal system.

In sum, in the study of goal processes, researchers are interested in a number of goal properties that influence motivation to move toward a particular goal. Among these goal properties are those from traditional expectancy-value theories; for example, valence (i.e., anticipated value of an outcome), and instrumentality (likelihood a particular outcome will occur given another outcome). Indeed, goal theories provide an integrated
platform from which to examine values in motivation. Specifically, control theory provides the framework to conceptualize values as end-states (e.g., higher-level goals) as purported in content theories of motivation and value as a level of satisfaction (e.g., valence) as purported in process theories. Thus, it is a dynamic approach that I will take in explaining the role of values in motivation.

**Values in Motivation: A Dynamic Integrative Approach**

Traditionally, researchers interested in the way values influence human behavior have taken a static perspective. Perhaps, one reason for acceptance of a static perspective is the common sense connection between values and choice. On the surface, it seems reasonable to assume that individuals make choices congruent with the values they hold (i.e. value congruence). Indeed, value congruence has surfaced as one of the dominant perspectives relating values to choice behavior (e.g., Verplanken & Holland, 2002; Cable & Judge, 1996). Verplanken and Holland (2002) found evidence for value congruent choices in consumer choice behavior. Specifically, the researchers proposed a value centrality hypothesis. Central values are those the individual would use to define him or herself. Central values are held reflective of the self rather than values considered important based on social norms (i.e., our organization values environmentally friendly actions). According to Verplanken and Holland, those values that are central to the self will play a role in the individual’s choices (i.e., consumer’s choice of television set or soda pop). For example, if I value living in a world of beauty, I will make choices in line with keeping the environment clean and if I value acumen, I will make choices that align with acquiring knowledge.
Similarly, within the field of I-O psychology in particular, there is a substantial body of literature around value congruence between employee values and the values of the organization for which one works. Value congruence theories (e.g., Kristoff, 1996; Ostroff & Judge, 2007, Edwards & Cable, 2009) suggest that a match between an employee’s values and the employee’s perception of an organization’s values leads to positive outcomes such as intentions to stay and job satisfaction. Yet as previously described, individuals are often juggling conflicting priorities and multiple values, furthermore, current behavior is influenced by past behavior and will influence future behavior. Thus, is it reasonable to suggest that individual’s value system is static or motivates behavior in a consistent fashion over time?

The notion that values are dynamic seems to be making its way into the current psychological literature. For example, Seligman and Katz (1996) proposed a dynamic values systems theory. Similar to Feather, these researchers focus on importance. However, they hypothesized that it is the importance of the value itself that relates to choice behavior and values change in importance (i.e., ranked order) based on the situation. According to Seligman and Katz, individuals create different value systems in part, based on the nature of the current situation they find themselves in. In a lab study, Seligman and Katz found that participants’ ranked values differently depending on whether they were asked to rank them in terms of general values or in terms of how they felt toward the issue of abortion. For example, if an individual were asked to rank order their values in terms of general life principles, they might rank them in the following order: Inner harmony, sanctity of life, freedom. However, when asked to rank order their
values in terms of their views on abortion, the rank order often changed. For example, someone that is pro-choice would more likely rank freedom higher than inner harmony and sanctity of life under such conditions. The researchers replicated these results with feelings toward the environment.

Further Seligman and Katz (1996) performed an experiment where ranking instructions were held constant and the experimental manipulation was a priming task. Participants were primed using a story about an individual that was thinking about having an abortion. The researchers found that participants that were primed in the abortion condition were more likely to change the ranking of values at time two.

Though the dynamic theory of values proposed by Seligman and Katz is a step toward understanding the dynamic nature of values, the theory is limited in that Seligman and Katz do not provide a theoretical explanation for the changes in value systems over time. A theoretical explanation for the dynamic nature of values would help researchers to better understand human behavior. In addition, the researchers propose that the importance of values changes over time, but do not explain the influence of the past on future choices. I take a dynamic perspective to understanding the role of values in motivation by applying a self-regulatory perspective based on control theory (Powers, 1973). More specifically, I tested the common self-regulatory perspective that values are higher-level goals. A perspective that also aligns with the values as needs, end-states, and motives purported in content theories of motivation. Furthermore, based on the process theories of motivation, I examined if value, as level of attractiveness, changes based on
previ0us experience and if experience with a particular value system influences choice behavior.

**An Integrative, Dynamic Theory of Values.** The current study was designed to integrate components of existing theories of values in motivation and empirically examine values as a dynamic construct using a control theory framework. Klein (1989) suggests control theory is an integrative framework for understanding work motivation for several reasons including a.) the dynamic nature of the theory b.) ease of integration with theories such as expectancy theory, goal-setting theory, and attribution theories, c) at the foundation of control theory is a simple heuristic that remains stable when concepts from other theories are integrated into the theory, and d) control theory emphasizes the cognitive processes a common emphasis lacking from other theories. A theory of values based on control theory provides the platform from which to examine values as goals in line with content theories of motivation and at the same time examine values as level of attractiveness in line with process theories. Furthermore, control theory provides the framework to explain the psychological process at work during value regulation and explore the dynamic nature of motivation which has often fallen by the wayside.

Though the dynamic nature of motivation was central to early biological theories, more recently, the focus of motivation research has centered on the study of cognitive constructs (e.g., expectancy, valence, value) primarily from a static perspective. An empirical examination of values based on control theory, a self-regulatory theory of motivation, allows for the integration and simplification of the various ways values have been conceptualized in the motivation literature and accounts for the fact that few
decisions are made at one point in time without influence from previous decisions, behaviors, and/or situations as well as the anticipation of future decisions, behavior or situations. Thus, the current perspective provides an opportunity to explore a more parsimonious theory of the role of values and preserves the dynamic nature of the construct. Indeed, as reviewed above, researchers have begun to examine the dynamic nature of values. However, the attempts have suffered from a lack of theoretical explanation for the psychological processes involved in the changes of values over time.

Using elements from the content and process theories of motivation described above, I empirically examined one aspect of the values as goals conceptualization purported by self-regulatory theorists through a control theory lens and in doing so I sought to: a) demonstrate the integration of learning theory components (e.g., learning of associations) into a self-regulatory theory of values in motivation; b) build on the work of E-V theorists by advancing the understanding of instrumentality and valence; and c) take a first step toward establishing empirical support for a control theory conceptualization of the role of values in motivation from which future research can springboard. In the sections that follow, I describe this integration and the unique elements of a perspective based on perceptual control theory.

**Value systems.** Consistent with the theory of values in content approaches to motivation, values can be viewed as higher-level goals which are end-states that internally represent an individual’s wants and desires. Maslow (1943) called these end-states needs, others have called them motivating factors (e.g., Herzberg, 1966), motives (e.g., Deci, 1980), and values (Schwartz, 1992; Feather, 1992). Regardless of the term
used, these constructs refer to the internal or conceptual content which an individual seeks to attain or maintain. Thus, the conceptualization of values as higher-level goals is consistent with much of the historical research in content theories of motivation. For clarity of concepts from here forth, as presented in Table 5, I will define values as internal representation of desired states at higher-levels of a goal system hierarchy. In doing so, I will examine how values function as higher-level goals within a goal hierarchy. The psychological process by which values function is one element missing in content theories of values.

I claim that the basic process of value regulation aligns with the general process of a control system. For example, the hungry rat or individual who desires food is like the individual who lacks the respect of others and seeks that respect. Simply put, each value an individual holds is a goal regulated by its own system. The values as goals conceptualization allows for the empirical examination of values in the same manner in which researchers examine goals.

As higher-level goals within a hierarchical structure of goals systems, values influence and are influenced by the lower-level goal systems to which they are linked. Figure 4, represents the value of being-well respected as a higher-level goal in a hierarchy in which it is linked to a task at a lower level. The interconnected nature of the goal hierarchy reflects the influence of performance on a lower-level task to the attainment of higher-level values. Thus, performance on a task is linked not only to the system of the task itself, but also to value systems associated with the task. For example, individual’s that value the sanctity of life may associate attending an anti-abortion rally
with attainment or maintenance of their pro-life desires. The lower level goal in this scenario is attending the rally. Rally attendance not only influences the focal system, but the individual’s perception of the current state of the higher level value system the individual seeks to attain or maintain [e.g., value sanctity of life (though clearly other information may be used to form a perception of the current state to which the individual is valuing the sanctity of life)].

Table 5

<table>
<thead>
<tr>
<th>Terminology and Definitions for the Components of a Control theory Examination of Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Values</td>
</tr>
<tr>
<td>Instrumentality</td>
</tr>
<tr>
<td>Valence</td>
</tr>
<tr>
<td>Expectancy</td>
</tr>
<tr>
<td>Satiation</td>
</tr>
</tbody>
</table>

Similarly, Figure 4 represents the value system of being well respected (i.e., being admired by others and receiving respect), a primary value held by individuals (Beatty, Kahle, Homer, & Misra, 1985; Kahle, 1983; Kahle, Beatty, & Homer, 1986). Specifically in the model represented by Figure 4, the individual’s perceived state of respect is influenced by performance on the task represented by the lower level goal system.
**Value Striving.** Value striving (i.e., goal striving) is a process of discrepancy reduction. That is, individuals strive to reduce the discrepancy between a desired value state and current state in order to attain and/or maintain values. For example, the value system in Figure 4 reflects an individual’s desire to be well-respected. At any given time, the individual compares the current state of respect to her desired level of respect and will act in a way that will reduce the discrepancy between the two levels. If there is no discrepancy, no action is taken. As depicted in Figure 4, acting upon the lower level task system will change the individual’s perception of the current level of respect and thus, the resulting discrepancy between the respect current state and desired state.

*Figure 4. Basic Value System*
However, in order to act in such a way that will reduce the discrepancy between the individual’s current and desired states of respect, associations must be made between the lower level task system and higher-level value system. That is, individuals must learn that a particular behavior or performance level influences a higher level value system. Specifically, I purport that experience with a task leads the individual to develop associations between the task and higher-level value systems. For example, performing a task for which an individual receives respect will lead the individual to develop an association between task performance and respect. Thus, consistent with E-V theories of motivation, this link between task performance and respect is instrumentality.

The link between a task and a value system is necessary, but not always sufficient, to provoke action. That is, individuals are rarely in a situation where they are attending to only one goal. Indeed it has been argued that, at any given time, most are juggling multiple priorities and working towards multiple goals (Schmidt & DeShon, 2007). The same is true of values. A look back on Table 1 is a reminder of the many values individuals may hold. For example, the individual that values being well-respected by others may also value having fun, being safe, and time with her family. Given the individual is seeking to attain/maintain a desired state of multiple (sometimes conflicting) values at any point in time with a limited amount of resources (i.e., time, energy) to attribute to a task, how then does the individual choose among varying options?

It appears that the individual’s choice is based on a comparison of the level of discrepancy within each goal system as well as perceived value (i.e., valence) of task
performance (Schmidt & DeShon, 2007). Consider Feather’s (1992) statement above: "Just as a hungry person sees food as attractive and an insecure person sees the environment as threatening, so a person who values freedom sees the restoration of threatened freedoms as worthwhile and desirable…” The emphasis here is on the word hungry. Hunger ebbs and flows as the discrepancy between the current state of food in stomach changes. If food is satisfying hunger -- recall that hungry rats have been found to move faster through a maze toward food than rats that are satiated (Schulz and Lawrence, 1958) -- then it follows that the attractiveness or level of satisfaction attached to performing a task for which one receives respect will vary based on the individual’s need for respect. In other words, the satisfaction from food varies based on the rats hunger and so too does the satisfaction from a task linked to respect vary based on the individual’s need for respect (e.g., size of discrepancy). Therefore, when given the choice between two tasks linked to varying value systems, individual’s task choice and perceived value of a task will vary based on the size of discrepancy (i.e., one’s hunger level). Indeed, this perspective of changing valence is consistent with Lewin’s (1951) theory of valence as well as the research on alliesthesia presented by Cabanac and colleagues (1983; 1987) that revealed changes in attractiveness of an outcome based on an individual’s internal current state.

Yet, empirical investigation of the attractiveness of non-biological value options in motivating choice behavior has taken only a static perspective (e.g., Feather, 1995; Feather & O’Brien, 1987). Certainly, to understand the role of values in motivation it is necessary to examine values in a context where individuals must make decisions based
on conflicting value options rather than a static one option scenario. In the current study, I sought to do this.

**Current Study**

Based on the abundance of terminology related to values in the motivation literature Table 5 provides a summary of key terms and definitions as they will be used in the current study. The current study was designed to empirically investigate the control theory conceptualization of values as higher-level goals in human motivation. In doing so, the study examines aspects of both content and process theories of motivation. Specifically, I considered whether: a) participants learned an association between performance on a task and discrepancy reduction in a higher-level value system (i.e., instrumentality), b) the attractiveness (i.e., valence) of the task changed over time as a function of the level of discrepancy in value system, and; c) these changes influenced task choice. Finally, borrowing from learning theories of association, I explored the proposition that the size of discrepancy in the higher-level value system while learning the association would influence the strength of the association made.

To study these aspects of the dynamic role of values in motivation required a paradigm in which the individual’s current state of a particular value could be manipulated. Specifically, I manipulated participants’ perception of their current state of being respected (i.e., being admired by others and receiving recognition; Beatty, Kahle, Homer, & Misra, 1985; Kahle, 1983; Kahle, Beatty, & Homer, 1986), using feedback representative of how one performed (i.e., praise). In other words, I used praise as the agent by which to disturb participants current state of being-well respected. Thus, when
individuals receive praised for their performance on a task, the individual’s perceived current state of need for respect would increase, reducing any possible discrepancy between the perception of the state and the desired state. Specific hypotheses are presented next; however, as a guide Table 6 presents the tasks used, task purpose, session, and relevant hypotheses.

The praise manipulation provided the conditions necessary to demonstrate the impact of the dynamic nature of goal systems as values. Specifically, I sought to show that participants learned to associate two outcomes: a) task performance; and b) being well-respected and thus, developed an instrumentality for the task.

Table 6

<table>
<thead>
<tr>
<th>Task</th>
<th>Session</th>
<th>Purpose</th>
<th>Relevant Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Anagram-like task</td>
<td>1</td>
<td>To influence the current state of perceived respect</td>
<td>H1 and Exploratory Question</td>
</tr>
<tr>
<td>B. Math Task</td>
<td>1 &amp; 2</td>
<td>Respect Task and choice option</td>
<td>H1; H3</td>
</tr>
<tr>
<td>C. Pop Culture Word Search</td>
<td>1 &amp; 2</td>
<td>Fun Task and choice option</td>
<td>H3</td>
</tr>
<tr>
<td>D. Spot the Stranger Task</td>
<td>2</td>
<td>To influence the current state of perceived respect at Time 2</td>
<td>H2; H3</td>
</tr>
</tbody>
</table>

In a pilot study participants who received praise for their performance on an anagram task reported a significant increase in instrumentality for the task over time, whereas controls did not. The current study sought to replicate the results of the pilot
study and link task engagement on a math task with the higher level value system of being well respected. Specifically, in session 1, I examined task engagement as a means to value attainment (i.e., instrumentality).

Thus, Hypothesis 1 stated that:

H1: Participants given praise for performance on a task would be more likely to report a positive relationship between performance on the task and the likelihood that the task would lead to being well-respected (i.e., instrumentality) than participants not given praise for performance.

Hypothesis 1 was tested in two ways. First, two groups were randomly assigned such that one group was praised while performing the anagram-like task (i.e., Task A) whereas the other group was not. Thus, I examined whether the group that received praise would report a higher likelihood that performing the task well would result in being well-respected than the group that did not receive praise. The second test involved Tasks B (i.e., the math task) and C (i.e., the word search task). The researcher praised all participants while performing the math task but not the word search task. Thus, I examined whether participants would report a higher likelihood that the math task would result in being well-respected than the word search task. I expected that participants would report a higher likelihood the math task would lead to being-well respected than the word search task as a result of the praise manipulation.

Additionally, as described above, individual’s perceptions of anticipated satisfaction of performing a task (i.e., task valence) may change based upon the person and situation. The pilot study confirmed the dynamic nature of valence for an anagram
task where valence increased significantly from baseline over four trials within participants that received praise for performing an anagram-like task. In other words, those participants that received praise for their performance reported that playing the task in the future would be more satisfying over time and controls did not. However, if valence is related to the size of discrepancy between current state and goal state of a value system, the attractiveness of performing the task should drop off as the individual approaches their goal state. In the current study, I sought to extend the pilot results by determining the effect of reducing the discrepancy between current state and goal state of being well-respected on valence for future tasks. Specifically, in a second session a group of participants received praise for performance on a spot-the-stranger task (Task D). After completion of Task D, I examined whether those that received praise would report a lower level of anticipated satisfaction for Task B (math task for which they learned previously that they would receive praise) than those that did not receive praise on Task D. Specifically, I hypothesized:

H2: Participants who received praise for task D would report lower anticipated satisfaction for Task B than those not receiving praise at Time 2.

Furthermore, when individuals have a choice between two tasks, it is the discrepancy in the current state of each of the value systems that influences the individual’s choice of task. In other words receiving praise will decrease the discrepancy between the individual’s perceived current state and goal state of respect; thus, lowering the relevance of the respect value in comparison to a second value system. Specifically, a second value found in content taxonomies (e.g., Schwartz, 1992; Kahle, 1983; Veroff,
Douvan, & Kulka, 1981) is fun and enjoyment. If a task is available with a high instrumentality for enjoyment, we might speculate that the likelihood of choosing that task will increase if the value associated with the respect task (i.e., respect) is satiated. Thus, hypothesis three stated that:

\[ H3: \text{Participants who received praise on Task D would be more likely than those who did not receive praise on Task D to choose Task C (the fun task) at time 2.} \]

Finally, I explored whether the current state of a value system influences the individual’s ability to learn the connection between a task and higher-level value system. Specifically, in addition to replicating the results of the pilot study, the purpose of the anagram task manipulation at Time 1 was to investigate potential differential learning effects related to participants’ current state during learning to associate the math task with praise. I examined whether exposing participants to praise for performance on the anagram-like task prior to the math task would influence the magnitude of the discrepancy between current state of respect and desired state of respect, potentially influencing the ability to learn the association between the math task and being well-respected.

**Exploratory Hypothesis:** Participants who received praise for performance on Task A (Time 1) would report a lower likelihood that performance on Task B would lead to being well-respected than participants who did not receive praise on Task A.
Pilot Study

The List of Values Survey (LOV; Kahle, 1983; Veroff, Douvan, & Kulka, 1981) defines being well-respected as being admired by others and receiving recognition. Thus, it seemed logical that a praise manipulation (i.e., providing recognition for performance on a task) would be a way to operationalize being well-respected. A pilot study was designed to test the strength of the respect manipulation. Specifically, the following hypotheses were tested:

Pilot H1: For the experimental condition, reported likelihood the anagram task will lead to praise would be significantly higher over time than for the control group who did not receive praise.

Pilot H2: For the experimental condition, reported satisfaction with the anagram task will be significantly higher over time than for the control group who did not receive praise.

In addition to testing the praise manipulation, the pilot study was also designed to identify a task that participants would find significantly more fun than other tasks.

Participants

Upon approval from the Ohio University Institutional Review Board (IRB), the pilot study was run in the I/O psychology lab of a large midwestern university from February 27 to March 13, 2008. A total of 49 participants (13 male, 36 female) took part in the pilot study. Over 87% of the participants were freshman and the average age of the participants was 18.71.
Measures and Manipulations

**Perceived respect manipulation.** (Anagram-like task). In order to manipulate participant’s current level of respect, the participants in the experimental group received respect for their performance on a series of anagram tasks (Task A; see Appendix A for task). Each participant completed eight puzzles, one at a time. The conditions were the same except the participants in the respect condition received respect in the form of praise for their performance on the task. Those in the no respect condition received neutral comments from the experimenter. The experimenter commented on the participant’s performance after anagram 1, 3, 6, and 8. It was found in the pilot study that feedback at varying intervals was more believable than feedback after each performance. To increase the salience of the manipulation, the researcher also referred to a pseudo-analysis sheet (see Appendix B). The pseudo-analysis sheet included “dummy” averages for each of the anagrams. The pseudo-analysis sheet was shown to those participants in the experimental condition that their performance was above that of the average participant.

**Tasks B & C.** Math Task (see Appendix C) and Word Search Task (see Appendix D) created to identify a task associated with the fun value system.

**Task instrumentality.** Task instrumentality was measured via a subjective probability questionnaire (see Appendix E). Participants responded to items using a scale of 0 to 10 to a series of outcome items. Instructions indicated “Use any whole number between 0 and 10 to rate the degree to which performing this task will lead to each
outcome.” These instructions were adapted from Mento, Locke, and Klein (1992) in which a similar measure was used ($\alpha = 0.94$).

task valence.

**Task valence.** Valence was measured via an anticipated satisfaction questionnaire (see Appendix F). Tubbs, Boehne, and Paese, (1991) found anticipated satisfaction measures of valence to be more content valid than those of attractiveness and importance.

**Task values questionnaire.** The task values questionnaire (see Appendix G) was adapted from the List of Values Survey (LOV; Kahle, 1983; Veroff, Douvan, & Kulka, 1981) in order to identify the value associated with each task. Questionnaire items related to the enjoyment, fun, and stimulation were used to calculate a fun and enjoyment score for each task and items related to admiration, recognition, and respect were used to calculate a being well-respected score for each task.

**Demographics.** A demographic questionnaire (see Appendix H) asked participant’s to identify their sex, age, race, class rank, and major.

**Procedure**

Participants were recruited via the web-based psychology experiment sign-up system to take part in the study. Prior to the start of each session, the session was randomly determined to be either an experimental (receive respect) or control (no respect) for performance on an anagram like task. Upon arrival to the lab, participants were asked to sit at a workstation, read, and complete an informed consent form. After the participant signed the form, the researcher asked if there were any questions and then began the study. The experimenter used a cover story telling participants that as I/O
psychologists we are interested in individual’s performance on tasks under time constraints. The researcher told the participants that from the I/O psychology literature we know that there are a variety of factors that play a role in how well individuals perform under time constraints, including their sex, certain personality characteristics, and what type of task they are performing. The participants were then told the purpose of the study was to identify some other factors that may be of interest when studying work under different time constraints. Participants were told they were in a one-minute time constraint condition and therefore, would be doing timed one-minute tasks. Further, participants were told that the tasks were designed to be tasks they had likely done before, for example, the first task was an anagram-like task. This task would ask the participant to create as many words as they can in a one-minute time period using the letters in a word given to them by the experimenter. A detail review of the procedure is presented below; however, Table 7 presents the session timeline and sequence in which participants received the measurements.

Table 7

<table>
<thead>
<tr>
<th>Pilot Session Timeline and Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Time 1</td>
</tr>
<tr>
<td>Measurement Time 2</td>
</tr>
<tr>
<td>Measurement Time 3</td>
</tr>
<tr>
<td>Measurement Time 4</td>
</tr>
</tbody>
</table>

After explaining the purpose of the session, the experimenter asked the participants to complete the instrumentality survey, and the valence survey. These measures were adapted from previous research with similar measures. Once the
participant completed the measures, the anagram task began. Participants were given one word at a time for a total of eight words. To increase the salience of the cover story, the experimenter ran a ticking timer for one minute while the participant was working on each word. After each word, the experimenter interjected comments to the participant based upon the session condition (experimental or control).

After the first word, those in the experimental condition were told that the researcher was going to make sure they were all legitimate words while the participant worked on the second word. Those in the control condition were simply told, “here is your second word.” After the second word, the researcher showed the participants in the experimental condition a pseudo-analysis output that had been designed so that it would appear as if the participant did better than the “average” participant. At the same time the experimenter was showing the participant the output, she told the participant that they had actually done very well on the first word, indicating that other students that had performed the task so far had found approximately 3 words on the first anagram and you found _______ (the blank varied, depending on participant performance). Pseudo-means were realistic enough that it seemed like participants believed the feedback based on reactive comments such as “I was never good at these things” and “I play this game on my cell phone a lot.” Participants then completed a third and fourth word. Initially, participants got feedback after every word; however, post-session feedback from the first six participants indicated that this seemed too bogus. Thus, the respect feedback was revised to be after words 1, 3, 6, and 8. After the change, none of the twenty-five participants receiving the respect feedback indicated the feedback was unrealistic. After
the fourth word, all participants were given the instrumentality and valence questionnaires. The purpose of this was to see how quickly participants began to associate the task with respect as well as how the level of satisfaction for the task changed as the participant had more experience with each word. Words five through eight were done in a similar manner, followed by participants completing the instrumentality, and valence measures. From this point the sessions were the same for all participants. Participants performed four additional tasks three times each. Order of the tasks was counterbalanced. The cover story was followed throughout the study; thus, participants had one minute on each page of each task. The purpose of the participants completing the last four tasks was to collect reaction data in terms of how fun the participants felt the tasks were. Upon completion of the fourth task, participants completed the instrumentality and valence measures for each task and a demographic questionnaire. Participants were debriefed and left the lab.

**Pilot Results**

To test PILOT H1, the experimental condition reported likelihood the anagram task would to respect will be significantly higher over time than for the control group, a one between (condition: experimental vs. control), one within (measurement time) ANOVA where reported likelihood performance on the anagram task would lead to praise (i.e., instrumentality) was the dependent variable.
Descriptive Statistics for PILOT H1 are presented in Table 8. The condition by measurement interaction was significant F (3, 138) = 15.46, p <0.001.

Table 8

*Instrumentality of Anagram Task by Trial*

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumentality of anagram task (Time 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>4.20</td>
<td>2.06</td>
<td>25</td>
</tr>
<tr>
<td>Control</td>
<td>4.19</td>
<td>1.80</td>
<td>23</td>
</tr>
<tr>
<td>Instrumentality of anagram task (Time 2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>5.23</td>
<td>2.21</td>
<td>25</td>
</tr>
<tr>
<td>Control</td>
<td>4.10</td>
<td>2.31</td>
<td>23</td>
</tr>
<tr>
<td>Instrumentality of anagram task (Time 3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>5.43</td>
<td>2.26</td>
<td>25</td>
</tr>
<tr>
<td>Control</td>
<td>3.96</td>
<td>2.14</td>
<td>23</td>
</tr>
<tr>
<td>Instrumentality of anagram task (Time 4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>5.32</td>
<td>2.29</td>
<td>25</td>
</tr>
<tr>
<td>Control</td>
<td>3.74</td>
<td>2.20</td>
<td>23</td>
</tr>
</tbody>
</table>

*Figure 5.* Instrumentality of Anagram Task Across Trials
To test PILOT H2, the experimental condition reported satisfaction with the anagram task would be significantly higher over time than for the control group, a one between (condition: experimental vs. control), one within (measurement time) ANOVA where reported satisfaction with the anagram task in the future (i.e., valence) was the dependent variable. Descriptive Statistics are presented in Table 9. The condition by measurement interaction was significant $F(3, 138) = 3.61, p < 0.05$ (Figure 6).

**Table 9**

*Valence of Anagram Task by Trial*

<table>
<thead>
<tr>
<th>Valence of Anagram Task (1)</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>5.56</td>
<td>1.92</td>
<td>25</td>
</tr>
<tr>
<td>Control</td>
<td>5.71</td>
<td>2.22</td>
<td>23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valence of Anagram Task (2)</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>6.52</td>
<td>1.83</td>
<td>25</td>
</tr>
<tr>
<td>Control</td>
<td>6.13</td>
<td>2.14</td>
<td>23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valence of Anagram Task (3)</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>6.68</td>
<td>1.93</td>
<td>25</td>
</tr>
<tr>
<td>Control</td>
<td>6.04</td>
<td>2.31</td>
<td>23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valence of Anagram Task (4)</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>6.72</td>
<td>2.13</td>
<td>25</td>
</tr>
<tr>
<td>Control</td>
<td>5.96</td>
<td>2.42</td>
<td>23</td>
</tr>
</tbody>
</table>
The final purpose of the pilot study was to identify a task that was significantly more fun than a second task in order to select tasks B and C for the current study. There were no significant differences in fun rating based on condition; therefore, analysis was performed across all participants. The word search task (M = 4.29, SD = 2.44) was significantly more fun than the math task (M = 6.01, SD = 2.29) \( t(48) = 3.77, p < 0.001 \).
Main Study

Participants

A total of 128 students from Ohio University participated in the first part of the study. One hundred and fifteen participants (90%) completed both sessions and thus, made up the final data set. Participants were recruited via a web-based experiment participation management system administered by the Department of Psychology. In exchange for their participation in the study, participants received partial course credit for a psychology class. Participants were primarily freshman and sophomore students (83.5%). The average age of participants was 19.10 years. Sixty-six percent of the participants were female.

Design

The study was a 2 (respected at Time 1 not respected at Time 1) x 2 (respected at Time 2, not respected at Time 2) design. The participant breakdown by condition is presented in Table 10.

<table>
<thead>
<tr>
<th>Participant Breakdown by Condition</th>
<th>High Praise Time 1</th>
<th>Low Praise Time 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Praise Time 2</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>Low Praise Time 2</td>
<td>29</td>
<td>28</td>
</tr>
</tbody>
</table>

Materials and Manipulation

Perceived respect manipulation. (Task A; Session 1). Prior to each session, the participants were randomly assigned to either the experimental group (respect
manipulation) or the control group (no respect). Similar to the pilot study, each participant completed eight anagram-like puzzles, one at a time, receiving feedback from the experimenter after anagram 1, 3, 6, and 8. It was found in the pilot study that feedback at varying intervals was more believable than feedback after each performance. To manipulate participant’s current level of respect, the participants in the high-respect group received praise for their performance (e.g., “wow, great job!”) for their performance on a series of anagram tasks (Task A; see Appendix A for task). Appendix I provides the full script for this manipulation. To increase the salience of the manipulation, consistent with the pilot manipulation the researcher also referred to the pseudo-analysis sheet (see Appendix B) showing those participants in the high-respect condition was above that of the average participant.

Tasks B & C (Session 1 & 2). Tasks B (see Appendix C) and C (see Appendix D) were the “new” tasks. That is, after completing task A, all participants performed tasks B and C. Task B was a traditional math task similar to those performed in grade school. Task B was designed to be a task for which all participants received respect. Specifically, participants completed eight rounds of a math task. After rounds 1, 3, 6, and 8 each participant received praise for his or her performance on the task from the experimenter. The experimenter script for the praise manipulation is included in Appendix I. Task C was a pop culture word search task. Task C was a fun task. To increase the likelihood that study participants would identify with the word search, undergraduate psychology students generated the words used in the task. The pilot study found a significant difference in the fun ratings between the math task (M=4.29, SD=
2.44) and pop culture word search (M=6.01, SD=2.29), where the word search task was rated as significantly more fun than the math task, (48) = 3.77, p < 0.05. Presentation of tasks B and C was counterbalanced in session one so that half of the participants performed task B first and half of the participants performed task C first. In session two, participants had a choice between these tasks, which was the dependent measure for the third hypothesis.

**Perceived respect manipulation 2.** (Task D; Session 2). Task D (see Appendix J) was for the purpose of satiating participants in terms of respect at time 2. Participants were randomly assigned to either a respect/no respect condition. Task D was a spot-the-stranger task in which participants were given a series of words and they were asked to circle the word that did not fit the pattern. Similar to Task A, there was a series of eight sets of spots-the-stranger tasks. Also similar to Task A, those in the respect condition received praise on trials 1, 3, 6, and 8 and those in the low respect condition did not receive praise.

**Current state questionnaire.** The State Self-Esteem Scale, α = 0.92, (SSES; Heatherton & Polivy, 1991) was used as a manipulation check for the respect manipulation. In particular, the SSES measures three dimensions of an individual’s current state (performance, social, and appearance). For those in the respect condition, I sought to show a change on the social dimension where higher values represent smaller discrepancies in the individual’s current value state. The SSES is presented in Appendix K.
Task instrumentality. Task instrumentality was measured via a subjective probability questionnaire (see Appendix E). Participants responded to items using a scale of 0 to 10 to a series of outcome items. Instructions indicated “Use any whole number between 0 and 10 to rate the degree to which performing this task will lead to each outcome.” These instructions were adapted from Mento, Locke, and Klein (1992) in which a similar measure was used (α = 0.94). The mean ratings of items 3, 5, and 6 established the measure of instrumentality associated with being well respected on the task. The mean ratings of items 1, 2, and 4 represented the instrumentality of fun and enjoyment. Reliability for the instrumentality measures in the current study ranged from 0.77 to 0.94 based on session (Time 1 versus Time 2) and task with the exception of instrumentality of math to be fun. The measure at session 1 had a reliability of 0.45.

Task valence. Valence was measured via an anticipated satisfaction questionnaire (see Appendix F). Tubbs, Boehne, and Paese, (1991) found anticipated satisfaction measures of valence to be more content valid than those of attractiveness and importance.

Demographics. A demographic questionnaire (see Appendix H) asked participants to identify their sex, age, race, class rank, and major.

Procedure

The study consisted of two sessions for each participant. Participants signed up for the study via the Ohio University psychology department web-based sign-up system. Because of the nature of the study, participants were run individually. Participants signed up for both session one and session two at the same time and received a total of 2 credits
for their participation (1 for each session). Time between sessions was no more than 36 hours.

**Figure 7.** Sequence of Activities Session One

**Session one.** Prior to each session, participants were randomly assigned to either the respect or no respect condition. Upon arrival, the researcher asked participants to read and sign an informed consent form. Figure 7 presents the timeline of events for session one and is followed by a detailed description of the session.
In session one, the researcher told participants that as I/O psychologists we are interested in understanding employee reactions to completing work assignments under time constraints and that over the next two sessions he or she would be asked to perform a variety of tasks designed to serve as tasks at work. For the first session, participants were asked to complete a series of anagram-like tasks. Instructions asked participants to make as many words (3 letters or longer) out of a given word as possible given a one minute time constraint. Upon completion of each word, the participant was asked to turn in the previous puzzle to the experimenter. The experimenter provided positive feedback to the participants in the respect condition and gave neutral information to the participant in the no respect condition. The sequence continued with intermittent feedback for eight anagram words. The full session script is included in Appendix I. Participants performed two additional tasks. Task B was a math task. The purpose of this task was for all participants to learn to associate the task with respect from the researcher. All participants performed eight math tasks and received respect from the experimenter for their performance. The full script for task B is in Appendix I. All participants also performed task C. Task C was a word search task created from lists of pop culture terms. Task C was found to be more fun and exciting than task B in the pilot study. The order of Task B and Task C was counterbalanced. Upon completion of both tasks B and C, participants completed the instrumentality and valence measure for each task (A, B, C) and the current state questionnaire. Finally, participants were told they earned 1 credit for the first session and were reminded to return for their second session which was scheduled within 24-36 hours of the first session.
Session two. Upon arrival to session two, the researcher reminded the participant that he or she signed a consent form to participate in the study at session one and he/she may choose to end his/her participation in the study at any time. Participants were given the opportunity to ask questions prior to beginning. Figure 8 below illustrates the sequence of activities in session two.

![Figure 8. Sequence of Activities – Session Two](image-url)
Immediately after the participants confirmed their consent, the researcher began with task D. Task D was the spot-the-stranger task. This task was again intended to manipulate the level of respect or not, depending on condition. Participants were randomly assigned to either the respect condition (as in Task A in session 1) or the no respect condition for task D. Following task D, participants completed a valence measure, the measure of instrumentality, and the current state questionnaire for Tasks B and C. Participants were then given a choice between tasks B and C from the first session. After the researcher recorded the participant’s choice, each participant completed a demographics questionnaire.
Results

Manipulation Check

Current State Manipulation. The State Self-Esteem Scale, $\alpha = 0.92$, (SSES; Heatherton & Polivy, 1991) was used as a manipulation check for the high praise manipulation time 1. The SSEQ consists of 20 items designed to measure momentary changes in self-esteem related to laboratory manipulations. The SSES assess state self-esteem on three factors: a) social, b) appearance, and c) performance. I expected that those in the high praise condition would report significantly higher state self-esteem than participants in the low praise condition on the social factor of the SSES. The manipulation check revealed there was not a significant difference between the high praise ($M = 3.28, SD = 0.36$) and low praise ($M = 3.23, SD = 0.36$) group at time 1, $t(113) = 0.678, p = 0.50$ on the social dimension of the SSES. Thus, I explored the possibility that the manipulation influenced another area of self-esteem. There was not a significant difference between the high praise ($M = 3.32, SD = 0.49$) and low praise ($M = 3.28, SD = 0.44$) group at time 1, $t(113) = 0.445, p = 0.66$ on the appearance dimension of the SSES. A significant difference was however, found between the high praise ($M = 3.81, SD = 0.41$) and low praise condition ($M = 3.64, SD = 0.45$) at time 1 based on the performance dimension, $t(113) = 2.191, p < 0.05, d = 0.39$. These results were not replicated at time 2.

Task-Value Connection. To examine a discrepancy reduction theory of task choice at time 2 required the presentation of two separate tasks associated with the different value systems. The word search task was selected to represent fun and
excitement based on the results of the pilot study. Analysis revealed participants reported the math task to be more fun ($M = 6.33$, $SD = 3.52$) than the word search task ($M = 5.52$, $SD = 2.37$) at Time 1, $t(114) = 2.20$, $p < 0.05$, $d = 0.27$ and no significant difference in fun ratings between the math task ($M = 5.48$, $SD = 2.59$) and word search task ($M = 5.63$, $SD = 2.25$) at Time 2, $t(81) = 0.57$, $p > 0.05$. These findings are in contrast to the pilot data where the word task was rating significantly more fun than the math task.

**Hypothesis Testing**

Hypothesis One predicted that participants given praise for performance on a task would be more likely to report a positive relationship between performance on the task and the likelihood that the task would lead to being well-respected (i.e., instrumentality) than participants not given praise for performance on the task. There were two ways this hypothesis was tested. First, the main effect between individuals for respect on the anagram task at Time 1 was examined using ANOVA where the dependent variable was participants’ instrumentality ratings for the anagram task (Task A) and the independent variable was praise versus no praise. Descriptive statistics for each condition are presented in Table 11. Participants that received respect at Time 1 reported significantly higher levels of instrumentality for the anagram task $F(1,113) = 12.70$, $p < 0.01$, $d = 0.66$.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Praise Time 1</td>
<td>5.36</td>
<td>2.33</td>
<td>58</td>
</tr>
<tr>
<td>No Praise Time 1</td>
<td>3.95</td>
<td>1.89</td>
<td>57</td>
</tr>
</tbody>
</table>
Hypothesis one was also tested by examining differences between instrumentality ratings for the math task (M = 5.36, SD = 2.25) for which all participants received respect and the word search (M = 4.11, SD = 2.05) task for which participants did not receive respect. Thus, a dependent t-test was conducted where the independent variable was Task and dependent variable was the instrumentality rating. Participants reported significantly higher instrumentality for the math task than the word search task, t(114) = 6.75, p < 0.01, d = 0.58. Thus, in both tests, Hypothesis one was supported.

Hypothesis 2 stated that participants that received praise for task D would report lower anticipated satisfaction for Task B than those not receiving praise at Time 2. Descriptive statistics for each condition are presented in Table 12. The main effect of praise for time two revealed no significant difference in valence for that math task at Time 2 between the two groups F(1,113) = .014, p > 0.05. Thus, Hypothesis 2 was not supported.

Table 12

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Praise Time 2</td>
<td>6.14</td>
<td>2.74</td>
<td>58</td>
</tr>
<tr>
<td>Low Praise Time 2</td>
<td>6.19</td>
<td>2.27</td>
<td>57</td>
</tr>
</tbody>
</table>

Hypothesis 3 stated that participants who received praise on Task D would be more likely than those that did not receive praise on Task D to choose Task C over Task B at Time 2. Hypothesis 3 was analyzed using a Chi-Square test of Independence because of the dichotomous nature of the dependent variable (i.e., task choice A or B).
Participants did not show a significant preference for task A or B as a function of experimental condition at Time 2, $\chi^2 (df = 3, N = 115) = 0.05$, $p > 0.05$. Thus, Hypothesis 3 was not supported.

Table 13

<table>
<thead>
<tr>
<th>Condition Time 1</th>
<th>Condition Time 2</th>
<th>Task B (Math Task)</th>
<th>Task C (Word Search Task)</th>
<th>$\chi^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Praise</td>
<td>High Praise</td>
<td>18</td>
<td>11</td>
<td>0.11</td>
<td>&gt; 0.05</td>
</tr>
<tr>
<td>Low Praise</td>
<td>18</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Praise</td>
<td>High Praise</td>
<td>19</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low Praise</td>
<td>18</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Exploratory Hypothesis**

Finally, the exploratory hypothesis stated participants who received praise for performance on Task A (Time 1) would report a lower likelihood that performance on Task B would lead to being well-respected than participants that did not receive praise on Task A. The exploratory hypothesis was analyzed using ANOVA where the dependent variable was instrumentality for Task B (i.e., likelihood performance on Task B would lead to being well-respected) and the independent variable was praise at Time 1. There was no significant difference in reported likelihood that Task B would lead to being well-respected between those that received praise on Task A ($M = 5.53$, $SD = 2.36$) and those that did not receive praise on Task A ($M = 5.15$, $SD = 2.11$), $F (1, 113) = 4.08$, $p > 0.05$. 
Thus, the exploratory hypothesis was not supported. Table 14 summarizes the study hypotheses and associated results.

Table 14

Summary of Hypotheses and Results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Participants given praise for performance on a task would be more likely to report a positive relationship between performance on the task and the likelihood that the task would lead to being well-respected (i.e., instrumentality) than participants not given praise for performance.</td>
<td>Supported.</td>
</tr>
<tr>
<td>H2: Participants that received praise for task D would report lower anticipated satisfaction for Task B than those not receiving praise at Time 2.</td>
<td>Not Supported.</td>
</tr>
<tr>
<td>H3: Participants that received praise on Task D would be more likely than those that did not receive praise on Task D to choose Task C (the fun task) at time 2.</td>
<td>Not Supported.</td>
</tr>
<tr>
<td>Exploratory Hypothesis: Participants that received praise for performance on Task A (Time 1) would report a lower likelihood that performance on Task B would lead to being well-respected than participants that did not receive praise on Task A.</td>
<td>Not Supported.</td>
</tr>
</tbody>
</table>

Post Hoc Analyses

To explore the lack of findings in support of Hypothesis 3, a series of post hoc analyses were conducted to examine potential factors associated with task choice. First, a Chi Square Goodness of Fit test was conducted to examine whether participants showed a
preference in task choice. Across conditions, participants showed a preference for the math task, $X^2(1, N=115) = 8.36, p < 0.05$ (Table 15).

Additionally, demographic data was analyzed to examine the role of individual differences in task choice. Sex of participants significantly influenced task choice at Time 2 where male participants showed a preference for the math task, $X^2(1, N=115) = 4.60, p < 0.05$.

Table 15

<table>
<thead>
<tr>
<th>Task Choice</th>
<th>Observed N</th>
<th>Expected N</th>
<th>$X^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math Task</td>
<td>73</td>
<td>57.5</td>
<td>8.36</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>Word Search Task</td>
<td>42</td>
<td>57.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 16

<table>
<thead>
<tr>
<th>Cross-Tabulation of Sex and Task Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
</tbody>
</table>

Similarly, ethnicity of participants significantly influenced task choice at Time 2 where Asian participants showed a preference for the math task, $X^2(4, N=115) = 11.00, p < 0.05^1$.

^1 Note: Results of the Cross-Tabulation of Ethnicity and Task Choice should be interpreted with caution due to the small sample size. The expected cell count in one cell
<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Task B (Math Task)</th>
<th>Task C (Word Search Task)</th>
<th>$\chi^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>59</td>
<td>34</td>
<td></td>
<td>&lt;</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>2</td>
<td>1</td>
<td>11.00</td>
<td>0.05</td>
</tr>
<tr>
<td>Asian</td>
<td>9</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African</td>
<td>3</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American</td>
<td>0</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other$^2$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

was less than 1 which is a violation of the assumptions of a Chi Square Test of Independence.

$^2$ The 2 respondents that selected other included clarification identifying themselves as mixed black and white.
Discussion

The purpose of this dissertation was to empirically investigate part of an integrative theory of the role of values in motivation based on control theory. As previously discussed, the value construct appears in both content and process theories of motivation, but has suffered from a lack of empirical attention and definitional inconsistency in the literature (Rohan, 2000; Pinder, 1998). In the current study, I sought to demonstrate that: (a) values function as higher-level goals within a hierarchically structured series of goal systems; (b) values can become associated with tasks if they influence the discrepancy between individuals’ current state and goal state within a value system; (c) the anticipated value of tasks with which a value is associated varies based on the level of discrepancy at any given time and; (d) the anticipated value of the task will influence task choice. To do so, a praise manipulation was used to influence participants’ current state of being well-respected. I expected that participants would learn to associate a task for which they received praise with the value of being well-respected (i.e., instrumentality). Further, I anticipated that receiving praise for performance on a task would influence the anticipated value (i.e., valence) of completing a second task for which participants had previously learned, and that receiving praise for performance on a task would influence participants’ future task choice. Finally, I explored whether receiving praise on a task prior to learning influences the strength of a learned association.
Though findings demonstrate support for a learned association between a task and value system (Hypothesis 1), I failed to find support for the remaining hypotheses. Thus, I found no evidence to support the proposition that values function as higher-level goals. Below I explore the possible explanations for the results. In particular, several methodological issues may have contributed to the lack of findings. For example, though participants learned to associate praise for a task with the value of being well-respected, it is not likely that the praise manipulation affected the level of discrepancy between participants’ current state and desired state within the respect goal system. Furthermore, post-hoc analysis revealed participants did not interpret the tasks as expected (i.e., as participants had done in an earlier pilot study). For example, participants reported the math task to be significantly more fun than the word search task at time 1, yet there was no significant difference found in fun ratings between the two tasks at time 2. This suggests that the praise manipulation had an effect beyond what was anticipated. In other words, participants may have found the math task fun because they received praise for their performance.

In addition to methodological concerns, I consider alternative theoretical explanations for retaining the null hypotheses. Due to the extent of methodological concerns that may have contributed to the findings, I begin the discussion with methodological considerations.

**Methodological Considerations**

**Value-Task Association: Over-Reliance on Expected Associations.** A notable methodological concern related to the current findings is the reliance of the current study
design on associations between tasks and an isolated value system. Specifically, pilot study results suggested that participants learned to associate the value of being well-respected with a task for which they received praise. This finding was replicated in the current study. Participants learned to associate the math task with the value of being well-respected. Yet, in the current study, unlike the pilot, some participants also associated the math task with fun. Though, it can be expected that a given task may relate to more than one value system, the question to consider is whether the praise manipulation did more than was intended. Specifically, did participants truly consider math to be fun or did the perception that the math task was fun result from participant’s receiving praise for their performance? Certainly, it is often the case that we find enjoyment in the things at which we succeed. Thus, it may be that although the researcher anticipated the praise to impact participant’s perceptions of being well-respected, at the same time, the researcher was also creating an association that the task was fun. This also suggests that the praise manipulation might have affected participants’ current state of fun and excitement. Thus, the manipulation itself may have counteracted the respect effect and the researcher was unable to isolate the true reason for task preference. Future studies should be designed with an attempt to isolate one value system around a specific task or activity. Recognizing that it may be difficult to do so, researchers should include a post-choice questionnaire to better understand why participants make the choices they do.

A further methodological concern is that the cover story evoked an achievement value system unintentionally. That is, participants were told the study aimed to explore performance under varying time constraints. It is possible that choice of the math task
was due to participants’ belief that they were performing well on the math task. Though performance was not measured, it was clear that under a one minute time constraint participants were able to complete more math problems than they were able to find words hidden within the word search puzzles. It may be that the cover story in this case increased participants’ attention and focus on actual performance. Furthermore, all participants were praised for performance on the math task, which lends itself toward perception of strong performance. In combination, if participant’s believed the goal of the study was to perform well under a time constraint and number of problems completed was related to performance, then receiving praise for performance on the math task might have led participants to show a preference for the math task at time 2. Indeed, post-hoc analysis revealed participants showed a significant preference for the math task across conditions. Though no formal debriefing data was collected, it was noted that at least two participants asked if there was a time constraint on the final task for which they were being asked to choose prior to making the choice. Thus, supporting the notion that participant’s may have been factoring in performance under a time constraint into their task choice decision. The cover story may have made salient a value system (e.g., achievement) that overwhelmed any discrepancy differences in other value systems. To eliminate the potential for a third value influencing participant choice, future research should utilize a neutral cover story.

**Value Manipulation: Limited or No Impact on the Current State.** Perhaps of greater concern in explaining the findings in the current study is whether or not the researcher actually manipulated participants’ current state of being well-respected.
Indeed, manipulation of participants’ perceived state of being well-respected was a central requirement for success of the study. I sought to do so via a praise manipulation. However, although participants learned to associate a task with the value of being well-respected, the manipulation check implied that the praise manipulation did not impact participants’ current state as intended.

More specifically, as evidenced by the manipulation check, results revealed no significant difference between the high praise and low praise conditions (Task A; anagram-like task) on the SSES social or appearance dimension at time 1 or time 2. However there was a significant difference between the high praise condition and low praise on the performance dimension at time 1. Thus, it is not likely the praise manipulation had an effect on participants’ actual value system of being well-respected. If the praise manipulation had indeed tapped into a higher-level value system at time 1, based on the difference between groups on the performance state measure, it may have been a value system related to confidence or belief in oneself, rather than being well-respected. Yet, this interpretation should be considered with caution as the same effect on the performance dimension was not found at time 2.

As part of an individual’s core personal identity (Hitlin, 2003), the manipulation of values in a lab setting may require a stronger manipulation than the praise manipulation used in this study. Future protocols may provide participants with the opportunity to participate in activities more directly associated with one’s value systems. For example, participants could be presented with an activity associated with environmental awareness (e.g., watch a video and sign a petition); thus, influencing
participant’s current state of the value system associated with environmental concerns. A control group would perform a neutral activity. Following the activity, participants could be asked to participate in a second activity, this time participants would have a choice in activity such as writing a letter to the university’s president around environmental concerns or student health, consequently having the choice to perform a second activity associated with a clean environment or a second value system (i.e., maintaining a healthy lifestyle). Identifying activities more salient to students and more closely related to a particular value system may improve the strength of a current state values manipulation.

Beyond the strength of the manipulation, one must consider whether it is reasonable to believe that researchers can manipulate perceptions of the current states of participants’ values in a lab setting. That is, values are part of an individual’s core personal identity (Hitlin, 2003), as such it is conceivable that the values construct is too abstract to be manipulated in an artificial or controlled setting and is better suited for study in a passive observational design. For example, future research could include the use of a longitudinal diary study to examine the role of values in students’ daily life choices. For example, a researcher could explore the link between common student activities and specific values. Then students could be asked to record daily activities for a period of time (e.g., 10 days), completing valence measures at pre-determined times throughout the period (e.g., morning and evening). Upon return of the diaries, the researcher would conduct a content analysis to identify the activities performed by the student and the associated value as determined by the pilot study. Using the value—activity linkages as well as valence measures, the researcher could explore changes in
Valence for specific activities over time and changes in activity choice based on related value systems. One caveat to such a design is that it would certainly raise questions around the internal validity of any findings.

**Value Regulation: A Case for Repeated Measures.** A final methodological concern that may explain the findings in the current study relates to the nature of value regulation. That is, to improve our understanding of the internal process of value regulation, future research should consider the role of changes in valence over multiple decisions and consider the impact of one choice on subsequent choices. To explore the impact of value regulation on motivation (via task choice), the current study relied on participant’s choice at only one point in time. Similar to the diary study described above, in the future lab studies, researchers should consider a study design that provides the opportunity for participants to make multiple choices. Specifically, researchers may consider a “choose your own adventure” type methodology in a lab setting where participants may have the opportunity to participate in several activities associated with different values systems over the course of the study. Thus, in this scenario, the researcher would collected multiple date points over time from each participant (time nested in individuals).

Though the extent of methodological concerns described suggests the findings associated with the current study are due to methodological concerns, I also considered theoretical implications for the findings. That is, alternative explanations based on a control theory conceptualization as well as alternatives theories of values. In the next section, I discuss such implications.
Theoretical Implications

The values as goals conceptualization presented in this dissertation provides the framework to enable researchers to think about the values construct in a more dynamic way than has been done in the past. Indeed, support for Hypothesis 1 -- the learned association between a value and a task -- is an example of a dynamic process that established a link between a task and value system. However, though perhaps somewhat ignored of late, the notion of an association between context and needs is not new to the psychological literature (e.g., Murray, 1938; McClelland, Atkinson, Clark, & Lowell, 1976). To further explore reasons for the lack of findings, I begin by considering the process of value regulation.

**Value Regulation: The Value Matters.** A key theoretical assumption in this study is the idea that a value system can be satiated. That is, for higher-level beliefs and concepts that describe the way an individual wants to lead one’s life, is there a point at which one either reaches one’s goal state or is so near the goal state that one does not desire more? I contend that the answer to this question may depend on the value. Consider the value of fun and excitement. An individual that works 60 hours a week for several weeks at a time because he or she values demonstrating commitment to the team may, after several weeks, feel an increased need to behave in a way that is fun and exciting (e.g., see a movie, go to happy hour, or take a vacation). Once one has performed a fun and exciting behavior, it is conceivable that one could reached a level where ones focus will return to work. Similarly, consider the value of achievement, when one accomplishes a major task such as completing a proposal or manuscript, one often feels
the need to expend energy elsewhere (i.e., not initially motivated to start a new proposal or manuscript, but rather spend time with one’s family). On the other hand, consider the value the researcher attempted to satiate in this dissertation. Can we truly satiate the value of being well-respected? That is, if the praise manipulation did impact participant’s level of perceived respect, it may be that it did not do so in a manner that satiated the value system in any way. In other words, the goal state may be so high in the goal hierarchy that the manipulation in this study was too minimal to have an impact.

Thus, for some values one might consider whether a control theory (goal-like) conceptualization of values should be substituted for the simpler “more is better” theory of values. Consider an individual that participates in an activity for which he or she receives respect. Could it be that the individual is not moving toward a goal state at which movement toward the goal slows or ceases, but that more of the value is always better? When an individual receives an award at work and feels respected, is this individual motivated to focus behavior in another direction or to continue to behave in such a way as to earn more respect? Classic behaviorists models (e.g., Hull, 1943) would predict that if praise is valued and a task provides praise, the task would be associated with reward more generally, which would increase the likelihood of engaging in the task in the future regardless of one’s current state regarding well-being. Certainly, future theory and research should consider whether values can be satiated, as proposed in this dissertation, or if another theory should prevail.

**Value Regulation: The Hierarchical Nature of Goal Systems.** Interestingly, it is the interconnectedness of goal systems the current study sought to demonstrate that
may have contributed to the lack of significant findings in support of the task choice hypothesis (Hypothesis 3). That is, participants did not show a preference for a task at time 2 based on experimental condition. Because goal regulation is an internal process, it is likely that individuals react differently to a goal discrepancy based not only on the current state of the focal goal, but based on other goal systems. The current study established a link between a task goal system and the value system of being well-respected, but did not consider the link between these two goal systems and other superordinate goal systems which may influence an individual’s sensitivity to discrepancy and to invoke action. That is, it is possible the task goal system may be linked to other higher-order or subordinate goal systems that were aroused by the task at hand. For example, the value of being well-respected may also be linked to one’s self-identity.

Recall that, within the individual, the goal hierarchy ranges from biological set points to cognitive depictions of desired outcomes (Austin & Vancouver, 1996). A common proposition is that the highest level of the goal hierarchy is self-optimization or a goal related to the development and maintenance of an individual’s sense of self and self-identity (e.g., Cropanzano, James, & Citera, 1993; Lord & Brown, 2001; Royce & Powell, 1983). One possible explanation for the lack of findings in support of the task choice hypothesis is that the math task is also linked to other higher-level goal systems in which participants sought to maintain a goal associated with his or her self-identity. Some support for this notion is found in the post-hoc analyses associated with sex and task choice. Sex and ethnicity are two factors known to be associated with an individual’s
collective identity and have been found to influence choice behavior (Eccles, 2009). Though not a concept explored in the current study, it may be that male and/or Asian participants showed a preference for the math task in order to avoid the undesired state of choosing in a way discrepant with the self.

A review of the self-affirmation research (e.g., McQueen & Klein, 2006; Sherman & Cohen, 2006; Steele & Liu, 1983) lends support to the need to further explore the interconnected nature of higher-level goal systems when studying concepts such as values. Self-affirmation theory purports that as part of the self-system, individuals are motivated to protect and maintain self-integrity (Sherman & Cohen). Further self-affirmation theory contends that the self-system is made up of varying domains such as roles (e.g., student, parent), values (e.g., humor, religion), group identities (e.g., race culture, nation), central beliefs (e.g., ideology, political beliefs), goals (e.g., health, academic success), and relationship (e.g., family, friends). Though the definition and structure of these domains in a self-affirmation context varies from that of a control theory based explanation, the central tenant is the same: individuals seek to attain or maintain self-identity. The multitude of domains related to self-integrity proposed in self-affirmation theory highlight the complexity of studying constructs related to the self and the need to better understand the interconnected nature of the goal hierarchy. Application of self-affirmation theory and methodology to the manipulation of value state in the current study highlights key points for consideration in further exploring the role of values in human behavior through a control theory lens.
A great deal of research in the area of self-affirmation focuses on the use of affirmation to reduce cognitive dissonance (e.g., Sherman & Cohen, 2006; Steele & Liu, 1983). Specifically, self-affirmation research emphasizes that in order for value affirmation to reduce dissonance, it must be affirmation of a value important to oneself. In the context of the current study, the researcher considered the values of being-well respected and fun, but failed to determine in the sample of participants held these values in alignment with their self-identity. Indeed, in regards to the fun task, it was thought that the nature of the second value system was less important than the fact that a second task was available in which participants could choose to engage and was related to a value system other than being well-respected. Considering the interconnected and hierarchical nature of value systems, future researchers may be more likely to find an effect with participants that associate the experimental value systems with the sense of self. To do so, researchers may consider implementing a pre-test for value importance to identify a subset of participants for which experimental value systems are of high importance and a subset for which the experimental values are of minimal importance. Such a methodology has been found to allow for a more personalized manipulation in the study of self-affirmation processes (Lui & Steele, 1986).

Furthermore, researchers interested in understanding the role of values in motivation, may learn from the challenges self-affirmation theorists have reported in confirming a connection between affirmations on actual behavior. That is, the effect of self-affirmation has been found to vary based on the dependent variable (e.g., cognitions, behaviors). Though a full review of the mixed effects of self-affirmation on cognitions
and behaviors is beyond the scope of this discussion, it is worth noting that the connection between self-affirmation and actual behavior has been among the most difficult effect to find and replicate (McQueen & Klein, 2006). Therefore, a review of experimental methodologies used in self-affirmation studies may help to refine and identify future methodologies in the manipulation of values that may or may not help researchers further the study of values in motivation as well as highlight the importance of including measures of motivation beyond task choice in future iterations of the current study.
Conclusion

The vast interest in understanding what makes us act in the way that we do has led to an extensive body of literature surrounding motivation. The current study demonstrates an attempt to establish empirical evidence for a parsimonious theory of values in motivation based on control theory. It is unfortunate that the study perhaps also demonstrates why the empirical literature surrounding the values construct has been limited to paper based scenario responses and survey data. The study of values using experimental methodology based on real tasks and real decisions can be difficult given the unobservable nature of the construct. Pinder (1998) stated “…values have, in fact, been ignored, badly conceived of, and poorly measured in the particular context of the study of work motivation. Researchers and theorists in the field could -- and should -- do better with values,” (p. 79). Researchers should continue to identify creative ways to attempt to do better, for without an attempt we will not improve. That is, a discrepancy still remains between the goal of understanding values and our current understanding of values in human motivation.
References


Fisher, M. H. (n.d.). Opening quote


Hitlin, S. (2003). Values as the core of personal identity: Drawing links between two


## Appendix A: Anagram-like Task (Task A)

Create as many words as you can out of the word below. Words must be at least 3 letters in length and you can use ever letter only the number of times it appears in the word. You may not create proper names, use abbreviations or contractions.

### Kidney

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Create as many words as you can out of the word below. Words must be at least 3 letters in length and you can use ever letter only the number of times it appears in the word. You may not create proper names, use abbreviations or contractions.

### Passage

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Create as many words as you can out of the word below. Words must be at least 3 letters in length and you can use ever letter only the number of times it appears in the word. You may not create proper names, use abbreviations or contractions.

### Accurate

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B: Pseudo-Analysis Output

<table>
<thead>
<tr>
<th>Anagram</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>one</td>
<td>25</td>
<td>1.00</td>
<td>10.00</td>
<td>3.5200</td>
<td>2.38258</td>
</tr>
<tr>
<td>two</td>
<td>25</td>
<td>1.00</td>
<td>13.00</td>
<td>4.9600</td>
<td>3.20780</td>
</tr>
<tr>
<td>three</td>
<td>25</td>
<td>1.00</td>
<td>8.00</td>
<td>3.4000</td>
<td>2.06155</td>
</tr>
<tr>
<td>four</td>
<td>25</td>
<td>1.00</td>
<td>9.00</td>
<td>3.3200</td>
<td>2.23084</td>
</tr>
<tr>
<td>five</td>
<td>25</td>
<td>1.00</td>
<td>8.00</td>
<td>3.7200</td>
<td>2.37206</td>
</tr>
<tr>
<td>six</td>
<td>25</td>
<td>1.00</td>
<td>8.00</td>
<td>3.5200</td>
<td>2.14321</td>
</tr>
<tr>
<td>seven</td>
<td>25</td>
<td>1.00</td>
<td>8.00</td>
<td>3.6400</td>
<td>2.05913</td>
</tr>
<tr>
<td>eight</td>
<td>25</td>
<td>1.00</td>
<td>8.00</td>
<td>3.8800</td>
<td>2.42074</td>
</tr>
</tbody>
</table>
Appendix C: Math Task (Task B)

<table>
<thead>
<tr>
<th>3</th>
<th>79</th>
<th>67</th>
<th>3</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 36</td>
<td>- 2</td>
<td>- 29</td>
<td>+ 16</td>
<td>- 18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>82</td>
<td>54</td>
<td>100</td>
<td>40</td>
</tr>
<tr>
<td>- 66</td>
<td>- 5</td>
<td>+ 65</td>
<td>- 58</td>
<td>- 9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>67</td>
<td>62</td>
<td>68</td>
<td>100</td>
</tr>
<tr>
<td>+ 90</td>
<td>- 58</td>
<td>- 7</td>
<td>- 42</td>
<td>- 62</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>24</td>
<td>97</td>
<td>64</td>
<td>87</td>
</tr>
<tr>
<td>+ 34</td>
<td>+ 15</td>
<td>- 96</td>
<td>- 43</td>
<td>- 27</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>64</td>
<td>67</td>
<td>71</td>
<td>34</td>
</tr>
<tr>
<td>- 44</td>
<td>- 35</td>
<td>- 61</td>
<td>+ 13</td>
<td>+ 69</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>6</td>
<td>3</td>
<td>36</td>
<td>30</td>
</tr>
<tr>
<td>+ 84</td>
<td>+ 24</td>
<td>+ 56</td>
<td>+ 68</td>
<td>+ 19</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>90</td>
<td>37</td>
<td>34</td>
<td>65</td>
</tr>
<tr>
<td>+ 44</td>
<td>+ 1</td>
<td>+ 11</td>
<td>+ 78</td>
<td>+ 5</td>
</tr>
</tbody>
</table>
Appendix D: Pop Culture Word Search (Task C)

Pop culture one

a b u i c b n r h r o o e e
r r k e p e i a n e r k c h
o a e o s h l m r h e o a m
c n v n b o o e d c h o f y
k g n f e o e n b s r b h s
b e f l r l n n e u a e t p
a l t o o t c r a
n i n t e n d o w i i a o c
d n s c o r c d p c u f n e
x a o p b c c l t i g i s t
f o u r t h m e a l h h c r
r h b k n i p s v r r c l f
o b e x b v t y t i l a e r
t e r r i f i c i g t l b m

realitytv  facebook  myspace
chipotle  fourthmeal  ramennoodles
northface  brangelina  girlicious
fierce  nintendowii  vspink
celebutant  halo  crocs
rockband  xbox  terrific
guitarhero  iphone
entourage  sweet  hybrid
nsync    peaceman  sweatpants
adidas   chill    raw
obama    text     starbucks
rainboots google  coach
lost     lagunabeach
celebrityrehab ice  cool
## Appendix E: Task Instrumentality

Using a scale of 0 to 10 where 0 = not at all and 10 = definitely please indicate the likelihood that playing the anagram task will lead to each of the outcomes below:

1. The anagram task will be enjoyable.

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. The anagram task will be fun.

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Performing well on the anagram task will make me feel respected.

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Playing the anagram task will stimulate me.

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Playing the anagram task will provide me with admiration.

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Playing the anagram task, I will be recognized for a job well done.

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix F: Task Valence

Adapted from Tubbs, Boehne, and Paese, (1991)

Using a scale of 0 to 10 where 0 = not at all and 10 = extremely satisfying, please indicate the degree to which playing each of the following tasks will be satisfying.

1. The anagram task.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. The math task.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. The word search task.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix G: Task Values Questionnaire

Word search puzzles are enjoyable.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

Word search tasks are fun.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

I get enjoyment out of playing word search tasks.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

I feel respected for performing the word search task.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

The word search task provides stimulation.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

The word search task involves admiration.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

The word search task I will receive recognition for a job well done.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

The math task is exciting.
Strongly Disagree Moderately Disagree Slightly Disagree Slightly Agree Moderately Agree Strongly Agree

The math task is fun.

Strongly Disagree Moderately Disagree Slightly Disagree Slightly Agree Moderately Agree Strongly Agree

I get enjoyment out of playing the math task.

Strongly Disagree Moderately Disagree Slightly Disagree Slightly Agree Moderately Agree Strongly Agree

I feel respected for performing the math task.

Strongly Disagree Moderately Disagree Slightly Disagree Slightly Agree Moderately Agree Strongly Agree

The math task provides stimulation.

Strongly Disagree Moderately Disagree Slightly Disagree Slightly Agree Moderately Agree Strongly Agree

The math task involves admiration.

Strongly Disagree Moderately Disagree Slightly Disagree Slightly Agree Moderately Agree Strongly Agree

The math task I will receive recognition for a job well done.

Strongly Disagree Moderately Disagree Slightly Disagree Slightly Agree Moderately Agree Strongly Agree
Appendix H: Demographic Questionnaire

Age:

Sex: Male Female

Year in School: Freshman Sophomore Junior Senior

Ethnicity: White Hispanic/Latino Native American
Asian Aleut/Pacific Islander Arabic Black/African American

Other (Please specify) ____________________________
Appendix I: Session Scripts and Research Instructions

The sessions in this study used the same cover story as the pilot study. The session script below was designed in line with this cover story. After the participant signed the consent form, the researcher will began.

**Session One: High Praise Condition Script**

*Researcher:* “If you are ready, we can begin. Bear with me for a minute, I have to read you a start up protocol. Thank you for participating in today’s study. Industrial-Organizational psychologists are interested in understanding the variables that affect individual’s behaviors at work. One of those variables is working under varying time constraints. Today I am going to ask you to participate in a series of tasks under time constraints. The tasks are pen and paper puzzle-like tasks. You have likely done these or similar tasks in the past. For the first task, you will be completing a series of anagram-like puzzles. In these puzzles you will be given a word and asked to create as many words as possible using the letters in that word as you can, given the time constraint of 1 minute to complete each puzzle. You may use the letters that appear in the words you create only as many times as they appear in the given word. All words you create must be 3 letters or more. Do you have any questions before we begin?” [ANSWER QUESTIONS IF ANY]… “Great, I’ll give you your first word, set the timer and say go when you can begin.”

*Researcher Instruction:* Next, the researcher hands the participant the first word face down and indicates that the participant could turn the paper over when they hear the word “go.” The timer is set to one minute and the first trial began. When the timer stopped,

*Researcher:* “Ok, stop. Let’s see how you did. (Experimenter counts the number of words the participant created out loud). Wow, for the first word you did a great job. Now let’s move on to the second word.”

*Researcher Instruction:* Set timer and begin.

*Researcher:* “That was your second word. You have 6 additional words to complete.”

*Researcher Instruction:* Set timer and begin

*Researcher:* “Let’s see how you did on the third word. (Experimenter again counts out loud and then compares the participant’s results to a pseudo-results form that reflects
results from participants of other session). You are doing very well at this. In fact, I can show you some initial results I just ran from other participants. We’ve run 25 participants so far and the average number of words found on the third word is ‘3.4’ and you have found ‘X’ number of words. You can see you are doing better than average. Good job!
Ok, next word.”

Researcher Instruction: Set timer and begin

Researcher: “That was your fourth word, you have are halfway there. Four more words to complete.”

Researcher Instruction: Set timer and begin

Researcher: “Ok, that was word number 5. Moving on to word number 6.

Researcher Instruction: Set timer and begin

Researcher: (Researcher counts the number of words and begins). “Wow, you are really doing a great job. With only a minute to complete these anagrams, you do not seem to be having trouble at all. Awesome, you are almost done. Two more words.”

Researcher Instruction: Set timer and begin

Researcher: “Ok, that was word number 7. This is your last word, number 8.

Researcher Instruction: Set timer and begin

Researcher” “Ok, that was your last word. Let’s see how you did. (Researcher counts the number of words and continues). Great job! You found ‘y’ number of words this time. That is actually excellent for word number 8. We are now going to move to the next task.”

Researcher: “I am going to have you perform two additional tasks today. One is a math task similar to that you would have completed in grammar school and the second is a word search task both under a one minute time constraint.”

Researcher Instruction: Upon completion of the Anagram task, the sessions will be the same for all participants. However, the order of the tasks (math or word search first) is counterbalanced, so please present them in the order you find them in the participant’s folder. This means you may need to jump to the word search instructions below before the math task instructions that follow.
Math Task

Researcher Instruction: The administration of the math task follows the same basic logic of the anagram task. We want the participants in the experimental condition to be praised for doing a good job. Set timer and begin.

Researcher: “Ok, let’s see how you did. (Experimenter will take a quick look at the task and appear as to be evaluating it). Great start! Let’s try another one.”

Researcher Instruction: Set timer and begin

Researcher Instruction: After the second round of the math task, the researcher will show participants a copy of the task where numerous items are marked incorrectly and the form is not complete.

Researcher: “Ok, let’s see how you did. You are doing a great job. As you can see by this sheet from one of the other participants, some are struggling with this task, but you seem to be doing just fine.”

Researcher Instruction: Set timer and begin

After the third round of the math task.

Researcher: “That was the third round already. Only 5 more to go.”

Researcher Instruction: Set timer and begin

Researcher: “Halfway there. Let’s see how you did this round. (researcher pauses and examines task form). Good job! Four more to go.”

Researcher Instruction: Set timer and begin

After the fifth round of the math task:
Researcher: “Ok, that was round number five. Three more to go. After round six.”

Researcher Instruction: Set timer and begin

Researcher: “Awesome! Let’s see how you did. Wow, you do not seem to be bothered by the one minute time constraints. You are turning in a great performance.”

Researcher Instruction: Set timer and begin

Researcher: “Ok, that was the seventh round so you are almost done. Last round coming up.”
After the eighth round, the researcher’s comments will act as if she is counting up a total of problems the participant completed across all 8 rounds.

**Researcher to all participants:** “Awesome job. Really, that was great. You completed ‘y’ problems.”

**Word Search Task**

**Researcher:** “Now you will perform a series of 8 word search tasks.”

**Researcher Instruction:** For each word search hand the participant the puzzle upside down and tell them they can begin when you say go. Set the timer and begin. After 1 minute. Say stop, look the puzzle over and make the following comments:

After word search one.
**Researcher:** “Ok, that was round number one. Here is your next word search.”

After word search two.
**Researcher:** “Thanks, here is word search number 3.”

After word search three.
**Researcher:** “That was word search three. Here is another one.”

After word search four.
**Researcher:** “Here is your next puzzle, same process, you can begin when I say go.”

After word search five.
**Researcher:** “That was five. Three more after this one.”

After word search six.
**Researcher:** “Here is word search number 7.”

After word search seven.
**Researcher:** “Thanks. Just one more.”

After word search Eight.

*STOP after word search 8 if the participant has not yet done the math task. Administer math task. If the participant has done both the math task and the word search task. Have them complete the session 1 measures in the packet. Remind the participant they are scheduled to return for their second session the next day.

END OF HIGH PRAISE CONDITION SESSION ONE
Session One: Low Praise Condition Script

**Researcher:** “If you are ready, we can begin. Bare with me for a minute, I have to read you a start up protocol. Thank you for participating in today’s study. Industrial-Organizational psychologists are interested in understanding the variables that effect individual’s behaviors at work. One of those variables is working under varying time constraints. Today I am going to ask you to participate in a series of tasks under time constraints. The tasks are pen and paper puzzle-like tasks. You have likely done these or similar tasks in the past. For the first task, you will be completing a series of anagram-like puzzles. In these puzzles you will be given a word and asked to create as many words as possible using the letters in that word as you can, given the time constraint of 1 minute to complete each puzzle. You may use the letters that appear in the words that you create only as many times as they appear in the given word. All words you create must be 3 letters or more. Do you have any questions before we begin?” [ANSWER QUESTIONS IF ANY]… “Great, I’ll give you your first word, set the timer and say go when you can begin.”

*Researcher Instruction: Next hand the participant the first word face down and indicate that the participant may turn the paper over when they hear the word “go.” Set the timer to one minute and begin. When the timer stops,*

**After Anagram One**

**Researcher:** “Ok, you have completed the first word. We will now move to the second word.”

**After Anagram Two**

**Researcher:** “That was your second word. You have 6 additional words to complete.”

**After Anagram Three**

**Researcher:** “That was your third word. We are now moving to word number 4.”

After Anagram Four

**Researcher:** “That was your fourth word, you have are halfway there. Four more words to complete.”

**After Anagram Five**

**Researcher:** “Ok, that was word number 5. Moving on to word number 6.

**After Anagram Six**

**Researcher:** “You are almost done. That was word number 6. You have two more words.”
After Anagram Seven

Researchers: “Ok, that was word number 7. This is your last word, number 8.

After Anagram Eight

Researcher: “Ok, that was your last word. We are now going to move to the next task.”

Math Task

Researcher Instruction: The administration of the math task follows the same basic logic of the anagram task. We want the participants in the experimental condition to be praised for doing a good job. Set timer and begin.

Researcher: “Ok, let’s see how you did. (Experimenter will take a quick look at the task and appear as to be evaluating it). Great start! Let’s try another one.”

Researcher Instruction: Set timer and begin

Researcher Instruction: After the second round of the math task, the researcher will show participants a copy of the task where numerous items are marked incorrectly and the form is not complete.

Researcher: “Ok, let’s see how you did. You are doing a great job. As you can see by this sheet from one of the other participants, some are struggling with this task, but you seem to be doing just fine.”

Researcher Instruction: Set timer and begin

After the third round of the math task.

Researcher: “That was the third round already. Only 5 more to go.”

Researcher Instruction: Set timer and begin

Researcher: “Halfway there. Let’s see how you did this round. (researcher pauses and examines task form). Good job! Four more to go.”

Researcher Instruction: Set timer and begin

After the fifth round of the math task:

Researcher: “Ok, that was round number five. Three more to go.
After round six.”

Researcher Instruction: Set timer and begin
**Researcher:** “Awesome! Let’s see how you did. Wow, you do not seem to be bothered by the one minute time constraints. You are turning in a great performance.”

**Researcher Instruction:** Set timer and begin

**Researcher:** “Ok, that was the seventh round so you are almost done. Last round coming up.”

After the eighth round, the researcher’s comments will act as if she is counting up a total of problems the participant completed across all 8 rounds.

**Researcher to all participants:** “Awesome job. Really, that was great. You completed ‘y’ problems.”

---

**Word Search Task**

**Researcher:** “Now you will perform a series of 8 word search tasks.”

**Researcher Instruction:** For each word search hand the participant the puzzle upside down and tell them they can begin when you say go. Set the timer and begin. After 1 minute. Say stop, look the puzzle over and make the follow comments:

After word search one.
**Researcher:** “Ok, that was round number one. Here is your next word search.”

After word search two.
**Researcher:** “Thanks, here is word search number 3.”

After word search three.
**Researcher:** “That was word search three. Here is another one.”

After word search four.
**Researcher:** “Here is your next puzzle, same process, you can begin when I say go.”

After word search five.
**Researcher:** “That was five. Three more after this one.”

After word search six.
**Researcher:** “Here is word search number 7.”

After word search seven.
**Researcher:** “Thanks. Just one more.”
After word search Eight.

*STOP after word search 8 if the participant has not yet done the math task. Administer math task. If the participant has done both the math task and the word search task. Have them complete the session 1 measures in the packet. Remind the participant they are scheduled to return for their second session the next day.

END OF LOW PRAISE CONDITION SESSION ONE

************************************************************************
******

Session Two: High Praise Condition Script

Researcher Instruction: Session two begins with a second version of the praise/no praise manipulation as in session one. However, this time the first task is the spot-the-stranger task rather than the anagram task.

When the session begins, remind the participants that they signed a consent form during the first session and then begin using the same opening statement:

**Researcher**: “Thank you for returning for the second portion of the study. Today you will perform a new task as well as have the chance to revisit some of the tasks from session one. Recall, Industrial-Organizational psychologists are interested in understanding the variables that effect individuals behaviors at work. One of those variables is working under varying time constraints. The first task you will complete today is called spot-the-stranger. In each item you will be presented with a number of words. One word does not fit the pattern. Identify the word by circling it. Do you have any questions before we begin?” [ANSWER QUESTIONS] “Once again you are in the one minute condition so the pattern here will be pretty much the same as it was in the first session. I’ll hand you a puzzle, set the timer and you can turn it over and begin when I say go.”

**Researcher instruction**: The researcher will then hand the participant the first spot-the-stranger task face down and indicate that the participant may turn the paper over when they hear the word “go.” After one minute, a timer will ring and the researcher will tell the participant to stop.

**After the participant completes the first round**

**Researcher**: “Wow, you did a great job. You finished much faster than most students do in the first round.”

**After the second round:**

**Researcher**: “That was your second round. You have 6 additional rounds to complete.”
After the third round
Researcher: “Let’s see how you did in the third round. (Pause, researcher appears to be evaluating form). Excellent! You seem to be having no problem with this task.”

After the fourth round
Researcher: “That was your fourth round, you have are halfway there. Four more rounds to complete.”

After the fifth round
Researcher: “Ok, that was round number 5. Moving on to round number 6.

After the sixth round
Researcher: “Wow, you are really doing a great job. In fact, given your performance with one minute for the task, it might be interesting to see how you would perform in the 30 second condition. I bet you would still beat out most students.”

After the seventh round
Researcher: “Ok, that was round number 7. This is your last round, number 8.

After the eighth round

Researcher: “Ok, that was your last round. Let’s see how you did. Great job! I bet you fall within the top 3 of all participants that have done this.”

Researcher: Before we continue, I need you to complete a few short measures. The measures are not timed. Please read each item carefully and hand me the packet when you are done.

Researcher instruction: Hand participant the packet of measures marked “session 2” from the folder. When participant completes the measures continue on.

NOTE: For the next portion of the session you will need the “dummy” math and word search packets. These are in a manila folder in the cabinet that is marked. The purpose of these packets is for you to show the participant he/she has a choice between doing a word search or math task, the participant will not complete the tasks. Showing the participant the two packets, the researcher continues:

Researcher: “The next step today is to have you complete one of the tasks you completed in your last session. I have two of those tasks here. In this round you may choose the task you would like to perform.”
Look at the task choice slip in the participant’s folder. Some of these slips have the word search task listed first and some of them the math task. When putting the tasks down in front of the participant, please put the task down that is listed first on this slip.

So if the participant’s slip looks like this:
Participant Number _______________________
    _____ Math Task
    _____ Word Search Task

You would set the math task down first.
If it looks like this:
Participant Number _______________________
    _____ Word Search Task
    _____ Math Task

You would set the word search task down first.

The researcher puts a math task and a word search in front of the participants and says:

**Researcher:** “Please select the task you would like to perform.”

After the participant makes his/her choice, you will mark the choice on the slip of paper in their participant folder. Tell them, they do not need to complete the task. Give them the demographic questionnaire, a debrief form, and then they are done.

**END OF HIGH PRAISE CONDITION SESSION TWO**

******************************************************************************************************************************************************
******
Session Two: Low Praise Condition Script

Researcher Instruction: Session two begins with a second version of the praise/no praise manipulation as in session one. However, this time the first task is the spot-the-stranger task rather than the anagram task.

When the session begins, remind the participants that they signed a consent form during the first session and then begin using the same opening statement:

Researcher: “Thank you for returning for the second portion of the study. Today you will perform a new task as well as have the chance to revisit some of the tasks from session one. Recall, Industrial-Organizational psychologists are interested in understanding the variables that effect individuals behaviors at work. One of those variables is working under varying time constraints. The first task you will complete today is called spot-the-stranger. In each item you will be presented with a number of words. One word does not fit the pattern. Identify the word by circling it. Do you have any questions before we begin?” [ANSWER QUESTIONS] “Once again you are in the one minute condition so the pattern here will be pretty much the same as it was in the first session. I’ll hand you a puzzle, set the timer and you can turn it over and begin when I say go.”

Researcher instruction: The researcher will then hand the participant the first spot-the-stranger task face down and indicate that the participant may turn the paper over when they hear the word “go.” After one minute, a timer will ring and the researcher will tell the participant to stop.

After the participant completes the first round
Researcher: “Ok, you have completed the first round. We will now move to the second round.”

After the second round:
Researcher: “That was your second round. You have 6 additional rounds to complete.”

After the third round
Researcher: “That was your third round. We are now moving to round number 4.”

After the fourth round
Researcher: “That was your fourth round, you have are halfway there. Four more rounds to complete.”

After the fifth round
Researcher: “Ok, that was round number 5. Moving on to round number 6.”
After the sixth round
Researcher: “You are almost done. That was round number 6. You have two more rounds.”

After the seventh round
Researcher: “Ok, that was round number 7. This is your last round, number 8.

After the eighth round

Researcher: “Ok, that was your last word.”

Researcher: Before we continue, I need you to complete a few short measures. The measures are not timed. Please read each item carefully and hand me the packet when you are done.

Researcher instruction: Hand participant the packet of measures marked “session 2” from the folder. When participant completes the measures continue on.

NOTE: For the next portion of the session you will need the “dummy” math and word search packets. These are in a manila folder in the cabinet that is marked. The purpose of these packets is for you to show the participant he/she has a choice between doing a word search or math task, the participant will not complete the tasks. Showing the participant the two packets, the researcher continues:

Researcher: “The next step today is to have you complete one of the tasks you completed in your last session. I have two of those tasks here. In this round you may choose the task you would like to perform.”

Look at the task choice slip in the participant’s folder. Some of these slips have the word search task listed first and some of them the math task. When putting the tasks down in front of the participant, please put the task down that is listed first on this slip.

So if the participant’s slip looks like this:
Participant Number _______________________
_____ Math Task _______________________
_____ Word Search Task

You would set the math task down first.

If it looks like this:
Participant Number _______________________
_____ Word Search Task _______________________
_____ Math Task

You would set the word search task down first.

The researcher puts a math task and a word search in front of the participants. and says:

**Researcher:** “Please select the task you would like to perform.”

After the participant makes his/her choice, you will mark the choice on the slip of paper in their participant folder. Tell them, they do not need to complete the task. Give them the demographic questionnaire, a debrief form, and then they are done.

**END OF LOW PRAISE CONDITION SESSION TWO**

********************************************************************************
******
Appendix J: Spot the Stranger (Task D)

Spot the Stranger One
In each of the series below, one item does not belong. Spot the stranger and circle that item.

1. France Korea Japan China Siberia
2. dictionary encyclopedia reader atlas almanac
3. barrybonds rogerelems lebronjames doraexplorer
4. carpet rug mat lawn linoleum
5. cellphone skype iphone textmessage
6. bakers lemon grapes apples
7. the office American idol the simpsons taco bell
8. uggs coach northface celebutant
9. house uhaul truck jeep
10. spiderman superman tazerman batman

Spot the Stranger Two
In each of the series below, one item does not belong. Spot the stranger and circle that item.

1. pine maple juniper cypress spruce
2. pillowcase facial tissue sheet tablecloth
3. answer contradict reply respond
4. bff acl lol omg
5. knockedup stepup superbad mixedup
6. deperatehousewives peachtreecity sexintheacity lagunabeach
7. giants cardinals dodgers Indians pirates
8. pot pan kettle skillet cup
9. guitarhero rockband halo spaceinvaders
10. cousin son daughter father mother

Spot the Stranger Three
In each of the series below, one item does not belong. Spot the stranger and circle that item.

1. horse raccoon pig sheep cow
2. carrots peas beans broccoli artichoke
3. book movie newspaper magazine brochure
4. headlight lamp carburetor flashlight sun
5. Labor Day Memorial Day Veterans Day Election D
6. parishilton Britneyspears Lindsaylohan heathledger
7. porter baker grover chester
8. lebronjames Morganfreeman samuelljackson bradpitt
9. tlc abc nbc cbs
10. major minor chord museum
Appendix K: State Self-Esteem Scale (SSES)

(SSES; Heatherton & Polivy, 1991)

This is a questionnaire designed to measure what you are thinking at this moment. There is, of course, no right answer for any statement. The best answer is what you feel is true of yourself at this moment. Be sure to answer all of the items, even if you are not certain of the best answer. Again, answer these questions as they are true for you RIGHT NOW.

Each item is scored on a 5-point scale (1=not at all, 2=a little bit, 3=somewhat, 4=very much and 5=extremely).

1. I feel confident about my abilities.
2. I am worried about whether I am regarded as a success or a failure (R).
3. I feel satisfied with the way my body looks right now.
4. I feel frustrated or rattled about my performance.
5. I feel that I am having trouble understanding things that I read. (R)
6. I feel that others respect and admire me.
7. I am dissatisfied with my weight.
8. I feel self-conscious. (R)
9. I feel as smart as others.
10. I feel displeased with myself.
12. I am pleased with my appearance right now.
13. I am worried about what other people think of me. (R)
15. I feel inferior to others at this moment. (R)
16. I feel unattractive. (R)
17. I feel concerned about the impression I am making. (R)
18. I feel that I have less scholastic ability right now than others. (R)
19. I feel like I’m not doing well. (R)
20. I am worried about looking foolish