**The Dissertation Committee for Peter Howard Larkam**
**certifies that this is the approved version of the following dissertation:**

# Conceptions of Human Agency:

# Structural Relations Among

# Motivational Traits, Personal Value Priorities, and Regulatory Focus

**Committee:**

Frank W. Wicker, Supervisor

William R. Koch

Arthur B. Markman

Daniel H. Robinson

Diane L. Schallert

**Conceptions of Human Agency:**

**Structural Relations Among**

**Motivational Traits, Personal Value Priorities, and Regulatory Focus**

**by**

**Peter Howard Larkam, B.A., B.S., M.B.A., M.A.**

**Dissertation**

Presented to the Faculty of the Graduate School of

the University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

**Doctor of Philosophy**

**The University of Texas at Austin**

**August 2006**

# Dedication

To Sandra and our boys: William, Matthew, and Andrew:

THANK YOU!! for *allowing* me to learn and grow.

I love you always and all ways.

To Charles II, Kristi, Tiffany, and Charles III:

In Memory of Alexandra

May the Joy in Your Future Swallow the Sorrow of the Past

To Mother:

Thank you for loving unconditionally…

As only a mother can.

# Acknowledgements

I have written this section in my mind, several times, and always, with a profound sense of gratitude for the privileges and advantages I continue to enjoy – because of the sacrifice and dedication of others, and because of their willingness to believe in, invest in, and in some cases, reluctantly accommodate, me.

I am grateful first to my parents, who have done a remarkable job of consistently modeling unselfish values and ethical behavior. My father, Charles Wilbur Larkam, contributed to my continuing (and seemingly insatiable!) hunger for truth and introduced me to science and engineering as venues for discovery and contribution. My mother, Beverley Jane Jerome McCosham Larkam, provided me with a foundation for understanding human growth and development while cherishing individuality.

I am grateful to a number of educators and scientist / scholars who enabled or encouraged me to pursue graduate education. Long-time family friend Ira Iscoe, Professor Emeritus in the Department of Psychology was instrumental in my having the opportunity to study at the University of Texas at Austin, and in providing guidance about graduate programs at the University. John J. McKetta, Professor Emeritus in Chemical Engineering was also instrumental in my decision to pursue a doctorate. Charles Courtland Huber, former Director of the Option II (Executive) MBA program greatly accelerated my development towards rigorous analytical evaluation of multiple and conflicting viewpoints. Richard Grant through personal consultation and administration of the California Personality Indicator helped me gain focus and crystallize my decision to pursue graduate education in psychology.

My academic references: Option II MBA Professors Court Huber and Ed George, and Linguist / Neuroscientist Harvey Sussman vouched for my academic capabilities, probably not knowing about my academic record several years earlier when I was a much less-focused undergraduate in Claremont, California.

The "MAIN5" (my direct reports) carried much of the *real* load - Ken Barnard, Stephen Beck, Gene Patteson, David Penney, Bruce Rushing, (and after David's departure, Huntis Dittmar) – a team of bright, hard-working, and extremely competent public servants who endured several years of a frequently-overloaded and sometimes physically absent boss…   I could not have completed this program without their understanding, active support, and professionalism, nor without remote pager notification of voice mail (thank you, Janie Paez), my trusty cell phone, as well as high-speed internet-based access to office email and network computer drives.  I am truly blessed to live in a time when technology makes a virtual office workable.   While there are undoubtedly others, this group of employees had a direct bearing on my ability to simultaneously pursue doctoral work in educational psychology and continue "to learn and grow" (Gallup Q12) through paid employment.

The greatest sacrifices have undoubtedly been borne by my immediate family: children, William, Matthew, and Andrew (who has known none *other* than Daddy in graduate school, "always working"), and wife Sandra, the most patient, supportive and encouraging / accommodating spouse anyone could hope to have married.  Thank you, and I love you!  LOTS of time to make up to each of you!

This is quite a long listing of people to acknowledge, considering how highly I value *individual* accomplishments.   Others recognize much younger than I, that humankind is very much interdependent, and that none of us achieves noteworthy personal accomplishments without the support, assistance, and *sacrifice* of others, whether we recognize their crucial role in our individual accomplishments … or, sadly, do not.  Finally, and perhaps most importantly (to me), I am grateful to the One who is Supremely Valuable from ALL points of view[1].                    *- Isaiah 40:31*

---

[1] See Chapter Four: Objective Worth in Robert Kane (1994) *Through the Moral Maze: Searching for Absolute Values in a Pluralistic World*, Paragon House, New York.

# Conceptions of Human Agency:
# Structural Relations Among
# Motivational Traits, Personal Value Priorities, and Regulatory Focus

Publication No._____

Peter Howard Larkam, Ph.D.

The University of Texas at Austin, 2006

Supervisor:  Frank W. Wicker

Personal value priorities, motivational traits, and regulatory focus have been studied independently but little is known about how the constructs relate.  The Theory of Universals in Human Values (Schwartz, 1992, 1994, 2005) specifies inherent conflicts and compatibilities within a set of ten universally recognized broad values.   The values can be viewed as arranged in a circular fashion, like slices of pie, with two orthogonal axes or diameters.  One axis represents trade-offs among individual interests (power, achievement) and social interests (universalism, benevolence).  The other axis represents trade-offs among opportunity (self-direction, stimulation) and stability (tradition, conformity, security).  Achievement motivation researchers (Heggestad & Kanfer, 2000, Helmreich & Spence, 1978) have identified three motivational traits: (1) mastery - striving for excellence based on internal standards, (2) competitiveness - striving for excellence in comparison to others, and (3) anxiety – stemming from attempts to avoid

failure. Higgins (1997, 2001) distinguished two strategies for approaching success: with eagerness (promotion focus) or with caution (prevention focus).

In this study, the first to incorporate all three constructs, one hundred sixty working adults (111 males and 49 females, ages 26 to 65) from a multi-utility agency in Texas completed the Schwartz Value Survey (SVS-57), the Motivational Trait Questionnaire (MTQ short form), and the Regulatory Focus Questionnaire (RFQ) in counter-balanced order. Pearson correlations and multi-dimensional scaling provide convergent evidence that motivational trait mastery is correlated positively with opportunity value priorities and negatively with stability value priorities. Conversely, trait motivation anxiety is correlated negatively with opportunity value priorities and positively with stability value priorities. Trait competitiveness is positively correlated with individual-focus value priorities. In other words, mastery and anxiety are aligned primarily along the opportunity/stability axis in the Schwartz Value Model and competitiveness is aligned primarily along the orthogonal individual/social axis. Promotion focus is associated primarily with trait mastery and with self-direction and achievement values. Prevention focus primarily accompanies stability value priorities.

The study provides initial evidence that guiding principles for action and choice (values), typical actions and attitudes in achievement settings (motivational traits), and strategic means for accomplishment (regulatory focus) form meaningful and consistent patterns both within and between individuals.

# Table of Contents

# List of Tables

# List of Figures

# Chapter 1: Introduction

Some people accomplish more than others, compete more *with themselves* than *against others*, and worry less than friends or coworkers. They persist in productive effort despite difficult challenges, even after others in the same circumstances have become frustrated and quit or given up. If you or I observe this pattern of work behavior consistently, and over time, we tend to conclude that what we observe is part of the individual's *personality*. In other words, we assume that people's *habitual thoughts and actions* constitute enduring, stable personality characteristics or *traits*. We observe what a person *does* and conclude how a person *is*. Our belief that traits exist allows us to categorize or classify people according to their habitual patterns of behavior and lends stability and predictability to social interactions.

In the world of work, we might describe a person as a hard worker, a perfectionist, or as having an exceptional ability to concentrate and focus attention while solving problems. As we continue to meet additional people throughout our lifetime, we *implicitly rate them in relation to others* on specific dimensions that we consider relevant. We estimate or judge the approximate level of specific personality characteristics *in relation to* the typical or average levels of personality characteristics we have observed in the people we have encountered to date. In fact, our view of what constitutes normality is based on what we judge as typical or characteristic of people in general (Markman, 1999; Markman & Ross, 2003).

In addition to judging the level of specific behaviors in reference to a norm or composite average, humans also make judgments about whether specific behaviors are *good* or *bad*. Our *attitude* toward specific behaviors or traits may be favorable, unfavorable, or somewhere between these extremes (Shye, Elizur, & Hoffman, 1994). Generally, our liking or disliking of a particular object or action is accompanied by appropriate emotions (Frijda,

1

1988; Solomon, 1993).  By appropriate, I mean that our liking is usually accompanied by pleasurable or pleasant emotions and our disliking is typically accompanied by unpleasant emotions (Ajzen, 2001; Ajzen & Fishbein, 1980; Brendl & Higgins, 1996).

In the scientific literature, the word *attitude* usually refers to "evaluations of specific entities" (Rohan, 2000, p. 258).  Attitudes toward *abstract* concepts such as *freedom* and *equality* are known as *values*, and serve as criteria for judging worth or "goodness."  Values are consciously articulated cognitive representations of underlying needs.  Without values, "individuals could not get what they want and need from other individuals in personal and emotional terms, nor could they feel within themselves the requisite measure of order and unified purpose" (Kluckhohn, 1951, p. 400).  As guiding principles in life, value priorities reflect what an individual deems *persistently* (rather than temporarily) worthy of pursuit. Values are strongly tied to emotions; people usually feel happy or relieved when they are able to act in harmony with value priorities and may feel anger or frustration when they are unable to act in ways or bring about outcomes that support their values.  Norman Feather, who has studied and written about values for more than 30 years, has empirically demonstrated that people's liking for something is positively related to their value priorities (Feather, 1995).  According to Feather (1996), "we relate possible actions and outcomes within particular situations to our value systems, testing them against our general conceptions about what we believe is desirable or undesirable in terms of our own value priorities" (p. 224).

Another longtime values researcher, Shalom Schwartz has advanced a theory of universals in human values.  Schwartz and his colleagues claim that the number of distinct values recognized by people is comparatively small (in the dozens, but not in the hundreds) and that differences in the *relative priority of one value over another* is an important factor distinguishing one person from another (Schwartz, 1992, 1994, 1996).

2

Thus far, I have introduced traits and values. These constructs constitute two of the three psychological conceptions at the heart of my dissertation. Motivational traits describe how people characteristically behave in achievement settings. Personal values are "conceptions of the desirable that guide the way social actors (e.g., organizational leaders, policy-makers, individual persons) select actions, evaluate people and events, and explain their actions and evaluations" (Schwartz, 1999, p. 24). Their value priorities reveal preferences for one outcome over another, or for one behavior over another. The third construct in my dissertation is related to how people pursue desired values or goals, and focuses on a distinction between pursuing gains and preventing losses. This distinction has received substantial study over the past 20 years, and is known as "regulatory focus." In engineering, "regulation" refers to maintaining and controlling the speed of a process or machine. In economics, regulation also involves control. And in psychology, regulatory focus refers to the way in which individuals control or maintain direction toward a goal. More specifically, regulatory focus distinguishes a *promotion focus* (approaching desirable goals or situations) and a *prevention focus* (preventing undesirable goals or situations).

Each of the three major theoretical constructs in my dissertation – (1) motivational traits, (2) personal value priorities, and (3) regulatory focus is derived from independent research traditions with separate research literatures. Each construct also contributes independently, in a powerful and significant way, to understanding human behavior in achievement contexts. All three constructs share a *persistent accessibility* resulting from the additive (or cumulative) effect (Bargh, Bond, Lombardi, & Tota, 1986) of numerous experiences in achievement contexts (Bandura, 1991, 2001). Motivational traits reflect *habitual* responses in achievement-related settings. Personal values serve as guides across situations. Regulatory focus describes the way people pursue gains or avoid losses. A person's subjective history of achieving success with a promotion or prevention focus

3

reflects his or her *habitual* or preferred *strategy for achieving*.  When all three theoretical constructs are combined, they may foster an even richer, more complete understanding of people's typical performance in achievement or work-related settings.

My study has two major purposes.  One, to extend two existing measures from the academic laboratory to an applied setting of working adults.  By using a representative (full-SES)[2] sample of working adults to establish norms for key motivational traits and linking these motivational traits to an integrated system of personal value priorities and a preferred strategic means for accomplishment, my study extends current knowledge of human motivation in work and performance-related contexts.  The second purpose is to examine structural relations among motivational traits, regulatory focus, and personal value priorities.  Traditional correlation studies enable researchers to confirm or establish relationships among variables.  A much less used multivariate technique – multidimensional scaling, or MDS – enables researchers to examine visually and *simultaneously* the relationship among several variables in "conceptual space."   Variables that are similar are comparatively close together in concept space, and variables that are less similar are further apart.  My study uses both correlation and MDS to evaluate structural relations among motivational traits, personal value priorities, and regulatory focus.

---

[2] SES is an abbreviation for "socio-economic status" and is related to financial resources and educational attainment.  By "full-SES" I mean that the study sample will include a broad spectrum of income and education levels that nearly approximates the demographics of working adults in Central Texas.

# Chapter 2: Literature Review

**BACKGROUND CONCEPTS**

**Formal Knowledge**

In the introduction, I discussed personal value priorities, motivational traits, and regulatory focus. My purpose was to provide an overview and an orientation to my study. The ideas I presented may have seemed intuitively obvious; it is human nature to interpret events and build explanatory theories (Levy, Plaks, Hong, Chiu, & Dweck, 2001; Rozenblit & Keil, 2002). As natural as our intuitive theorizing may be, however, numerous studies have shown that people's confidence in their intuitive understanding is over-rated and intuitive understanding is less than completely reliable (Gilovich, 1983; Gilovich & Douglas, 1986; Gilovich, Griffin, & Kahneman, 2002; Haverkamp, 1994; Ross, 1977, 2001; Rozenblit & Keil, 2002; Rudman, Ashmore, & Gary, 2000).

*Science* is a *formal process* of building and testing theories that aid in explaining or predicting outcomes or results, based on inputs or conditions (Shye, Elizur, & Hoffman, 1994). For *formal knowledge* to progress, theories must withstand the challenge of repeated observation under conditions that constrain alternative explanations (Campbell & Stanley, 1963). Every scientific method is based on assumptions - often not subject to unequivocal verification (Slife & Williams, 1995) and philosophers of science argue it is inevitable that our observations are limited by the world-view assumptions we hold (Kinder & Weiss, 1978; Levy, Plaks, Hong, Chiu, & Dweck, 2001; Slife & Williams, 1995; Triandis, 2000).

Nevertheless, scientific progress is possible because communities of scholars collectively agree that certain assumptions seem highly plausible, and therefore should stand as foundational "truths" upon which to build testable theory (Jackson & Meadows, 1991;

Planalp & Fitness, 1999). Empirical research is framed in probabilities, and many scientific studies, including this one, evaluate the likelihood that observed results are (more properly, are *not*) likely to have occurred solely by chance (Campbell & Stanley, 1963). If enough scientists, using controlled conditions and sound methodology, show that a result would have occurred by chance only one time in twenty, that finding gains credence as a theoretical proposition.

As a science, psychology seeks to understand human thinking, feeling, and acting. Like most fields of scientific endeavor, it advances primarily through a continuing interplay of specialization and subsequent integration. First, narrowly defined concepts are developed and studied in depth; then relationships among constructs are explored. The integration raises new questions to explore in depth. In this dissertation, I evaluate relationships among previously developed and well-studied constructs: traits, values, and regulatory focus. Through my literature review in preparation for this project, I found no prior studies directly relating personal value priorities to motivational traits (or goal orientation) or regulatory focus. I evaluate structural relationships among these constructs using a representative (full SES) sample of working adults rather than a convenience sample of college students. My sample choice is intended to broaden the applicability of the research study and the specific measures employed.

Typically, one of the initial requirements in advancing science is a clear conceptual definition of the issue at hand (Alexander, Schallert, & Hare, 1991) and a reliable (repeatable) method of measuring the theoretical constructs (Crocker & Algina, 1986; DeVellis, 2003; Netemeyer, Bearden, & Sharma, 2003). Latham and Pinder, in their 2005 review article "Work Motivation Theory and Research at the Dawn of the Twenty-First Century" remarked that motivational theories hold particular promise in applied settings (Latham & Pinder, 2005). Industrial and organizational psychologists Heggested and Kanfer

6

(2000) had argued a few years earlier that the development of an adequate theory of achievement and work motivation has been hampered by the absence of a suitable measure. Consequently, after an extensive review of the achievement motivation literature, they developed the Motivational Trait Questionnaire or MTQ (Heggestad & Kanfer, 2000). The authors of a 2005 study using their measure concluded, "the MTQ is a reliable and useful way of measuring stable motivational constructs, particularly in a goal-setting situation" (Hinz & Jundt, 2005, p. 551). I plan to relate Heggestad and Kanfer's theoretical constructs to other indications of what people want, and how they pursue their ends. Specifically, I combine Heggestad and Kanfer's motivational traits with the *Theory of Universals in Individual Values* (Schwartz, 1992, 1994, 1996, 2005) and *Regulatory Focus Theory* (Higgins, 1997; Higgins et al., 2001) to extend knowledge about structural relationships among approach and avoidance achievement motivation, mastery (self-referent) and performance (other-referent) motivation, promotion and prevention regulatory focus, and personal value priorities. I hope that this research can serve as a foundation for further integration of related motivational constructs.


**Personality: "What do we know when we know a person?"**

The research presented in this dissertation addresses (1) relationships among specific variables *within* an individual person, and (2) relationships among specific variables *between* people (individual differences). Individual differences in personality can be described on three different levels (McAdams, 1995). These three levels are different ways of viewing a person; each tells us *something* about a person, but no one view tells us *everything* about a person.

7

*Level I – Traits*

Level I consists of broad, relatively context-free constructs called *traits*. Traits dominated the early study of personality psychology and trait adjectives have been used in many past and current psychological measures. Hundreds of trait adjectives have been proposed and analyzed as descriptors of human propensities. Some examples – referring to one individual – might include "socially dominant, extraverted, entertaining, dramatic, moody, slightly anxious, intelligent, and introspective" (McAdams, 1995, p. 365). According to McAdams, no view of personality is complete without a trait description "but trait attributions themselves yield little beyond a 'psychology of a stranger' " (p. 365). Many traits appear relatively stable over time, and researchers using twin studies claim approximately 40 to 50 percent of variance in trait scores may have a genetic basis (p. 373). While the construct of traits has been criticized as overly simplistic, the aggregation of traits usually predicts behaviors fairly well, and "situational effects are often no stronger than trait effects." (p. 373).

Over the last decade, personality researchers have largely converged on a five-factor model [3], called "The Big Five" or "OCEAN," an acronym for the five primary traits shown along with trait facets in Figure 1. The traits are (1) **O**penness to Experience, (2) **C**onscientiousness, (3) **E**xtraversion, (4) **A**greeableness, and (5) **N**euroticism. Results of both self-report and peer ratings in 50 cultures, using the most prominent measure of the theory (NEO-PI-R, a 240 item scale containing six facets for each of the five primary traits), have led some researchers to conclude *all cultures* exhibit the five factor structure of personality (McCrae, Terracciano, & 78 Members of the Personality Profiles of Cultures Project, 2005). They claim, "despite differences in language, history, religion, and culture, … personality traits are basic features of the human species" (p. 548).

---

[3] The use of "model" in factor analysis (the basis for the five factors) is different from a formal scientific model.

Table 1:    Facets of the Five-Factor Model of Personality Traits[4].

| Openness to Experience | Conscientiousness | Extraversion | Agreeableness | Neuroticism |
|---|---|---|---|---|
| Fantasy | Competence | Warmth | Trust | Anxiety |
| Aesthetics | Order | Gregariousness | Straightforwardness | Angry Hostility |
| Feelings | Dutifulness | Assertiveness | Altruism | Depression |
| Actions | Achievement Striving | Activity | Compliance | Self-Consciousness |
| Ideas | Self-Discipline | Excitement Seeking | Modesty | Impulsiveness |
| Values | Deliberation | Positive Emotions | Tender-Mindedness | Vulnerability |

Heggestad and Kanfer, the authors of the Motivational Trait Questionnaire (MTQ) that I use in this dissertation, agree, "traits represent stable patterns of performance across situations" (Heggestad & Kanfer, 2000, p. 759). The MTQ authors define *motivational traits* as "stable, trans-situational individual differences in preferences to approach and avoidance of goal-directed effort expenditures" (p. 753). They reject the claims of some researchers, however, that achievement striving is explained adequately by the conscientiousness trait in the five-factor model (see the second column in Table 1).

*Level II – Personal Concerns*

McAdams (1995) labels the second level of individual differences *personal concerns*. According to McAdams, personal concerns include motives (McClelland, 1987b; McClelland, Koestner, & Weinberger, 1989; Wicker, Lambert, Richardson, & Kahler, 1984), values (Feather, 1992b; Rokeach, 1979b), strategies and tactics (Weinstein & Mayer, 1986), skills and talents (Ericsson & Charness, 1994; Ericsson & Lehmann, 1996; McClelland, 1985), developmental issues (Erikson, 1978; Kegan, 1982, 1994, 2000), personal projects (McGregor & Little, 1998), personal strivings (Emmons, 1986, 1989; Emmons & McAdams, 1991; Havercamp & Reiss, 2003), current concerns (Klinger, 1977), ultimate concerns

---

[4] From "Universal Features of Personality Traits from the Observer's Perspective: Data from 50 Cultures" by R. R. McCrae, A. Terracciano, & 78 Members of the Personality Profiles of Cultures Project, 2005, *Journal of Personality and Social Psychology 88 (3),* Table 3 p. 552. In the public domain.

(Emmons, 1999), etc.  Unlike traits, personal concerns tend to be specific to time, place, and role (McAdams, 1995).   They

> are typically couched in motivational, developmental, or strategic terms.  They speak to what people want, often during particular periods in their lives or within particular domains of action, and what life methods people use (strategies, plans, defenses, and so on) in order to get what they want… (p. 376).

While **motivational traits** are a Level I construct in McAdam's three-level individual-difference framework, both **values** (trans-situational abstract goals) and **regulatory focus** (strategy for goal pursuit) are Level II constructs.  Consequently, my research brings together individual-difference constructs from two different levels.

### *Level III – A Coherent Life Story*

According to McAdams (1995), a third level at which we can describe a person is narrative or life story.  McAdams argues that Level III may not be relevant for all people, or all cultures.  The "need" for a coherent life story seems to be more important to people living in modern or postmodern cultures in which society does not define explicitly who one is.  In these views, *role* and *identity* are not synonymous.  For example, the statement, "I am a policeman" implies that identify ("I") and role ("policeman") are confounded.  Individuals differ in the extent to which they differentiate their roles from their identity and in the degree to which they envision *specific roles* as defining characteristics of their identity or self.

Harvard developmental psychologist Robert Kegan (Kegan, 1982, 1994) argues that separating self from surround is an essential component of personality development.  He has specified five major inherently stable viewpoints, or ways of making meaning that differ in the way they classify or categorize "subject" and "object."  He and his colleagues have amassed substantial research evidence that a majority of adults, even in modern societies, lack the *ability* to reflect critically upon their roles *as distinct from themselves*  (Kegan, 1994,

Table 5.3 and Table 5.4, p.192-195). In a number of "order of consciousness studies" conducted between 1983 and 1993 (and summarized in Table 5.3 and 5.4 in his 1994 book), Kegan concludes that *nearly half* of adults in a "full SES" composite, and *up to twenty percent* of "professional highly educated" adults are *unable* to "see the self as the author (rather than merely the theater) of one's inner psychological life" (p. 31).[5] Consequently, based on Kegan's research, incorporating descriptions based on McAdam's third level may be most useful for those people whose personal epistemology, or meaning-making system, makes salient, *conflict or lack of coherence*, in their life story. Clearly, some types of self-regulation require more developed (in Kegan's framework) levels of consciousness and there are connections between McAdam's Level III and *regulatory focus* (a type of self-regulation). I do not measure Level III characteristics directly but do discuss some possible connections between my study variables and McAdam's Level III in Chapter 5.

Personality psychologists attempt to bring together findings from several psychological disciplines. My purpose for including this broad overview of personality is to provide a unifying framework for the three constructs that form the core of my study: motivational traits, personal value priorities, and regulatory focus. In concluding this section, I think it important to emphasize McAdams' caution:

> The three levels of personality description are conceptually and epistemologically independent. The wrong way to think about the three levels is to imagine a tight hierarchy in which traits give rise to more specific personal concerns, which ultimately coalesce to form a life story. The wrong way suggests that traits are the raw stuff of personality, that personal concerns are contextualized derivatives of traits, and that stories represent a fashioning of personal concerns into a meaningful life narrative. The wrong way suggests that stories are ultimately derived from traits. (McAdams, 1995, p. 386)

---

[5] For an alternative view of this idea (to Kegan's), see Tetlock, P.E., Kristel, O. V., Elson, S.B., Green, M.C., and Lerner, J.S. (2000). The psychology of the unthinkable: Taboo trade-offs, forbidden base rates, and heretical counterfactuals. *Journal of Personality and Social Psychology, 78 (5)*, 853-870.

**STUDY CONSTRUCTS**

In this next section, I discuss in more depth the three major constructs in my study. So far, I have said that traits describe how someone "is" and that personal values describe guiding principles for choosing and acting. Clearly, however, no person can successfully achieve by deciding and acting *once*. Every successful achiever must *continually* decide and act, must continually *adjust* decisions and actions as she or he progresses toward successful attainment or accomplishment.

**Self-Regulation**

One of the most important characteristics of humans is our ability to self-regulate (Zimmerman, 2000); in other words, to adjust our actions to achieve the results we want within the constraints we face. Extensive empirical study, including interviews of people known for their self-discipline and success, has honed psychologists' understanding of effective self-regulatory processes (Ericsson & Charness, 1994). In a nutshell, effective self-regulation largely involves deciding on a specific outcome or goal (Locke, 2000a; Locke & Latham, 1990) and then maximally adapting to the task constraints (Ericsson & Lehmann, 1996). No one process works for all people and all situations, and the most effective self-regulators continually adjust their goals and strategies (Weinstein & Mayer, 1986). As I will discuss in more depth later, regulatory focus theory describes different ways that people self-regulate: by approaching gains and by avoiding losses.

*Self-Efficacy*

The belief that one is *effective* in self-regulating (is able to achieve desired goals) is called self-efficacy (Bandura, 1989, 1997, 2001). Generally, the more capable people

believe themselves to be, the higher their goals, and the stronger their commitment to achieve (Bandura, 1997; Latham & Pinder, 2005; Locke, 2000b; Locke & Latham, 1990).  While people have a sense of their own competence overall, they are also aware that they have different levels of competence or efficacy in different circumstances and pursuits (Bandura, 1997; Eccles & Wigfield, 2002).

*Attributions*

One characteristic of high achievers is their belief that the results they attain are largely dependent upon their efforts.  In other words, they can act as an *origin* or cause of desired outcomes (McClelland, 1961b, 1987b).  In the language of *attribution theory* (Weiner, 1974, 1991, 1992), they tend to view the cause of achievement as *internal*, rather than external, as *unstable*, rather than stable, and as *controllable*, rather than uncontrollable.  This combination of beliefs results in an attitude of responsibility toward personal circumstances.  By contrast, people who are inclined frequently to blame others or feel themselves the victim of "bad luck" often view their plight as *external* (the intended recipient of their blame), *stable* (so why try), and as *uncontrollable* (hence they are not responsible or *response-able* [6]).  Carol Dweck and her colleagues have conducted a number of studies in which children who had performed poorly in school (partly because they viewed their own intelligence as fixed or *stable*) were taught that they could *improve* their intelligence (Dweck, 1988, 2000; Dweck, Chiu, & Hong, 1995).  In other words, intelligence was not seen as fixed (an "entity") but as changeable ("incremental").  Children with this new belief or *attribution* tended to persist despite initial failures, eventually learning to succeed in schoolwork.

---

[6] Stephen R. Covey, author of "The Seven Habits of Highly Effective People" discusses choice as occurring between stimulus and response.  In this discussion, he links responsibility to response-ability, or the ability to respond.

*Goal Orientation*

An overall orientation towards achievement *for its own sake* has been called a learning orientation (Dweck, 1988), a mastery orientation (Ames, 1992), or a task goal orientation (Nicholls, 1984). An orientation towards achievement *in order to be judged favorably* has been called a performance (Dweck, 2000) or ability orientation (Nicholls, 1984). Performance goals "highlight normatively based standards and promote the demonstration of ability relative to others, whereas mastery goals are self-referential, focusing on the development of skill and competence relative to the task and one's past performance" (Harakiewicz & Elliot, 1993, p. 904). The various conceptions of goal orientation can be subdivided into two broad categories: developing ability, and demonstrating ability (Midgley, Kaplan, & Middleton, 2001).

Researchers have vigorously debated the benefits and pitfalls of a performance orientation and research results have been mixed. It appears that a mastery orientation more likely results in "deep processing" while a performance orientation more likely fosters "surface processing" (Elliot, McGregor, & Gable, 1999). In some settings (for example, taking multiple-choice tests in an introductory college course) a performance orientation can lead to better results (Elliot & McGregor, 1999; Elliot, McGregor, & Gable, 1999). However, long-term retention *requires* deep processing and tends to fare better with a mastery approach to attainment (Elliot, McGregor, & Gable, 1999; Midgley, Kaplan, & Middleton, 2001).

*Approach and Avoidance*

Performance (other-referent) orientation can be further classified into approach and avoidance tendencies (Elliot & Church, 1997; Elliot & Harackiewicz, 1994, 1996; Harackiewicz & Elliot, 1993). In an attempt to integrate constructs from the achievement

*motivation* (McClelland, 1961a, 1987a; McClelland, Atkinson, Clark, & Lowell, 1953) and achievement *goal orientation* (Ames, 1992; Dweck & Elliott, 1983; Nicholls, 1984) approaches, Andrew Elliot and his colleagues proposed a *Hierarchical Model of Approach and Avoidance Achievement Motivation* (Elliot & Church, 1997). In this model,

> *achievement motives* – need for achievement (*n*Ach) and fear of failure (FOF) – are construed as general, higher order motivational tendencies that energize individuals and orient them toward positive or negative possibilities, respectively. *Achievement goals* are construed as more concrete, midlevel cognitive representations that direct individuals toward specific end states (Elliot & McGregor, 1999, p. 628, italics in the original text).

According to Elliot, achievement goals are further sub-classified into three types: (1) *performance-approach* goals - attaining competence relative to others, (2) *performance-avoidance* goals - avoiding incompetence relative to others, and (3) *mastery goals* – developing competence and task mastery. In the hierarchical model, achievement motives predict achievement goals, and motives and goals jointly influence achievement outcomes. In order of decreasing abstraction (increasing concreteness) the concepts are arranged as (1) motives, (2) goals, and (3) specific behaviors or actions. In his model, (Elliot & Church, 1997) Elliot views

> mastery and performance-avoidance goals as relatively "pure" forms of regulation in that they serve a single genotypic motivational function (achievement motivation and fear of failure, respectively), whereas the performance-approach orientation is conceptualized as a more complex form of regulation in that it can serve both approach (achievement motivation) and avoidance (fear of failure) motivational functions at the genotypic level (p. 220).

Figure 1 shows this proposed theoretical relationship.

```
┌─────────────────────────────────────────────────────────────────────┐
│  ┌──────────────────────────┐         ┌──────────────────────┐       │
│  │  Achievement Motivation  │────────▶│    Mastery Goals     │       │
│  └──────────────────────────┘  ╲      └──────────────────────┘       │
│                                  ╲     ┌──────────────────────────────┐│
│                                   ╲───▶│  Performance Approach Goals  ││
│                                  ╱     └──────────────────────────────┘│
│  ┌──────────────────────────┐  ╱      ┌──────────────────────────────┐│
│  │      Fear of Failure     │─┴──────▶│  Performance Avoidance Goals ││
│  └──────────────────────────┘         └──────────────────────────────┘│
└─────────────────────────────────────────────────────────────────────┘
```
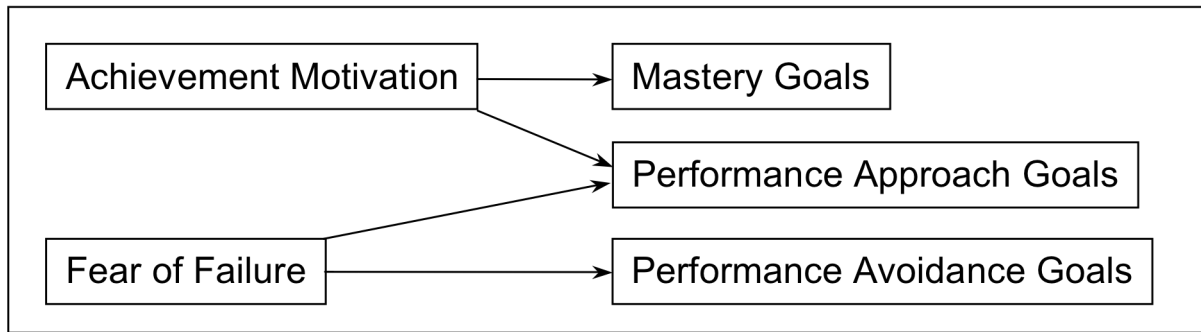
Figure 1:     Theoretical Relationship Between Achievement Motives and Goals[7].

As shown in Figure 1, a person could have different reasons for embracing performance approach goals.  Recall that performance approach refers to "attaining competence relative to others."  Conceivably, a high need for achievement (achievement motivation) could propel one to strive toward excellence according to one's own (internal) standards, normative (comparison to others) standards, or both.  On the other hand, it also seems possible that the underlying motive (unconscious reason) for actively pursuing success in relation to another person could be a fear of failure.  The following story illustrates this possibility:

> Two scouts are camping in the woods.  Hearing a rustle in the branches, they are surprised to see a very large bear.  One of the scouts quickly crouches down, takes off her heavy boots and puts on a pair of running shoes.  The other scout remarks, "You don't think you can outrun that bear, do you?"  "No," replies the first scout.  "I don't have to.  I only have to outrun you!"

The scout who donned running shoes clearly has a goal of "attaining competence relative to others."  Her focal goal is not to "avoid" the bear, but outrun her companion.  But her motive (driving force or antecedent or cause) for running is a *negative* rather than a *positive* one.  Her goal is to achieve competence in comparison to her companion, so her

---

goal-orientation in this framework is a performance-approach goal based primarily on fear of failure.

In Elliot's model, *anxiety* is the result of performance-avoidance goals, and has a debilitating effect on performance (Elliot & McGregor, 1999). Mastery goals promote deep processing and retention, but are unrelated to outcome on performance-based assessments (Elliot, McGregor, & Gable, 1999). Figure 2 retains the antecedent motivations (achievement or fear of failure) and extends the link from motive through goal to outcome.
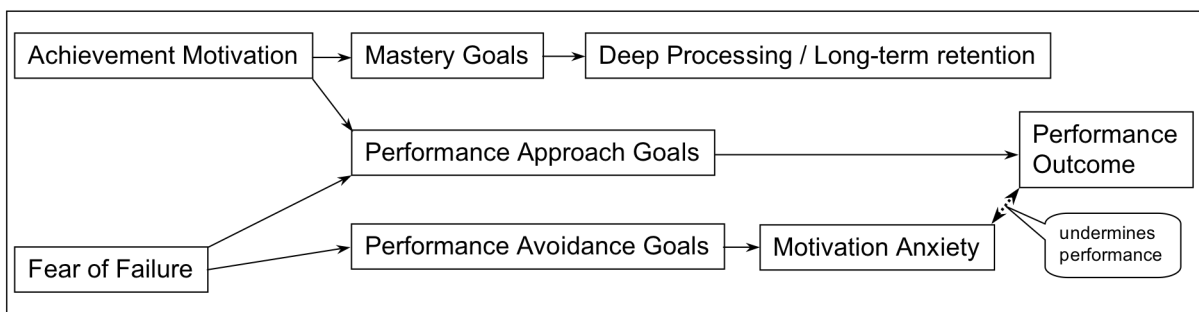


Figure 2: Relation Between Motives, Goals, and Outcomes in the Elliot model[8].

It is important to recognize that Elliot and colleagues measure *goal orientation* and not *motive*. The goal-orientation in their (and others') measure is domain-specific. By contrast, Heggested and Kanfer claim to measure the more global, diffuse, trait-motives "upstream" from goals (Heggestad & Kanfer, 2000; Kanfer & Ackerman, 2000; Kanfer & Heggestad, 1997).[9] Goals are usually specific, while motives are more general.

---

[8] Adapted from "Test Anxiety and the Hierarchical Model of Approach and Avoidance Achievement Motivation" by Andrew J. Elliot and Holly A. McGregor, 1999, *Journal of Personality and Social Psychology, 75(4)*, p. 630. Copyright 1999 by the American Psychological Association, Inc. Adapted with permission from the authors.

[9] There has been considerable debate about whether motives can be assessed with self-report measures. Heggested and Kanfer do not claim to measure transitory motives, but stable motivational traits.

**Motivational Traits – First Construct**

According to Kanfer and Ackerman (2000), many researchers agree that individual differences in stable motivational preferences or traits do exist, but researchers do not agree about how best to conceptualize these motivational traits. Figure 3 below shows the result of several studies conducted by Heggestad and Kanfer in developing the motivational trait construct I use in this dissertation.
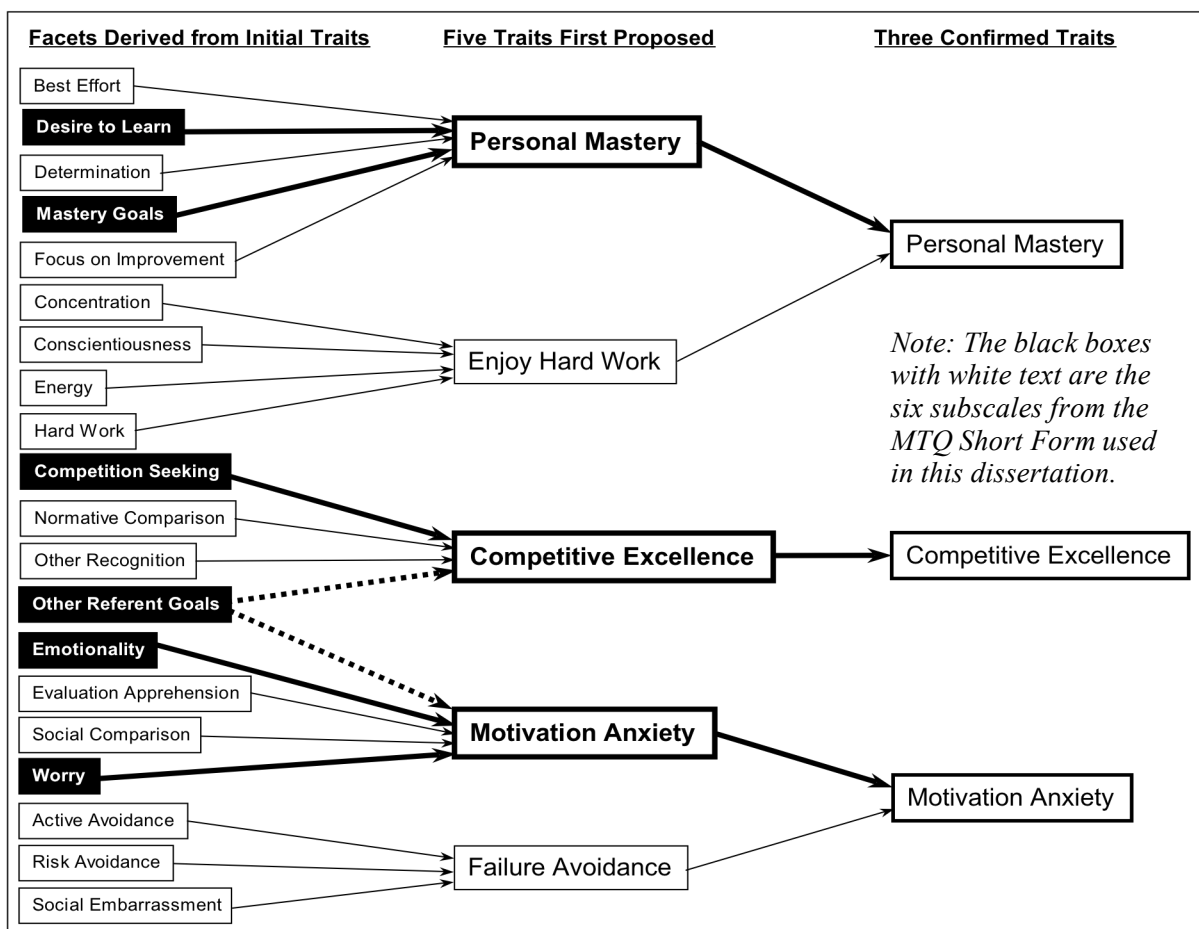


Figure 3:    Facets and Factors in Heggestad and Kanfer's Motivational Traits[10].

---

[10] From "Individual differences in trait motivation: development of the Motivational Trait Questionnaire," by Eric D. Heggestad and Ruth Kanfer, 2000, *International Journal of Educational Research, 33*, p. 761. Copyright 2000 Elsevier Science, Ltd.  Adapted with permission of Elsevier Science Ltd.

Heggestad and Kanfer began their effort developing a comprehensive measure of motivational traits with a number of individual constructs postulated by achievement motivation and goal-orientation theorists. The initial measure specified five motivational traits and contained 283 items rated on a six-point Likert-type scale (Heggestad & Kanfer, 2000). Heggested and Kanfer (2000) then reviewed conceptions of the achievement complex from both the achievement motivation tradition (McClelland & Atkinson) and the personality taxonomy tradition (Murray). Their review of the achievement complex from both traditions led them to specify three achievement traits: *Personal Mastery*, *Competitive Excellence*, and an additional trait, *Hard Work*. Individuals with a high standing on this trait "would be expected to exert great amounts of effort to complete a task, regardless of their level of intrinsic task enjoyment. These individuals are hard working and diligent. They have a strong desire to keep busy and find it difficult to simply relax and do nothing" (Heggested & Kanfer, 2000, p. 756). Individuals measuring high on Personal Mastery establish standards of excellence in terms of their own performance, and strive to improve their performance according to their self-set standard. They tend to persist in their pursuit of excellence despite frustrations and difficulties. Their competition is with themselves, "to be the best that they can be." While the standard for excellence in Personal Mastery is *internal*, for Competitive Excellence, the standard for excellence is *external*. Surpassing one's own performance is not sufficient; one must also win *against others*. Individuals high in this trait look to see how well others are doing, and evaluate their performance based on knowledge of the comparison. In Figure 3, Personal Mastery, Enjoy Hard Work, and Competitive Excellence are the top three boxes in the center column.

To formulate initial trait conceptions for the Achievement Anxiety complex, Heggested and Kanfer reviewed the literature on general anxiety, test anxiety, and fear of failure. They proposed two traits: *Failure Avoidance* and *Motivation Anxiety*. Failure

Avoidance was conceptually similar to Murry's conception of *Infavoidance*, defined as the need "to avoid humiliation. To quit embarrassing situations or to avoid conditions that may lead to belittlement: the scorn, derision, or indifference of others. To refrain from action because of the fear of failure" (see McClelland, 1987, p. 46 Table 2.3). Motivation Anxiety is similar to test anxiety but is broader, reflecting a tendency to experience anxiety across a wide range of situations "such as meeting a deadline at work, participating in an athletic competition, or planning and hosting an important party." (Heggestad & Kanfer, 2000, p. 757). Motivation Anxiety and Failure Avoidance are the bottom two traits in the center column of Figure 3.

After proposing these five traits (Personal Mastery, Hard Work, Competitive Excellence, Motivation Anxiety, and Failure Avoidance), Heggested and Kanfer reviewed a large number of measures related to the achievement complex and found that no single measure covered all five of their proposed achievement and anxiety traits. While some of the existing measures contained some items for some of the proposed traits, the relatively small number of items measuring these traits would make it difficult to develop psychometrically acceptable scales without additional items. One prominent measure, in particular, is conceptually very similar to the MTQ. The Work and Family Orientation Questionnaire (WOFO), (Helmreich & Spence, 1978) contains four scales:

> work orientation, the desire to work hard and do a good job, mastery orientation, a
> preference for difficult, challenging tasks associated with standards of excellence;
> competitiveness, the desire to best and win over others; and personal unconcern, a
> lack of concern about the negative reactions of others to one's attainment. (Snell,
> Hargrove, & Falbo, 1986, p. 428)

The 20 facets (on the left of Figure 3) were identified by further content analysis of items comprising the five motivational traits (center column of Figure 3). After conducting two studies and a number of further data analyses, Heggested and Kanfer (2000, pages 760-768) found evidence for the viability of a multidimensional structure of motivational traits,

though only for a three-factor model rather than the five factors originally proposed. Specifically, the three distinct motivational traits identified included Personal Mastery (a combination of the initially hypothesized Personal Mastery and Hard Work traits), Competitive Excellence, and Achievement Anxiety (a combination of the hypothesized Achievement Anxiety and Failure Avoidance traits) (p. 770). Interestingly, in their seminal book, theorists Spence & Helmreich recommended combining their Hard Work and Mastery Orientations into a "workmastery" orientation (Spence & Helmreich, 1983).

The final version of the Motivational Trait Questionnaire (MTQ) exists in two forms. The long version contains 82 items and includes three subscales per trait. The short version, used in this dissertation, contains 48 items and includes two subscales per trait. These six subscale facets are shown with white text against a solid black box in the left column of Figure 3. A description of each of the six subscales and the psychometric properties of the measure is included in Chapter 3.

Figure 4 shows the three confirmed motivational traits, their relation to approach and avoidance goal orientation, and the respective subscales measuring them. For example, Desire to Learn and Mastery Goals (marked 1 and 2 in the top right corner of Figure 4) correspond to a mastery goal orientation, and measure the Personal Mastery trait. Competition Seeking (labeled 3) is the first subscale of the Competitive Excellence trait and corresponds to a performance approach goal orientation. Other Referenced Goals (labeled 4) is the second trait of Competitive Excellence, but there is no clear corresponding goal orientation. This subscale confounds performance approach and performance avoidance goal orientations. Kanfer and Ackerman (2000) reason that individuals "may compare their own performance to that of others for two very different reasons: (a) to evaluate whether they are performing better than others (e.g. competition) or (b) to evaluate whether others are doing better than they are (e.g. fear of failure)" (p. 476). See Figure 3 (p. 18) also for comparison.
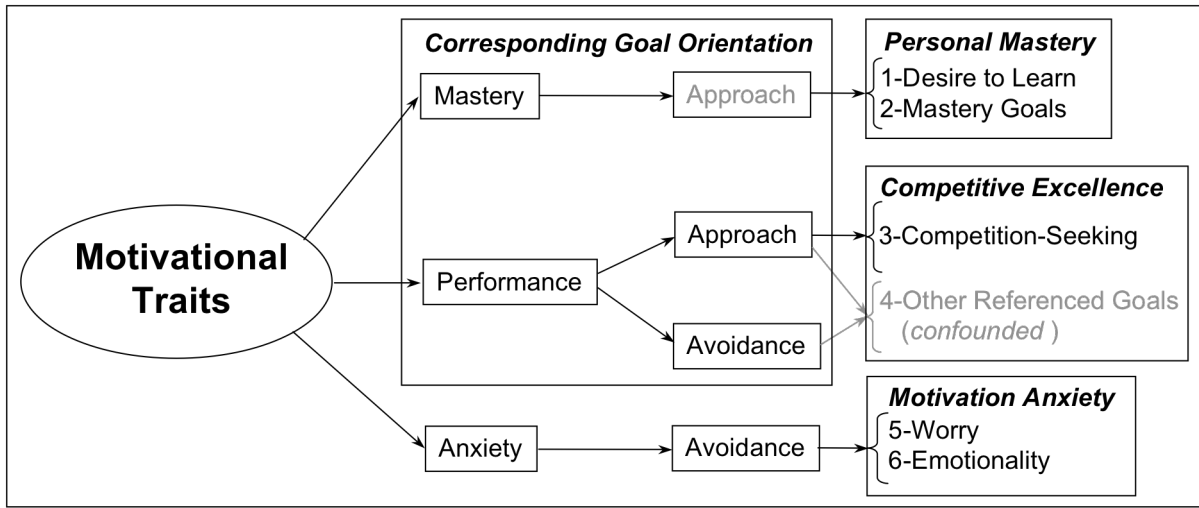
Figure 4:     MTQ Subscales, Confirmed Traits and Corresponding Goal Orientation.


**Regulatory Focus – Second Construct**

Renowned theorist Abraham Maslow distinguished "growth" or "being" needs from "deficit" needs (Maslow, 1955, 1968).  Growth needs reflect *aspirations*, and striving *toward* the image of an "ideal" self (Higgins, 1996; Markus & Rouvolo, 1989).  Deficit needs reflect striving driven by a *feeling of inadequacy*.  Frank Wicker and colleagues proposed "a functional distinction between two types of positive incentive value, one based on *approaching positive affect* (positive-based value or PBV), the other on *avoiding negative affect* (negative-based value or NBV)" (Wicker, Wiehe, Hagen, & Brown, 1994, p. 347).  Freud's contemporary Alfred Adler proposed that people are driven primarily by a desire to strive for perfection, or a desire to compensate for feelings of inferiority (Ansbacher & Ansbacher, 1956; Manaster & Corsini, 1982).  Each of these theorists concludes that people try to approach pleasure and avoid pain (Shah & Higgins, 1997).

*Regulatory Focus Theory* (Higgins, 1997) extends the pleasure / pain principle to address *how* people approach pleasure and avoid pain; it moves us "beyond pleasure and pain."  In this theory, goals are broadly defined as "representational structures that guide the

system in its pursuit of a reference or end state" (Markman & Brendl, 2000, p. 98). A positive end-state is associated with an *approach* goal and a negative or undesirable end-state is associated with an *avoidance* goal (Higgins, 1997). Goals related to advancement, achievement, and aspirations are called *promotion* goals. Goals related to obligations, responsibilities, and security are called *prevention* goals. Both types of goals, nurturance-promotion and security-prevention are necessary to function in society. A promotion or prevention focus can be persistent or temporarily primed. Individuals who typically focus on pursuing positive end-states develop a preference for approaching desirable end-states (ideals), and individuals who typically focus on avoiding negative end-states develop a preference for avoiding undesirable end-states. Through repeated activation, the preference becomes habitual or automatic (Bargh, Bond, Lombardi, & Tota, 1986; Zajonc, 1980). Figure 5 shows theoretical causes and consequences of a promotion regulatory focus.

*Promotion Focus*
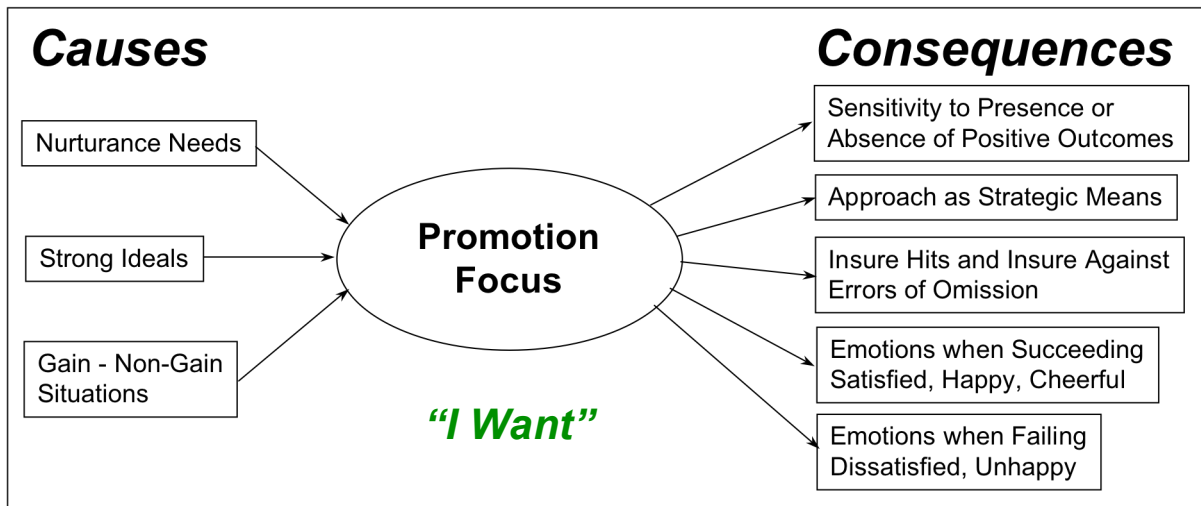


Figure 5: Theoretical Causes and Consequences of a Promotion Focus.[11]

_____

[11] From "Beyond Pleasure and Pain" by E. Tory Higgins, 1997, *American Psychologist 52(12)*, p. 1283. Copyright, 1997 by the American Psychological Association, Inc. Adapted with permission from the author.

As shown in Figure 5, individuals who are frequently rewarded for achievement and not rewarded (but also not punished) for non-achievement tend to develop a promotion focus. Their reference point is positive, and they assess the discrepancy between their current view of themselves and the desired "ideal." They develop increased sensitivity to the presence or absence of positive outcomes. When they sense that they are succeeding in approaching a desired end state, they feel happy, cheerful, or satisfied. When they believe their actions are not moving them toward the desired ideal, they may feel unhappy or dissatisfied (Higgins, Shah, & Friedman, 1997). They tend to focus on doing everything they can to achieve their goals as opposed to ensuring that they do only what helps them achieve their goal (Higgins, 1997). In other words, they are not overly concerned with mistakes or wasted effort. For example, in basketball, goals are rewarded and misses are not rewarded. A player with a promotion focus is motivated to shoot often, even if he or she misses frequently, since misses are not monitored or tracked, and do not count against the player's score.

### Prevention Focus

In contrast to a promotion focus, presumed to result from a focus on gain / non-gain situations, according to Regulatory Focus Theory, a prevention focus results from loss / non-loss situations (Higgins, 1997). For example, a child who is threatened or spanked to ensure behavioral compliance may become sensitized to the presence or absence of negative outcomes (being threatened or spanked). In this case, the best situation is avoiding an unfavorable outcome. Such a person may develop a cautious, hesitant, or vigilant approach, since he or she is focused on avoiding mistakes. The person may associate "being good" not with accomplishing good deeds (a promotion focus), but with refraining from inconveniencing people or attracting attention. The reference point is how one "ought" or "should" behave. Such a person is likely to feel secure and relaxed when they believe they

are succeeding in avoiding undesirable situations, and they may feel insecure or worried, when they believe their actions are not helping them avoid an unwanted goal (Higgins, Shah, & Friedman, 1997).  Figure 6 shows the relationship between emotion and regulatory focus as described in the research literature (Higgins, 1996; Higgins, Roney, Crowe, & Hymes, 1994; Higgins, Shah, & Friedman, 1997).
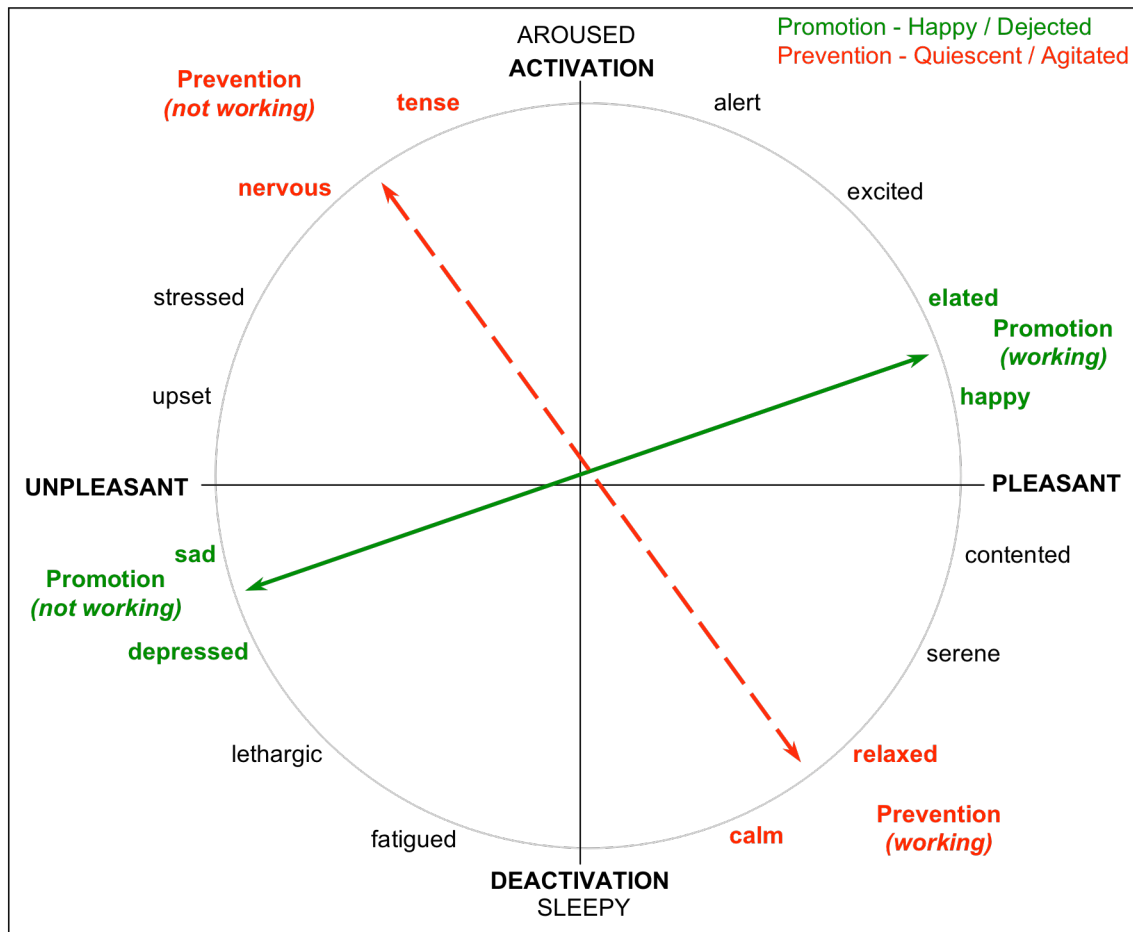


Figure 6:      Selected Emotions Represented in Two-Dimensional Space[12].

[12] The circular arrangement of emotions is from "The Structure of Current Affect: Controversies and Emerging Consensus" by Lisa Feldman Barrett and James A. Russell, *Current Directions in Psychological Science, 8(1),* 1999, p. 11 Figure 2.  Copyright, 1999, by the American Psychological Society. Adapted with permission of Blackwell Publishing.

As an example that requires a prevention focus, consider golf or baseball.  Unlike basketball, where a "miss" is not directly penalized, in golf, a miss increases one's score, and "counts against" him or her.  Similarly, in baseball, a player's batting average is the number of base hits per total times at bat.  Every time at bat, the denominator increases, so the average decreases unless the player achieves a successful base hit.  So winning in golf and maintaining a high batting average in baseball require a prevention focus (as well as a promotion focus).  Figure 7 summarizes the theoretical causes and consequences of a prevention regulatory focus.
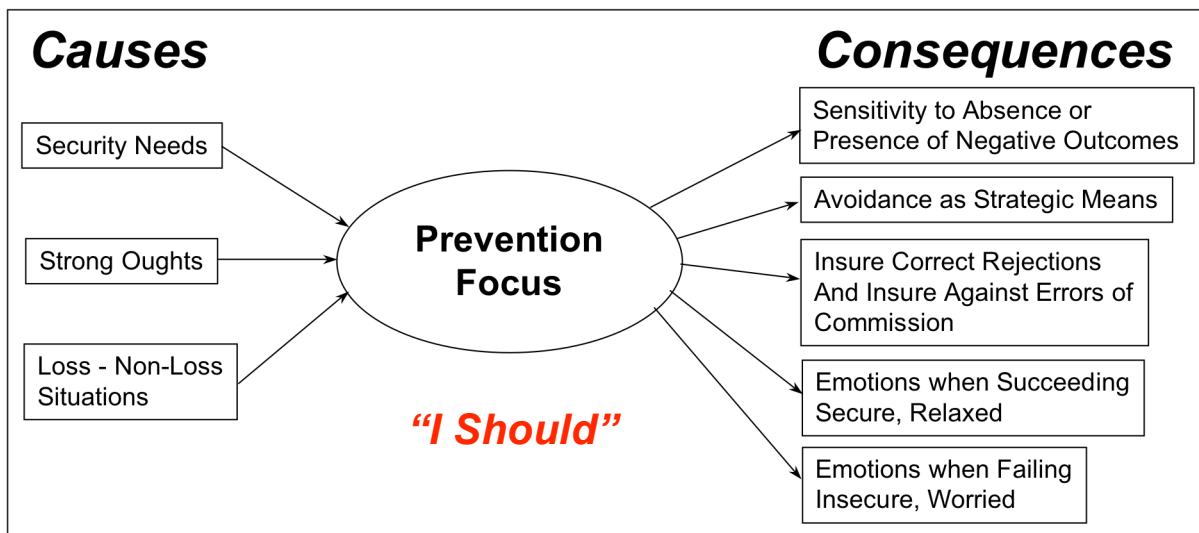


Figure 7:     Theoretical Causes and Consequences of a Prevention Focus.[13]

Note that promotion and prevention are both *means of goal attainment*.  They are not opposite poles of a single continuum (Higgins et al., 2001).  Both promotion and prevention are *positively correlated* with achievement.  As an example, one can build wealth by focusing on earning more (a promotion focus) or by focusing on spending less (a prevention focus).

As Benjamin Franklin said, the fastest way to build wealth is to do both at the same time (Franklin, 1962).

## *Regulatory Fit*

Higgins and associates have measured both temporarily activated (primed) and persistent (enduring) regulatory focus (Higgins et al., 2001; Higgins, Roney, Crowe, & Hymes, 1994). As an example, when a particular "self-view" (independent or interdependent) is primed or encouraged, it becomes more accessible. The goals "of the independent self are thought to be autonomy and achievement, a desire to succeed relative to others. The goals of the interdependent self, in contrast, are characterized by belonging, mandating the fulfillment of obligations and responsibilities to others" (Aaker & Lee, 2001, p. 35). Aaker and Lee (2001) found that persuasive messages emphasizing promotion or prevention were more effective when compatible with or aligned with a person's activated regulatory focus.

In a number of studies, Higgins found that people give more priority to (or ascribe greater *value* to) information that is compatible with their regulatory preference (Higgins, 2000, 2002; Higgins, Freitas, Idson, Spiegel, & Molden, 2003). In a "signal detection" experiment (remembering whether or not specific items were contained in a list), Crowe found that individuals with a promotion focus had a "risky" decision bias of saying "yes" and individuals with a prevention focus had a conservative decision bias of saying "no" (Crowe & Higgins, 1997). In other experiments, Crowe found that a promotion focus tends to be associated with (1) greater persistence in the face of failure or difficult situations, and (2) greater variety and more distinct alternatives when generating a list of alternatives. Those with a prevention focus tended to quit earlier in the face of difficulty and to generate a more repetitive and less diverse list (Crowe & Higgins, 1997).

27

As these several experiments exemplify, regulatory focus "implies differences in performance, emotions, and decision making" (Higgins, 1997, p. 1282). A strategic match between people's goals and their persistent regulatory focus increases motivation and performance (p. 1284).

*Eagerness and Vigilance: Different ways of Pursuing Success*

Recall in a previous section, I discussed approach and avoidance as different strategic inclinations. According to Atkinson and McClelland's theory of achievement motivation, a history of success inclines one to approach new situations and a history of failure inclines one to avoid new situations. Higgins and his associates extended this framework to examine *different types of goal pursuit* (Higgins et al., 2001). Individuals can, with eagerness and enthusiasm, *approach the tactics that advance* a goal, or they can, with vigilance and caution, *avoid the tactics that impede* goal attainment. The individual "can have the same motive to succeed and desire to attain the … goal, but still have different strategic inclinations" (p. 15). In both cases, the individual's underlying motive is a success motive or need to achieve, rather than a failure motive, or fear of failure. In McClelland and Atkinson's terminology, *Achievement Pride* results from success experiences and *Achievement Shame* stems from failure experiences. Higgins and his associates proposed the terms *Promotion Pride* and *Prevention Pride* to reflect differences in approach and avoidance *strategies* of achievement. Like Achievement Pride and Achievement Shame, Promotion Pride and Prevention Pride derive from the individual's history of prior achievement. Promotion Pride stems from achieving, using an approach strategy, and Prevention Pride stems from succeeding using an avoidance strategy. The Regulatory Focus Questionnaire (RFQ) that I use in this dissertation measures these constructs as shown in Figure 8.
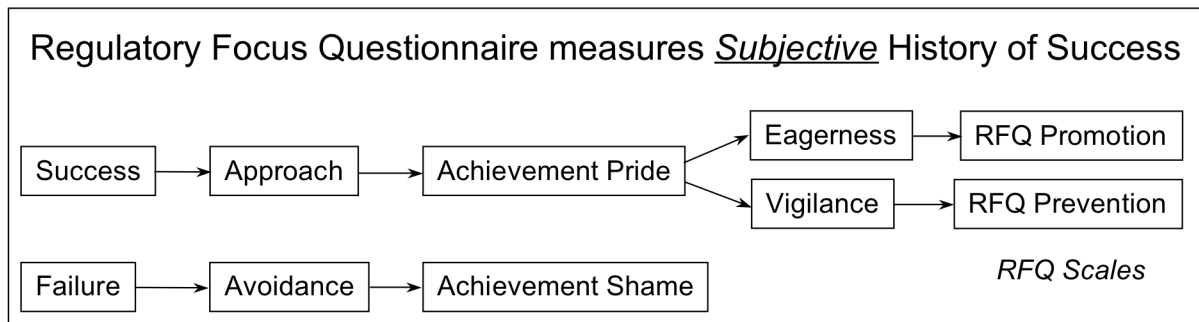
Figure 8:     Subjective Success History: Promotion Pride and Prevention Pride.

Individuals measuring high in Promotion Pride (RFQ Promotion) are more likely to use a *strategic approach means* to goal attainment than individuals measuring low in Promotion Pride.  Independently, individuals measuring high in Prevention Pride (RFQ Prevention) are more likely to use a *strategic avoidance means* to goal attainment than individuals measuring low in Prevention Pride (Higgins et al., 2001).  In other words, RFQ Promotion and RFQ Prevention reflect distinct strategic *means of goal attainment*. Generally, RFQ Promotion and RFQ Prevention reflect *persistent* or enduring strategic tendencies, but can also be temporarily *primed* or induced.  Just as promotion focus and prevention focus are accompanied by specific emotional responses, so also are promotion pride and prevention pride.  For example, individuals high in promotion pride, controlling for prevention pride, report frequently feeling eager and infrequently feeling apathetic. Conversely, individuals high in prevention pride, controlling for promotion pride, report frequently feeling vigilant and infrequently feeling careless.

Thus far, I have discussed two of the three constructs forming the core of my dissertation:  Motivational Traits and Regulatory Focus.  Next, I discuss the third construct, Personal Value Priorities.  Values are conscious cognitive representations of unconscious or implicit motives or needs.  The values theory I discuss in the next section has developed gradually since the mid to late 1980's and now enjoys substantial empirical support using

two different methods of measurement, and populations from all inhabited continents and nearly 70 nations (Schwartz, 2004, 2005; Schwartz & Boehnke, 2004).

**Personal Value Priorities – Third Construct**

Researchers in sociology, political science, philosophy, management, communications, and psychology all have studied values (Rokeach, 1979b). This widespread effort, which began more than fifty years ago, supports the view that values play an important role in understanding human behavior. One of the pioneers of modern value theories, Milton Rokeach, began with "a list of 555 personality trait words derived from the 18,000 trait names compiled by Allport and Odbert in 1936" (Braithwaite, 1985, p. 250). Rokeach honed and refined the list, eliminating empirically or semantically equivalent words eventually to reach 36 items that he claimed provided a "reasonably comprehensive coverage of the most important human values" (Rokeach, 1973, p. 27). His list contained 18 "terminal" values, describing *end states of existence* that people viewed as desirable, and 18 "instrumental" values, describing *ways of acting* that were also viewed as desirable. The "Rokeach Value Survey" presents respondents with two lists, each containing 18 words, briefly explains their meaning, and asks respondents to arrange the value words on each list "in order of importance to YOU, as guiding principles in YOUR life" (p. 27). Rokeach and a number of other early values researchers found that people from different political, religious, economic, generational, and cultural groups differed in their preferred rank-order for the 36 values, and that the value differences were reasonably good predictors of, for example, voting behavior (Rokeach, 1979b).

An important contribution of early value researchers was differentiating values from similar constructs such as beliefs and attitudes. The values construct was "restricted to that special class of enduring beliefs concerning modes of conduct and end states of existence,

30

that transcend specific objects and situations and that are personally and socially preferable to an opposite mode of conduct or end state of existence" (Braithwaite, 1985, p. 250). According to this definition, "education" and "work" are not considered values, since they are neither end states of existence that people strive for, nor idealized ways of behaving[14]. But, "wisdom" and "capable" would qualify (Rokeach, 1979, p. 48-49). Based on this definition, the number of values that are recognized or pursued by all people is in the dozens, but not in the hundreds or thousands. Consequently, a main goal of early researchers was to gather and test a list of values that would be nearly comprehensive and nearly universal. In other words, the list should contain enough values that no conceptually important content was omitted, but the values listed should be widely recognized and endorsed, the world over. Even if the number of values were relatively small,

> it would still be possible to account for the richness and variety of individual differences in behavior, attitudes, ideologies, self-presentations, judgments, evaluations, and rationalizations. A dozen and half terminal values, for instance, can be ordered in trillions of different ways, far more than enough to account for variations among individuals, organizations, institutions, societies, and cultures (p. 49).

The Rokeach Value Survey, developed in 1967, was the predominant values research tool for the next two decades. Through this research, two main critiques developed: first, a small number of important values were noticeably absent, and second, the rank-ordering task was deemed problematic, theoretically and methodologically. Values missing from the Rokeach Survey included physical development and wellbeing, basic human rights such as dignity and privacy, thriftiness or frugality, spontaneity, protection of human life, and freedom (Braithwaite, 1985, p. 260). The forced ranking of values was considered problematic for a number of reasons. How would a researcher know if a respondent endorses all the values, or only one or two? If a respondent considers several values of equal

---

[14] According to Rokeach, values are usually reserved only for very abstract terms. This view is debated.

importance, how should he or she respond?  Since the value items are represented as abstract words, how does a researcher know that the meaning of the word is similar for different people?  Braithwaite (1985) incorporated a number of improvements to the Rokeach Survey including the addition of missing value items and an asymmetrical 7-point rating scale. Since values are by definition *desirable*, the scale provided more choices at the *positive* end, but still allowed respondents to indicate that a value was not important to them at all, or even opposed to their own values.

Arguably one of the most prominent values researchers during the past twenty years is Shalom Schwartz at the Hebrew University of Jerusalem.  He and colleagues have advanced the work of early values theorists and have developed a *Theory of Universals in Individual Human Values* (Schwartz, 1992, 1994, 2005; Schwartz & Bilsky, 1990).  Based on their review of the extensive values literature, Schwartz and Bilsky identified five features common to most value definitions.  As Schwartz and Bilsky point out, "values are (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" (Schwartz & Bilsky, 1987, p. 551).

Schwartz and colleagues conceived and advanced their values research using *Facet Theory* (Edmundson, Koch, & Silverman, 1993; Shye, Elizur, & Hoffman, 1994) and *Multi-Dimensional Scaling* (Davison, 1992; Kruskal & Wish, 1978).  Facet Theory, developed by eminent social scientist, Louis Guttman, provides a systematic, logical approach to building and empirically testing theory.  Along with its associated data analysis technique, multi-dimensional scaling, Facet Theory enables researchers to propose and test specific hypotheses about the underlying structure of psychological or other social science constructs.

The theoretical assumption that underlies Schwartz and Bilsky's work defining values is that all individuals must satisfy (a) biological needs, (b) the interpersonal requirements of

social interaction, and (c) demands of social institutions for group welfare and survival (Schwartz & Bilsky, 1987). These three universal requirements "preexist any individual; to cope with reality, individuals must recognize, think about, and plan responses to all three requirements. To be effective members of social groups, individuals must communicate about them" (page 551). Based on these three presumed universal requirements of all people, Schwartz (1992) identified motivationally distinct broad values (listed in Table 2) and proposed the following "mapping sentence" defining values formally:

A **value** is an individual's concept of a transituational $\left\{ \begin{array}{c} \underline{\text{GOAL}} \\ \text{terminal} \\ \text{instrumental} \end{array} \right\}$ goal

that expresses $\left\{ \begin{array}{c} \underline{\text{INTERESTS}} \\ \text{individualistic} \\ \text{collectivist} \\ \text{both} \end{array} \right\}$ interests concerned with a motivational

domain $\left\{ \begin{array}{c} \underline{\text{MOTIVATIONAL DOMAIN}} \\ \text{enjoyment ... power} \end{array} \right\}$ and evaluated on a range of importance

from $\left\{ \begin{array}{c} \underline{\text{RANGE}} \\ \text{very important} \\ \text{to} \\ \text{unimportant} \end{array} \right\}$ as a guiding principle in his or her life.

Figure 9:     Mapping Sentence to Define Values Formally.[15]


Values are beliefs that are *inextricably tied to emotion*. They are **not** objective, cold ideas. When activated, whether they enter awareness or not, they elicit positive or negative *feelings* (Williams, 1979). For example, people who value independence may become

---

[15] From "Toward a Universal Psychological Structure of Human Values" by Shalom H. Schwartz and Wolfgang Bilsky, 1987, *Journal of Personality and Social Psychology, 53(3)*, p. 553. Copyright, 1987, by the American Psychological Association. Reprinted with permission from the authors.

frustrated or angry or feel threatened if their independence is thwarted. They are happy, contented, or relieved when they are able to act in a way that fulfills their values.

Values are a *motivational* construct like other personally important goals. Once activated, they motivate the selection or evaluation of actions, policies, people, and events (Markman & Brendl, 2005). Frequently, their impact on our everyday decisions is unquestioned; we become <u>aware</u> of our values when actions or judgments we are considering have <u>conflicting</u> implications for values we cherish. When no conflict exists, habit, rather than values may exert more influence on behavior (Mezirow, 2000; Schwartz, 1996).

Table 2 lists ten broad value types specified by the Schwartz Value Theory and the forty-six individual values that are used to measure them. This list represents a near universal set of values distinguished by motivational content. All broad value types to which individuals attribute at least moderate importance are included in the Schwartz theory[16]. Additionally, based on the evaluation of samples from nearly seventy countries, the forty-six values listed in the right column of Table 2 have similar meanings across different groups (ethnic, national, gender, etc.), thereby justifying *comparisons of value priorities* across groups (Schwartz, 1994; Schwartz & Sagie, 2000; Schwartz & Sagiv, 1995).

The current values measure contains 57 individual value items – the 46 items listed in Table 2 and 11 items whose meaning differs empirically in different samples. See Figure 12 on page 43.

---

[16] This assertion is supported in two ways. One, during the development of the values theory, Schwartz had input from over one hundred collaborators who proposed and tested specific value items originally thought to be missing from the set of initially proposed value items. Second, using multi-dimensional scaling (MDS) analyses, Schwartz selectively removed individual items and groups of items. Only when all of the items measuring one of the ten broad values were removed from the set did the MDS content space contain empty spaces or "holes." The conclusion is that while some narrowly defined specific value items may not be explicitly named in the theory, it is unlikely that any broad value types are missing.

When the theory was first explicated in 1992, the Schwartz Value Survey (SVS) contained 58 individual value items. In a 1994 revision, two values were dropped and one was added. That 57-item version has been used and tested in a very large number of cross-cultural studies with no apparent need for further revision.

Table 2: Individual Values Comprising Ten Value Types in Schwartz Theory.

| Broad Value Types and Definitions | Representative Individual Values |
|---|---|
| **Power:** Social Status and Prestige, Control or Dominance over People and Resources. | *Social power*: Control over others, dominance. *Authority*: The right to lead or command. *Wealth*: Material possessions, money. *Preserving my public Image*: protecting my "face". |
| **Achievement:** Personal Success Through Demonstrating Competence According to Social Standards. | *Successful*: Achieving goals. *Capable*: Competent, effective, efficient. *Ambitious*: Hard-working, aspiring. *Influential*: Having an impact on people and events. |
| **Hedonism:** Pleasure and Sensuous Gratification for Oneself. | *Pleasure*: Gratification of desires. *Enjoying life*: Enjoying food, sex, leisure, and so on. *Self-Indulgent*: Doing pleasant things. |
| **Stimulation:** Excitement, Novelty, and Challenge in Life. | *Daring*: Seeking adventure, risk. *A varied life*: Filled with challenge, novelty, change. *An exciting life*: Stimulating experiences |
| **Self-Direction:** Independent Thought and Action-Choosing, Creating, Exploring. | *Creativity*: Uniqueness, imagination. *Freedom*: Freedom of action and thought. *Independent*: Self-reliant, self-sufficient. *Curious*: Interested in everything, exploring. *Choosing own goals*: Selecting own purposes. |
| **Universalism:** Understanding: Appreciation, Tolerance, and Protection for the Welfare of all People and for Nature | *Broadminded*: Tolerant of different ideas and beliefs. *Wisdom*: A mature understanding of life. *Social justice*: Correcting injustice, care for the weak. *Equality*: Equal opportunity for all. *A world at peace*: Free of war and conflict. *A world of beauty*: Beauty of nature and the arts. *Unity with nature*: Fitting into nature. *Protecting the environment*: Preserving nature. |
| **Benevolence:** Preservation and Enhancement of the Welfare of People With Whom One is in Frequent Personal Contact. | *Helpful*: Working for the welfare of others. *Honest:* Genuine, sincere. *Forgiving*: Willing to pardon others. *Loyal*: Faithful to my friends, group. *Responsible*: Dependable, reliable. |
| **Tradition:** Respect, Commitment, and Acceptance of the Customs and Ideas that Traditional Culture or Religion Provide the Self. | *Humble*: Modest, self-effacing. *Accepting my portion in life*: Submitting to life's circumstances. *Devout*: Holding to religious faith and belief. *Respect for tradition*: Preservation of time-honored customs. *Moderate*: Avoiding extremes of feeling or action. |
| **Conformity:** Restraint of Actions, Inclinations, and Impulses Likely to Upset or Harm Others and Violate Social Expectations or Norms. | *Politeness*: Courtesy, good manners. *Obedient*: Dutiful, meeting obligations. *Self-discipline*: Self-restraint, resistance to temptation. *Honoring of parents and elders*: Showing respect. |
| **Security:** Safety, Harmony, and Stability of Society, of Relationships, and of Self. | *Family Security*: Safety for loved ones. *National Security*: Protection of my nation from enemies. *Social order*: Stability of society. *Clean*: Neat, tidy. *Reciprocation of Favors*: Avoidance of indebtedness. |

In addition to near universal *content*, the Schwartz theory also postulates a near-universal *structure of dynamic relations* among the values. The pursuit of goals represented by specific values has practical, social, and psychological consequences. Pursuit of a goal may conflict with, or align with, to varying degrees, the pursuit of goals represented by other values. For example,

> the pursuit of achievement values often conflicts with the pursuit of benevolence values; seeking personal success for oneself is likely to obstruct actions aimed at enhancing the welfare of close others who need one's help. In like manner, the pursuit of tradition values conflicts with the pursuit of stimulation values; accepting cultural and religious customs and ideas handed down from the past is likely to inhibit seeking novelty, challenge, and excitement. On the other hand, the pursuit of benevolence and of conformity values is compatible; both entail behaving in a manner approved by one's close group. And the pursuit of security and power is also compatible; both stress avoiding uncertainty by controlling relationships and resources (Ros, Schwartz, & Surkiss, 1999, p. 51).

When arranged according to their compatibility, the total pattern of values forms a motivational *continuum* around the circumference of a circle. Values adjacent to each other are relatively similar. Compatibility between values decreases monotonically as you move around the circle in both directions, reaching a minimum on the opposite side of the circle. Actions derived from values on opposite sides of the circle cannot be pursued simultaneously, as they are conflicting. Any other variable will correlate with all the values in the *value system* in a predictable way (Schwartz, 1992, 1996). The theory predicts the *rank order* (but not the magnitude) of the correlations between any outside variable and *each* of the values in the value system. The overall pattern of relationships among the values is shown in Figure 10. Hedonism is shown with dashed lines, since it shares attributes of both stimulation and achievement, and the value items that measure it are intermixed with adjacent values in some samples.
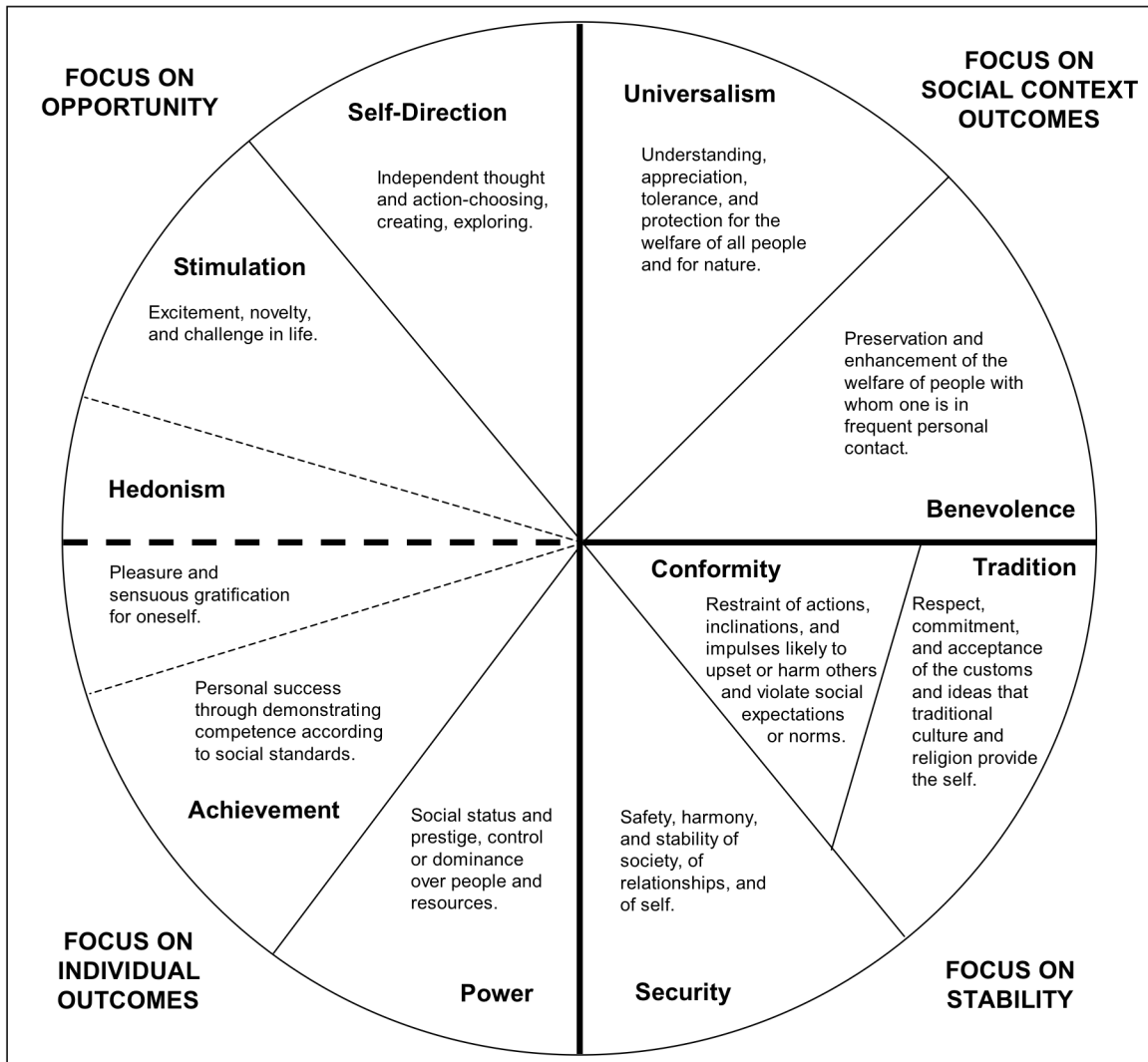
Figure 10:  Theoretical Relation of Broad Value Types in Schwartz Value Model[17].

Note that Conformity and Tradition values reside in the same pie-shaped wedge and "share the same motivational goal: subordination of self in favor of socially imposed expectations" (Ros, Schwartz, & Surkiss, 1999, p. 52).  Support for the structural relation

among values originally accumulated from evaluations of "smallest space analysis" plots in hundreds of individual samples from more than 50 countries. Smallest space analysis (SSA) is a specific multidimensional scaling algorithm developed by Louis Guttman[18]. In 95 percent of samples, the data supported the arrangement in Figure 10. One common variant, occurring in approximately five percent of the samples, placed Achievement and Power in the same alignment with Power outside of Achievement in the same way that Tradition is outside of Conformity in Figure 10. Schwartz tested several variations of the structural arrangement with confirmatory factor analysis (CFA) in a 2004 study using new data (N = 10,857) from two sets of 23 samples from 27 countries (Schwartz & Boehnke, 2004). He found that the structure shown in Figure 10 best represented (or fit) the data. This 2004 CFA study provided the first *statistical test* of the values theory, which had been refined by visually inspecting MDS plots of hundreds of data samples.

As shown in Figure 10, the two-dimensional value space can be sub-divided into quadrants by two orthogonal bipolar dimensions representing two basic conflicts or trade-offs that all people must resolve. Schwartz named the poles (opposite ends) of one axis *self-enhancement* and *self-transcendence*. He named the poles of the other axis *openness to change* and *conservation*. In her review article on values, Meg Rohan selected what she thought were more "value neutral" terms: *focus on individual outcomes* versus *focus on social context outcomes* and *focus on opportunity* versus *focus on organization* (Rohan, 2000, p. 262). I have replaced her "organization" with "stability" in Figure 10 and throughout this dissertation. The openness / opportunity dimension is conceptually similar to "openness to experience" in the five factor trait model (see the first column of Table 1 on page 9).

---

[18] Multidimensional scaling (MDS) is a multivariate data analysis technique capable of representing abstract concepts (such as values) as physical points in space, just as cities are represented as points on a map. I describe this technique in the next section of this chapter.

**DISCERNING STRUCTURAL RELATIONS**

Figures 6 (page 25) and 10 (page 37) depict a circular arrangement of concepts. Yet, emotions (Figure 6) and personal values (Figure 10) are intangible; they are not physical objects we can see with our eyes. So what basis is there for arranging them in a circular fashion? Multidimensional scaling (MDS) is a mathematical technique that has been used to study structural relationships among mental constructions. While its use has been limited within the United States, MDS has been a highly useful tool for researchers in anthropology, education, geography, history, marketing, psychology, political science, and sociology (Davison, 1992) and has enjoyed widespread use in Israel and England (Edmundson, Koch, & Silverman, 1993).

The basic data for MDS are "measures of proximity between pairs of objects. A proximity measure is an index defined over a pair of objects that quantifies the degree to which the two objects are alike" (Davison, 1992, p. 1). Proximity measures include (1) *statistical measures of association*, such as correlation, (b) *direct judgments* such as can be provided by a panel of expert judges, and (c) *confusion measures*, where a high level of confusion between concepts indicates greater similarity (Shye, Elizur, & Hoffman, 1994).

Concepts are then represented as points in space. The similarity or difference between any two concepts is related to the distance between them in the "concept space." The analog of physical space

> has far-reaching consequences for theory construction and data analysis in the behavioral sciences: Because of its continuity, the physical space representing a concept (such as intelligence, positive attitude, commitment to work, and so on) is capable of representing continuity in meanings and in shades of meanings within that concept (Shye, Elizur, & Hoffman, 1994, p. 97).

As Shye and colleagues point out, one of the most important implications of the space analogy is that variables are not viewed in isolation, but *in relation* to other variables.

Traditional correlation statistics reflect a measure of similarity among individual pairs of items. Using partial correlations, the effect of other variables (not the two being directly compared) can be "controlled" or "held constant" (Bobko, 2001). By contrast, the concept space analog enables *several concepts* to be related *visually* and *simultaneously* in a way that is not possible using bivariate correlations alone. Table 3 shows a comparison between conceptual space and its physical space analog.

Table 3:     Comparison of Concept Space and Geometric Space[19].

| Concept-Space | Geometric Space Analog |
| --- | --- |
| The behavioral concept (content universe) | A geometric space (or a bounded convex subset of it) |
| Observable item (a particular variable) | A point in geometric space |
| Measure of interitem (conceptual) proximity (e.g. Pearson correlation) | Interpoint proximity (short distance) measured (e.g. by the Euclidean distance function) |
| Content sub-universe | A region (a connected subset in the space) |

Representing pairs of similarities becomes increasingly complex as the number of individual pairs increases. Computer programs calculate a theoretical relationship among a collection of concepts, given a specified number of dimensions. The programs also specify a "coefficient of alienation" ranging from 0 for a perfect fit to 1 for the worst fit (Shye, Elizur, & Hoffman, 1994). While some MDS analyses use three-dimensional representations (for example, a sphere), two-dimensional representations (a flat surface) are most common.

As an example, consider a map of the United States. As long as the map has a scale specifying units of measure, it is a simple task to determine the distance between any two points on the map. By measuring the airline or point-to-point distance between each possible pair of (for example) ten individual cities, one could construct a matrix of distances. Using

---

[19] From "Introduction to Facet Theory: Content Design and Intrinsic Data Analysis in Behavioral Research" by Samuel Shye, Dov Elizur, and Michael Hoffman, *Applied Social Science Research Methods Series, Volume 35*, 1994, page 100. Copyright, 1994, by Sage Publications, Inc. Used by permission of Sage Publications, Inc.

the matrix of distances as input, a computerized multidimensional scaling algorithm then "reconstructs" a map as shown in Figure 11.



| | Atlanta | Chicago | Denver | Houston | Los Angeles | Miami | New York | San Francisco | Seattle | Washington |
|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | 0 | | | | | | | | | |
| Chicago | 587 | 0 | | | | | | | | |
| Denver | 1212 | 920 | 0 | | | | | | | |
| Houston | 701 | 940 | 879 | 0 | | | | | | |
| Los Angeles | 1936 | 1745 | 831 | 1374 | 0 | | | | | |
| Miami | 604 | 1188 | 1726 | 968 | 2339 | 0 | | | | |
| New York | 748 | 713 | 1631 | 1420 | 2451 | 1092 | 0 | | | |
| San Francisco | 2139 | 1858 | 949 | 1645 | 347 | 2594 | 2571 | 0 | | |
| Seattle | 2182 | 1737 | 1021 | 1891 | 959 | 2734 | 2408 | 678 | 0 | |
| Washington | 543 | 597 | 1494 | 1220 | 2300 | 923 | 205 | 2442 | 2329 | 0 |

Figure 11:    Calculated Locations of U.S. Cities Using Point-to-Point Mileage Data[20].

[20]  MDS solution derived using ALSCAL – **A**lternating **L**east-squares **Scal**ing.  The algorithm is described in Tukane, Y. Young, F.W., and De Leeuw, J. (1977), *Nonmetric individual differences in multidimensional scaling: An alternating least squares method with optimal scaling features*. Psychometrika 42: 7-67.  ALSCAL is available as a standard routine in SPSS and SAS statistical software.  Data for mileage between cities comes from Kruskal, J.B., & Wish, M. (1978) *Multidimensional Scaling* (Volume 07-011). Newbury Park: Sage, p. 8. Used by permission of Sage Publications, Inc.

In order for a mathematical function $d$ defined over pairs of objects $(a,b)$ to be a Euclidean distance function, it must satisfy the following four axioms[21]:

1.      $d(a,b) >= 0$
2.      $d(a,a) = 0$
3.      $d(a,b) = d(b,a)$
4.      $d(a,b) + d(b,c) >= d(a,c)$

Despite the "intuitive appeal of the distance model for dissimilarity, experimental tests of the model consistently fail to support it" (Davison, 1992, p. 5). In other words there is experimental evidence that dissimilarity data do not strictly satisfy the four axioms (Tversky, 1977). These technical failures, however, have not prevented statisticians from developing MDS algorithms and have not prevented researchers from using MDS analyses. Just as with other commonly used statistical procedures, "even where the model does not hold exactly, MDS analyses may be sufficiently robust to warrant continued use" (p. 5).

**The Circular Arrangement of Value Types**

In the value theory discussed in this chapter, Shalom Schwartz used the MDS technique of "configural verification" (Davison, 1992) to test his theory of the structural relationship among individual value items. In this method, the researcher develops a hypothesis specifying the number of dimensions and the configuration that should be formed by items. Actual MDS plots of samples are then compared with the theory to confirm or disconfirm theoretical predictions. To test the theory, Schwartz evaluated MDS plots "from 210 samples from 67 countries located on every inhabited continent (total N=64,271)" and

---

[21] From "Multidimensional Scaling" by Mark L. Davison, 1983 (Reprint Edition 1992), p. 2. Copyright 1983 by John Wiley and Sons, Inc. Reprinted by Arrangement. Krieger Publishing Company, Malabar, Florida. Used by permission of Krieger Publishing Company.

calculated the percent of samples in which the individual values were located in the expected regions in the multidimensional space (Schwartz 2004, p. 13). According to Schwartz,

> If the motivational content of values is the most powerful principle that organizes people's value priorities, the relations among value items in the two-dimensional space should reflect this content. Specifically, it should be possible to partition the space into distinct regions containing the items that represent each of the 10 values. If the theory accurately describes the structure of value relations, then the observed regions should form a circular pattern similar to the theoretical structure of Figure [10]. (Schwartz 2004, p. 14)
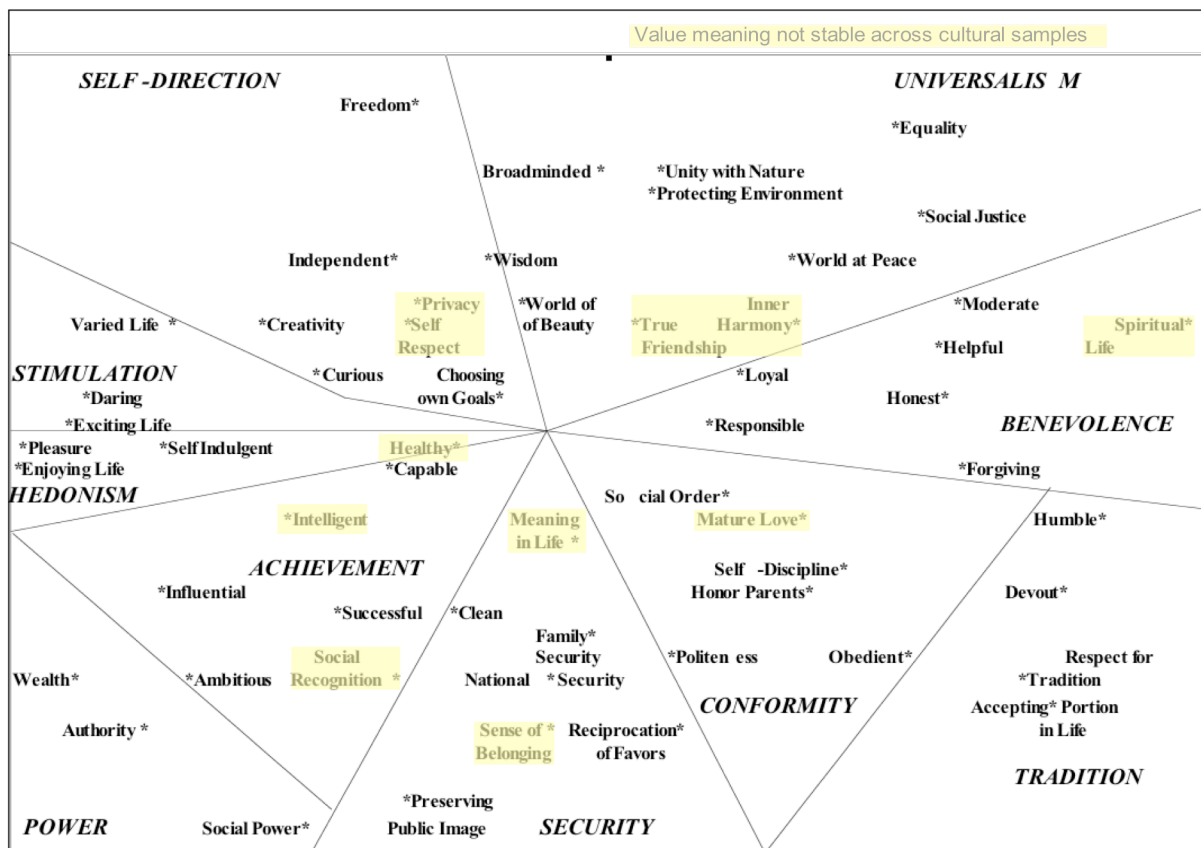


Figure 12:    Multi-Dimensional Scaling Plot of Schwartz Individual Value Items[22].

As predicted by the theory, the ten value types are contained in different pie slices, or *polar facets* (Edmundson, Koch, & Silverman, 1993; Shye, Elizur, & Hoffman, 1994) in two-dimensional space in Figure 12. A common variant found in some samples (including Figure 12) places Power in the same polar facet as Achievement, but outside. In addition to using MDS to evaluate the theory, Schwartz has also tested the value model using confirmatory factor analysis (CFA) (Bentler, 1995; Byrne, 1994) to examine *statistically* the fit of variations found in individual samples. Of several models tested, the best data-model fit was obtained with the theoretical arrangement shown in Figure 10. In that arrangement, Power and Achievement form adjacent, but different polar facets.

**Motivational Continuum and Arbitrary Boundaries**

In most MDS plots of data from the Schwartz Values Survey, conceptually similar value items are located in the same region of multidimensional space. The theory specifies individual value items that *collectively* define broad value types. The number of individual value items defining a particular value type is related to the conceptual breadth of the value type. For example, *Hedonism*, being fairly narrowly defined as "pleasure and sensuous gratification for oneself" is measured by averaging scores on *three* individual value items: pleasure, enjoying life, and self-indulgent. By contrast, *Universalism* is measured by averaging scores on *eight* individual value items: (1) broadminded, (2) wisdom, (3) social justice, (4) equality, (5) a world at peace, (6) a world of beauty, (7) unity with nature, and (8) protecting the environment. It is interesting to note that in many data samples, the first four value items (broadminded through equality) appear closer to Benevolence, and the second set of four items appears closer to Self-Direction. Conceptually, Universalism can be partitioned into two sub-types: *social concern* and *concern for nature* (Schwartz, 2004). So envisioning Universalism as one value type or two is somewhat arbitrary.

44

As another example, in many samples (see Figure 12), the value item *responsible* is close to the boundary of Benevolence and Conformity. *Responsible* "expresses two related motives that might induce people to maintain solidarity with close others – the wish to enhance their welfare (benevolence) and the desire to avoid violating their expectations (conformity)" (Schwartz, 2004, p. 27). As this example shows, the boundary between value types is "fuzzy" rather than rigid. To further illustrate the idea of fuzzy boundaries, Figure 13 shows the common underlying motivation shared *by each pair* of adjacent value types.
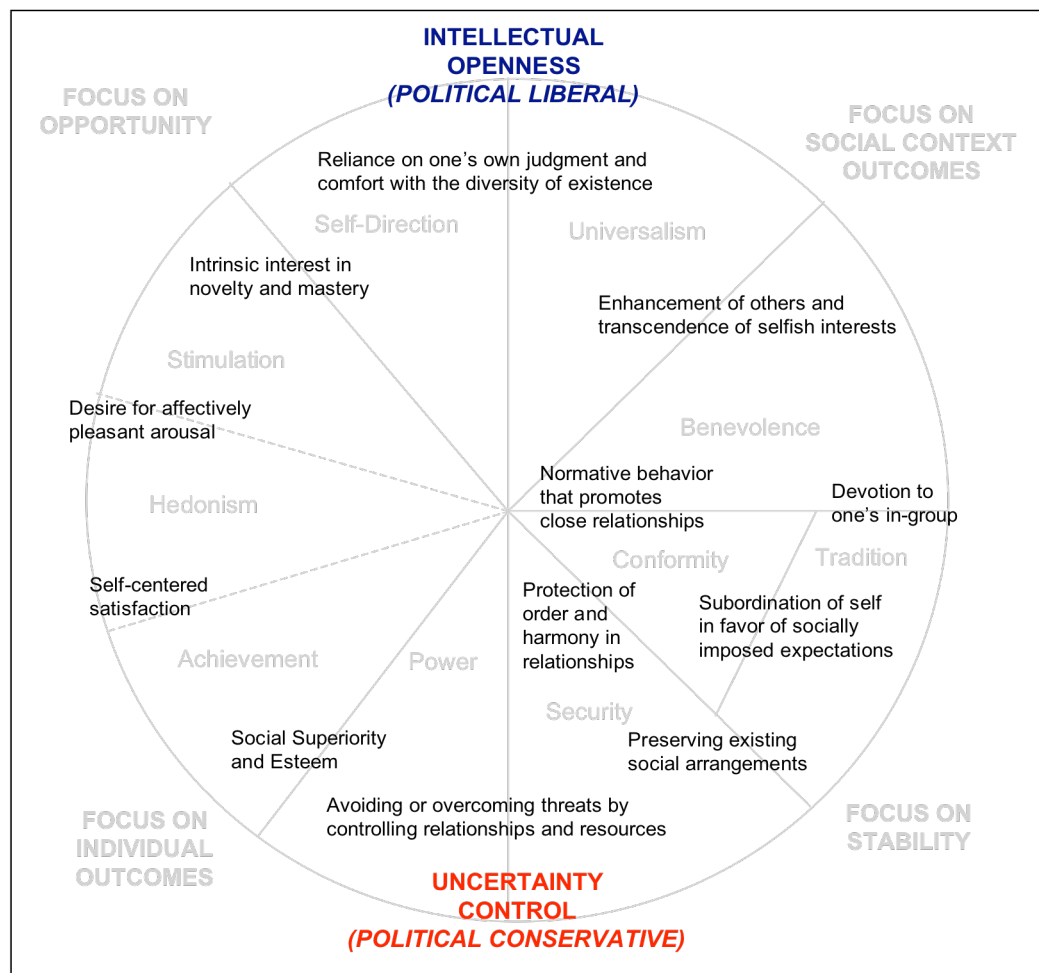


Figure 13:    Value Types Form a Motivational Continuum with Arbitrary Boundaries[23].

_____

[23] The idea for this graphic comes from discussions in Schwartz (1992, 2004).

## STATEMENT OF THE PROBLEM AND HYPOTHESES

Having detailed the three concepts forming the core of my dissertation, I now return to the explicit research goals. The study addresses two distinct research needs: First, it extends the use of two comparatively new scales (the MTQ and the RFQ) from the academic research laboratory to an applied setting of working adults. Second, it examines *structural relationships* among motivational traits, personal value priorities, and subjective history of success using a promotion or prevention regulatory focus. This second objective is accomplished in two ways: (1) traditional bivariate correlations among key variables and (2) plots of subscale scores from the three measures in a single concept space using multi-dimensional scaling. While the Schwartz value theory I have described was developed using MDS, no published studies have examined the structural relations among the Schwartz values and Heggested and Kanfer's (2000) motivational traits or the Promotion Pride and Prevention Pride constructs proposed by Higgins and colleagues (2001). In my literature review, I found no studies directly relating motivational traits and personal value priorities or motivational traits (including measures of goal orientation) and regulatory focus.

### Evaluating the MTQ and RFQ with Working Adults

The development and psychometric testing of both the MTQ and RFQ took place within academic research groups using data collected from college undergraduates at selective institutions. Though both instruments may hold promise of fruitful application with more diverse populations, based on published studies, it appears that neither measure has been applied and evaluated outside of the academy with non college-educated populations, or with a range of ages or developmental levels. In this study, I evaluate the psychometric properties of both measures with a sample of working adults.

The authors of the Motivational Trait Questionnaire (MTQ) state that their measure may be suitable to assess approach and avoidant work motivation of adults, but to date, there has been only one published study using the MTQ after its development and initial testing. In that study (Hinsz & Jundt, 2005) participants were 255 undergraduate students from North Dakota State University, enrolled in a psychology class (p. 558). To encourage use of the MTQ in applied research, it is important to evaluate the psychometric properties of the measure in a sample with a wider range of participant backgrounds. My study addresses this research need for both the Motivational Trait Questionnaire and the Regulatory Focus Questionnaire.

Table 4 (on page 49) lists individual item characteristics associated with each of the three measures: Schwartz Value Survey, Motivational Trait Questionnaire, and Regulatory Focus Questionnaire. I have summarized content measured by each subscale in the three measures and placed this information in one location for easy reference when reading the specific study hypotheses. Figure 4 and Figure 10 are also reproduced for convenient reference.
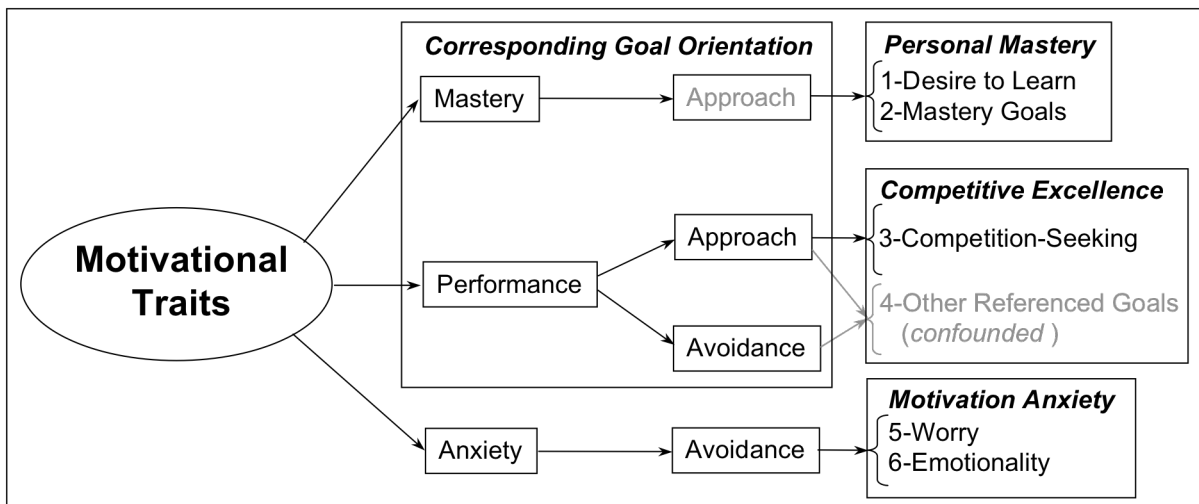


Figure 4:      MTQ Subscales, Confirmed Traits and Corresponding Goal Orientation[24]

---

[24] Original figure appeared on page 22. Reproduced here for reference when reading hypotheses.
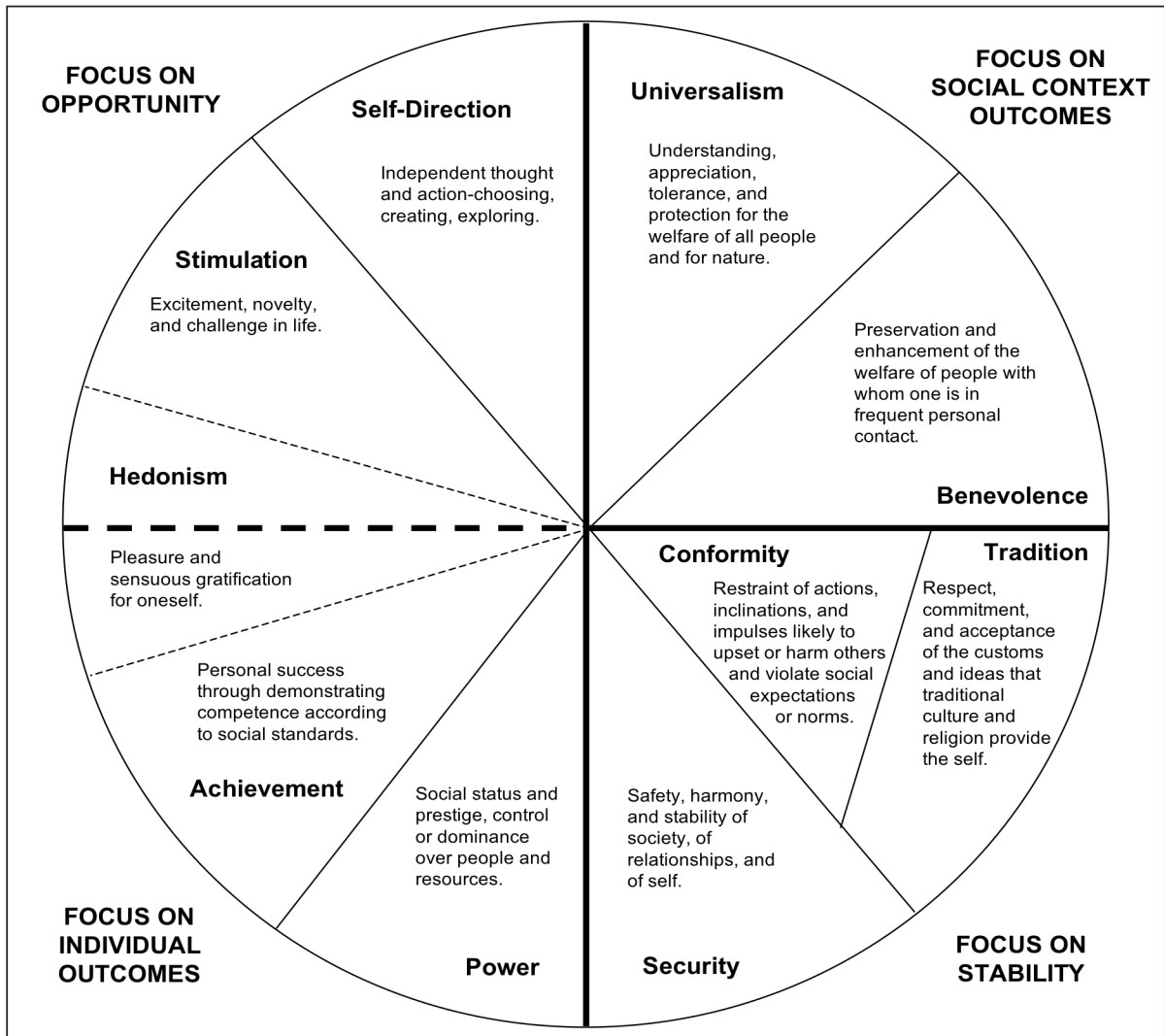
Figure 10:     Theoretical Relation of Broad Value Types in Schwartz Model[25]

As shown in Table 4, the four quadrant values (social, stability, individual, and opportunity) are comprised of adjacent value types in Figure 10.  This is not true for Personal Aspiration Values.  My intent is to capture items that denote *productive accomplishments,* and the items for Hedonism (pleasure, enjoying life, self-indulgent) and Stimulation (daring, a varied life, an exciting life) do not signify productive accomplishment.

---

[25] Original figure appeared on page 37.  Reproduced here for reference when reading hypotheses.

Table 4:     Summary of Values, Traits, and Regulatory Focus

**Personal Value Priorities measured by Schwartz Value Survey (SVS)**

| **Social** | **Stability** | **Individual** | **Opportunity** |
|---|---|---|---|
| *Universalism* | *Conformity* | *Power* | *Half of Hedonism\** |
| *Benevolence* | *Tradition* | *Achievement* | *Stimulation* |
| | *Security* | *Half of Hedonism\** | *Self-Direction* |
| Broadminded | Politeness | Social Power | Pleasure\* |
| Wisdom | Obedient | Authority | Enjoying Life\* |
| Social Justice | Self-Discipline | Wealth | Self-Indulgent\* |
| Equality | Honoring of Parents and Elders | Preserving my public image | Daring |
| A World at Peace | Humble | Successful | A varied life |
| A World of Beauty | Accepting my portion in life | Capable | An exciting life |
| Unity with Nature | Devout | Ambitious | Creativity |
| Protecting Environment | Respect for Tradition | Influential | Freedom |
| Helpful | Moderate | Pleasure\* | Independent |
| Honest | Family Security | Enjoying Life\* | Curious |
| Forgiving | National Security | Self-Indulgent\* | Choosing own goals |
| Loyal | Social Order | | |
| Responsible | Clean | | |
| | Reciprocation of Favors | | |

| **Status Quo Values** | **Personal Aspiration Values** |
|---|---|
| *(Tradition + Security) / 2* | *(Achievement + Self-Direction) / 2* |
| Humble | Creativity |
| Accepting my portion in life | Freedom |
| Devout | Independent |
| Respect for Tradition | Curious |
| Moderate | Choosing own Goals |
| Family Security | Successful |
| National Security | Capable |
| Social Order | Ambitious |
| Clean | Influential |
| Reciprocation of Favors | |

**Motivational Traits measured by the Motivational Trait Questionnaire (MTQ)**

| **Personal Mastery** | **Competitive Excellence** | **Motivation Anxiety** |
|---|---|---|
| Desire to Learn | Other-Referenced Goals | Worry |
| Mastery Goals | Competition-Seeking | Anxiety |
| Seek improvement for its own sake | Strive to outperform others | Physiological stress symptoms |
| Set goals to improve own performance | Turn situations into a competition | Have difficulty concentrating |
| Enjoy challenge | Compare performance to others | Nervous in achievement settings |
| Enjoy learning for its own sake | | Worry about making a mistake or failing |
| Have very high performance standards | | Concerned with what others think |

**Promotion and Prevention Pride measured by the Regulatory Focus Questionnaire**

| **Promotion Pride (RFQ Promotion)** | **Prevention Pride (RFQ Prevention)** |
|---|---|
| Typically able to get what you want out of life | Usually follow rules and regulation established by authorities |
| Accomplishing leading to "psyched" to work even harder | Behave "appropriately" |
| Usually perform well at different things you try | Usually obedient and compliant |
| Made progress toward being successful in life | Exercise caution to avoid getting into trouble |
| Put extra effort into hobbies and activities | Conservative decision bias |
| Risky decision bias | |

**Hypotheses Concerning Construct Relationships**

*Motivational Traits and Personal Value Priorities (H1-H3)*

H1:          Personal Mastery (trait) is positively associated with Personal Aspiration Values (left half of the value circumplex) and negatively associated with Status Quo Values (bottom right quadrant of the values circumplex).  See Table 4.

Rationale:     As shown in Figure 4, the Personal Mastery trait is a self-referent approach orientation corresponding to Mastery Goal Orientation.  Because motivational traits and personal value priorities represent stable or persistent propensities, and because people tend to want to keep their beliefs and actions internally consistent, I expect individuals with high scores on Personal Mastery will also tend to place a high relative priority on *Achievement* and *Self-Direction* values.  Conversely, individuals who place a high relative priority on *Tradition* and *Security* (preserving the status quo) are not likely also to characteristically exhibit trait Personal Mastery.  I am excluding Conformity values from the hypotheses because the Schwartz Theory predicts stronger correlations between Tradition value items and an outside variable than with Conformity value items (see Figure 10 and note that Tradition and Conformity occupy the same polar facet but that Tradition is toward the outside of the circumplex, relative to Conformity).  See Table 4 for a listing of specific value items associated with Status Quo Values and Personal Aspiration Values and a summary of trait characteristics for Personal Mastery.

H2:     Competitive Excellence (trait) is positively associated with Individual value priorities (bottom left quadrant of value circle).

Rationale:     As shown in Table 4, the Competitive Excellence trait emphasizes *individual* rather than *cooperative* (social) outcomes.  *Achievement* and *Power* values also reveal a stronger relative focus on individual as opposed to cooperative or social outcomes.  Because motivational traits and personal value priorities represent stable or persistent propensities, and because people tend to want to keep their beliefs and actions internally consistent, I predict that individuals with high scores on Competitive Excellence also tend to place a high relative priority on Achievement, Power, and (half-weighted) Hedonism values.

H3:     Motivation Anxiety (trait) is negatively associated with the social context value Benevolence (top right section of the value circumplex).

Rationale:     According to Andrew Elliot's theorizing, Motivation Anxiety stems from a fear of failure (see Figure 2 on page 17) and involves an avoidance orientation. Benevolence (social context outcome) focuses on the *outcome for others* rather than <u>self</u>, and is therefore, likely to be more anxiety-free.

### *Motivational Traits and Regulatory Focus (H4-H6)*

H4:     Personal Mastery (trait) is positively associated with subjective history of success using a promotion regulatory focus, controlling for prevention regulatory focus.

Rationale:     Both trait Personal Mastery and RFQ Promotion emphasize active striving *toward* a goal and should be moderately to substantially positively correlated.  See the lower left portion of Table 4 for brief listings of item content for both variables.

51

H5:    Competition Seeking (trait *subscale* but not necessarily the other subscale of the Competitive Excellence trait) is positively associated with a subjective history of success using a promotion regulatory focus, controlling for prevention regulatory focus.

Rationale:    Competition seeking also emphasizes active striving that is conceptually consistent with and should therefore be positively correlated with RFQ Promotion.    Because Other Referenced Goals confounds approach and avoidance goal orientations, I am excluding this subscale from the hypothesis.

H6:    Motivational Anxiety (trait) is negatively associated with a subjective history of success using a promotion regulatory focus, controlling for prevention regulatory focus.

Rationale:  Trait Anxiety is theoretically based on a fear of failure and is avoidance-based.  It should therefore be negatively correlated with approach-based RFQ Promotion.

Table 5 summarizes the way the specific research hypotheses are related to the broad conceptual frameworks.

Table 5:    Relationship of Hypotheses to the Theoretical Constructs in the Study.

|  | Personal Value Priorities | Regulatory Focus |
| --- | --- | --- |
| Motivational Traits | H1, H2, H3 | H4, H5, H6 |

# Chapter 3: Methods

RESEARCH SETTING AND PARTICIPANTS

The research was conducted in a nonprofit organization headquartered in a city in the southwest.  The organization employed 2273 people as of May 1, 2006.  Appendix A on page 178 contains the agency approval letter required as part of the IRB approval process.

## Population Demographics

While much social science research conducted within academic settings uses a convenience sample of undergraduate students, the present study draws on a more educationally diverse population for study participants.  Educational background information is available for approximately one third of employees.  Of this group, approximately 15% are high school graduates without college experience, 23% have some college experience but no college degree, approximately 13% have two-year associates or technical degrees, 36% have a bachelor's degree, and slightly more than 10% have a master's degree.  Fewer than one and a half percent of employees have a doctoral (Ph.D.) or professional (J.D., M.D.) degree.  Table 6 shows educational attainment by ethnic group, where available.   Based on the researcher's knowledge of workgroups within the company, it is likely that most of the employees without education level specified in company records are at the lower threshold of educational attainment, most probably high school graduates without college experience.

Of the three measures used in this study (described later in this chapter), only the Schwartz Value Survey has been extensively used with non college-educated samples; use of the other measures has been largely limited to undergraduate students in selective four-year

53

universities, or (with the MTQ) college-educated adults. Thus, the present study permits psychometric evaluation of these measures with a broader, more diverse sample.

Table 6: Employee Education and Ethnic Classification.

| Education Level | American Indian | Asian | Black | Hispanic | White | Grand Total | Overall Percent | Percent Specified |
|---|---|---|---|---|---|---|---|---|
| Not Indicated | 4 | 20 | 65 | 169 | 1235 | 1493 | 66.6 % | |
| < HS | | | | 2 | 2 | 4 | 0.2 % | 0.5 % |
| HS Grad | 1 | | 7 | 20 | 77 | 105 | 4.7 % | 14.0 % |
| Some College | 3 | 5 | 11 | 30 | 125 | 175 | 7.8 % | 23.4 % |
| Technical School | | | 3 | 12 | 31 | 46 | 2.1 % | 6.1 % |
| 2-Year College | | 1 | 2 | 9 | 42 | 54 | 2.4 % | 7.2% |
| Bachelors | 1 | 11 | 6 | 30 | 222 | 270 | 12.0 % | 36.0 % |
| Some Graduate | | 1 | | | 7 | 8 | 0.4 % | 1.1 % |
| Master's | | 7 | 5 | 11 | 56 | 79 | 3.5 % | 10.5 % |
| Doctorate | | 2 | | | 1 | 3 | 0.1 % | 0.4 % |
| MD, DDS, JD | | 2 | | 1 | 3 | 6 | 0.3 % | 0.8 % |
| Grand Total | 9 | 49 | 99 | 284 | 1801 | 2242 | | |
| Percent | 0.4 % | 2.2 % | 4.4 % | 12.7 % | 80.3% | 100% | 100 % | 100.0 % |

**Data Collection and Sample Characteristics**

A human resources staff member selected at random, 148 participants (6.5% of company employees) who reflected the workforce overall in terms of department or functional unit, age, salary level, and employment tenure. See Appendix B (p. 187) for the demographic details of the sampling plan I created to accomplish this goal. These 148 potential participants were contacted by email by a research assistant in accordance with the

approved IRB protocol. The text of the email consisted of the informed consent statement, included as Appendix C on page 189. At the bottom of the email, participants were asked to click a URL web link to a secure website [SurveyMonkey.com] to complete the three study questionnaires. The survey (excluding questions from the MTQ [26]) is included as Appendix D starting on page 191.

There were six different versions of the informed consent email, which differed only in the assigned questionnaire sequence. Consent was implied by participation but not documented, in accordance with the approved IRB protocol. The minimum sample size approved by my dissertation committee was 72. However, after seven days, only 45 of the 148 contacted had responded. Consequently, a second group of 300 employees was identified and contacted by email using a slightly modified IRB approved consent form. The second group was not selected according to the same sampling plan as the original 148 (which were carefully chosen at random to reflect the organization as a whole), so I tracked responses from the two groups independently. The URL link for the second group referenced a "clone" survey indistinguishable from the original. For the second sample, I modified the informed consent document by removing the following two sentences: "***Approximately 150 (1 in 15) employees are being asked to participate in this study***. The sample of employees was selected at random to reflect characteristics of [the company] as a whole" (bold and italics in original). I also extended the response deadline to allow additional time for participants to respond. After a second five days, I had receive data from 160 employees; 59 from the original 148 (39.9%) and 101 from the second group of 300 (33.7%). Having obtained more than twice the responses I needed, I closed the survey to begin analyses. Differences in the demographic characteristics and the scores of the two

---

[26] The Motivational Trait Questionnaire is copyrighted and access is restricted. To obtain a copy of the assessment and scoring key, contact Ruth Kanfer or Eric Heggestad. Their contact information appears in Appendix M2 in the emails granting permission for me to use the MTQ in my dissertation. See page 242.

samples are minor and not relevant for purposes of this study, so I combined them for data analyses. In accordance with IRB protocol, participation in the study was anonymous. Figure 14 shows the timing of responses I received from each of the two samples.

## Responses to Survey Monkey
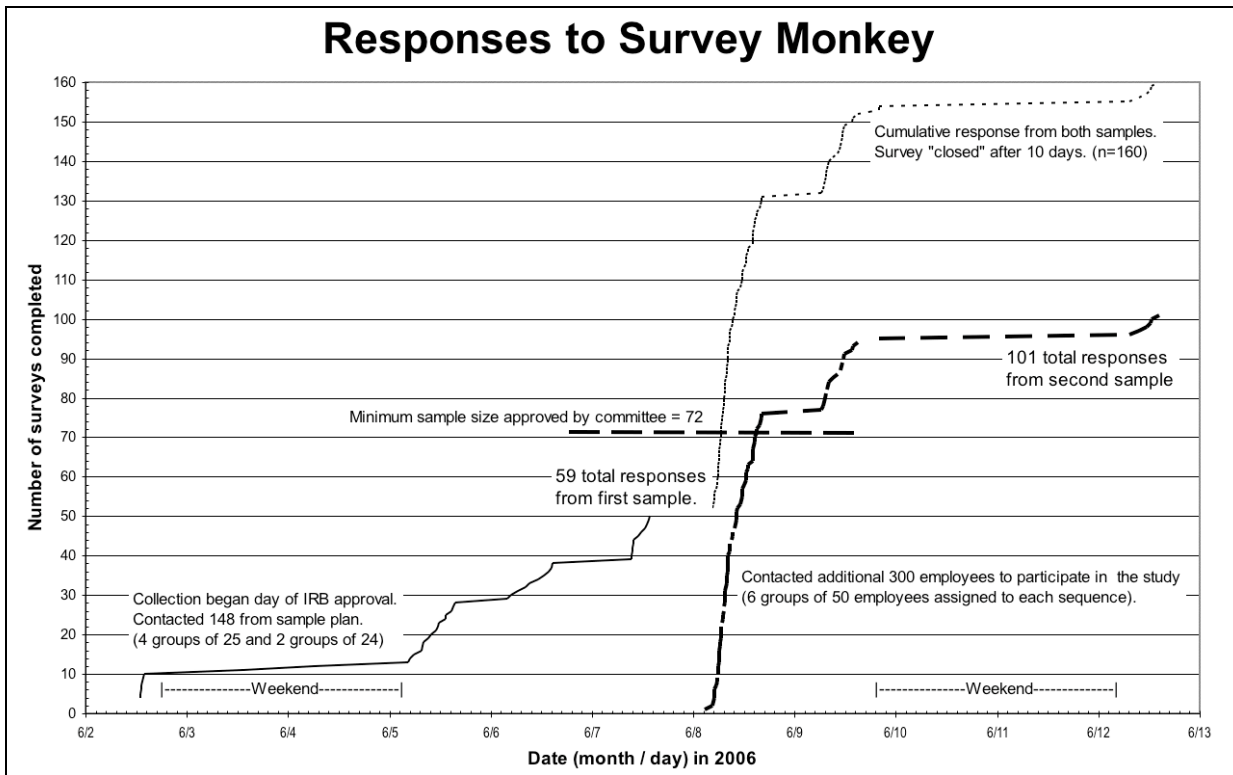


Figure 14:    Timing of Responses to Survey Questionnaires.

Table 7 shows the number of potential and actual study participants by company pay grade. The salary scales associated with these pay grades are included as Appendix E on page 209. The "Admin" scale contains primarily office clerical staff, predominately females. The "C&T" scale, predominately males, consists of craft and technical employees, many of whom work in field, shop, or plant environments. The "P&M" scale contains professional and managerial staff, typically with higher education and pay.

Table 7:      Characteristics of Sample by Company Pay Grade

| Pay Scale | Obtained in Sample | | | Available in Population | | | Achieved % of Population | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Both | Male | Female | Both | Male | Female | Both |
| Admin 62 | 1 | | 1 | 2 | | 2 | 50.0% | | 50.0% |
| Admin 63 | | | | 2 | 4 | 6 | | | |
| Admin 64 | | 1 | 1 | 5 | 22 | 27 | | 4.5% | 3.7% |
| Admin 65 | 2 | 8 | 10 | 2 | 90 | 92 | 100.0% | 8.9% | 10.9% |
| Admin 66 | | 3 | 3 | 1 | 36 | 37 | | 8.3% | 8.1% |
| Admin 70 | | | | 9 | 8 | 17 | | | |
| All Admin | 3 | 12 | 15 | 21 | 160 | 181 | 14.3% | 7.5% | 8.3% |
| C&T 41 | | | | 1 | | 1 | | | |
| C&T 42 | 1 | | 1 | 4 | 1 | 5 | 25.0% | | 20.0% |
| C&T 43 | 1 | | 1 | 7 | | 7 | 14.3% | | 14.3% |
| C&T 44 | | | | 59 | 3 | 62 | | | |
| C&T 45 | | | | 28 | 5 | 33 | | | |
| C&T 46 | 4 | | 4 | 147 | 15 | 162 | 2.7% | | 2.5% |
| C&T 47 | 1 | 2 | 3 | 67 | 11 | 78 | 1.5% | 18.2% | 3.8% |
| C&T 48 | 4 | | 4 | 397 | 16 | 413 | 1.0% | | 1.0% |
| C&T 49 | 3 | | 3 | 193 | 10 | 203 | 1.6% | | 1.5% |
| C&T 50 | 5 | | 5 | 95 | | 95 | 5.3% | | 5.3% |
| All C&T | 19 | 2 | 21 | 998 | 61 | 1059 | 1.9% | 3.3% | 2.0% |
| P&M 0 | | | | 14 | 4 | 18 | | | |
| P&M 10 | | | | 2 | 2 | 4 | | | |
| P&M 23 | | 1 | 1 | 2 | 5 | 7 | | 20.0% | 14.3% |
| P&M 24 | 3 | 1 | 4 | 26 | 49 | 75 | 11.5% | 2.0% | 5.3% |
| P&M 25 | 4 | 3 | 7 | 7 | 19 | 26 | 57.1% | 15.8% | 26.9% |
| P&M 26 | 2 | 7 | 9 | 47 | 67 | 114 | 4.3% | 10.4% | 7.9% |
| P&M 27 | 4 | 5 | 9 | 70 | 33 | 103 | 5.7% | 15.2% | 8.7% |
| P&M 28 | 7 | 4 | 11 | 93 | 52 | 145 | 7.5% | 7.7% | 7.6% |
| P&M 29 | 16 | 2 | 18 | 99 | 30 | 129 | 16.2% | 6.7% | 14.0% |
| P&M 30 | 22 | 6 | 28 | 158 | 57 | 215 | 13.9% | 10.5% | 13.0% |
| P&M 31 | 13 | 2 | 15 | 74 | 17 | 91 | 17.6% | 11.8% | 16.5% |
| P&M 32 | 10 | 3 | 13 | 38 | 16 | 54 | 26.3% | 18.8% | 24.1% |
| P&M 33 | 4 | 1 | 5 | 20 | 8 | 28 | 20.0% | 12.5% | 17.9% |
| P&M 34 | 4 | | 4 | 21 | 5 | 24 | 19.0% | 0.0% | 16.7% |
| All P&M | 89 | 35 | 124 | 671 | 364 | 1033 | 13.3% | 9.6% | 12.0% |
| Total | 111 | 49 | 160 | 1690 | 585 | 2273 | 6.6% | 8.4% | 7.0% |

The sampling plan called for a higher relative proportion of C&T employees than I
was able to attain.  Note that the sample overall contained 7.0% of employees, but only 2.0%
of C&T employees.  Because many of these individuals do not work in an office, obtaining a
larger sample would have required (a) more time, (b) a larger incentive (none was offered to

participants), or (c) more pressure or coercion (there was none). Additional characteristics of the combined samples are presented below.

Table 8: Characteristics of Sample by Employee Age

| | Sample | | | Population | | | Percent of Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | Both | Male | Female | Both | Male | Female | Both |
| under 25 | 0 | 0 | 0 | 67 | 23 | 90 | 0% | 0% | 0% |
| 26 to 30 | 6 | 5 | 11 | 186 | 53 | 239 | 3.2% | 9.4% | 4.6% |
| 31 to 35 | 8 | 7 | 15 | 175 | 81 | 256 | 4.6% | 8.6% | 5.9% |
| 36 to 40 | 12 | 9 | 21 | 174 | 88 | 262 | 6.9% | 10.2% | 8.0% |
| 41 to 45 | 19 | 5 | 24 | 274 | 99 | 373 | 6.9% | 5.1% | 6.4% |
| 46 to 50 | 29 | 8 | 37 | 361 | 96 | 457 | 8.0% | 8.3% | 8.1% |
| 51 to 55 | 15 | 11 | 26 | 254 | 83 | 337 | 5.9% | 13.3% | 7.7% |
| 56 to 60 | 14 | 1 | 15 | 151 | 43 | 194 | 9.3% | 2.3% | 7.7% |
| 61 to 65 | 8 | 3 | 11 | 41 | 14 | 55 | 19.5% | 21.4% | 20.0% |
| over 66 | 0 | 0 | 0 | 7 | 3 | 10 | 0% | 0% | 0% |
| Total | 111 | 49 | 160 | 1690 | 583 | 2273 | 6.6% | 8.4% | 7.0% |

Table 9: Characteristics of Sample by Employee Years of Service

| | Sample | | | Population | | | Percent of Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Tenure | Male | Female | Both | Male | Both | Both | Male | Female | Both |
| 0 to 1 | 5 | 2 | 7 | 163 | 64 | 227 | 3.1% | 3.1% | 3.1% |
| 1 to 3 | 5 | 5 | 10 | 160 | 79 | 239 | 3.1% | 6.3% | 4.2% |
| 3 to 5 | 12 | 11 | 23 | 270 | 124 | 394 | 4.4% | 8.9% | 5.8% |
| 5 to 10 | 27 | 11 | 38 | 359 | 130 | 489 | 7.5% | 8.5% | 7.8% |
| 10 to 15 | 18 | 4 | 22 | 93 | 42 | 135 | 19.4% | 9.5% | 16.3% |
| 15 to 20 | 9 | 8 | 17 | 159 | 63 | 222 | 5.7% | 12.7% | 7.7% |
| 20 to 25 | 15 | 6 | 21 | 264 | 49 | 313 | 5.7% | 12.2% | 6.7% |
| 25 to 30 | 13 | 0 | 13 | 162 | 74 | 186 | 8.0% | 0.0% | 7.0% |
| over 30 | 7 | 2 | 9 | 60 | 8 | 68 | 11.7% | 25.0% | 13.2% |
| Total | 111 | 49 | 160 | 1690 | 633 | 2273 | 6.6% | 7.7% | 7.0% |

As shown in Table 8 above, the age distribution in the sample I obtained closely matches the distribution in the workforce overall with two exceptions. Younger workers (especially under age 25) are under-represented and older workers (age 61 and over) are over-represented compared with the available population.

**MEASURES**

Each of the three measures in this research study is classified as self-report / respondent measure. The Motivational Trait Questionnaire is comparatively new, having been developed since 2000. There are only three published studies referencing the Motivational Trait Questionnaire. An overview of each of the study's three measures is provided below, and a full copy of the SVS and RFQ and their associated scoring procedures is included in the Appendices.

**Motivational Trait Questionnaire**

The Motivational Trait Questionnaire Short Form (MTQ) is a 48-item self-report questionnaire developed by Heggestad and Kanfer (2000) after an extensive review of the achievement and work motivation literatures. The instrument was developed specifically to link "classic theorizing on achievement motivation with contemporary goal approaches to motivation and behavior" (Heggestad & Kanfer, 2000, p. 753). The MTQ measures both approach and avoidance achievement motivation (the need to achieve success and the need to avoid failure) and both mastery (self-referent) and performance (other-referent) orientations. The MTQ differs from other measures that assess motivational tendencies in specific situations (like taking tests in an academic setting) in that it is designed to reflect individual differences in motivational traits *across situations*.

In 2002, researchers in the United Kingdom evaluated the psychometric properties and conceptual overlap of three measures of approach / avoidance goal orientation. They compared instruments developed by Elliot and Church (1997), Midgley et al, 1998, and Skaalvik, 1997. Heggestad and Kanfer's measure is conceptually similar to these three

instruments, but purports to measure more global motivational traits – a broader and less context-bound construct than goal-orientation (Smith, Duda, Allen, & Hall, 2002).

The short form of the MTQ is the result of substantial psychometric assessment of the original 283-item pool and includes six sub-scales, two for each of three motivational constructs considered influential in work and achievement motivation (Heggestad & Kanfer, 2000; Hinsz & Jundt, 2005). Empirical evidence for reliability and validity of the theoretical constructs and the six subscales is reviewed in (Kanfer & Ackerman, 2000) and summarized below. Based on their findings, they suggest that "the MTQ serves as a promising tool for use in theory and research investigating the influence of individual differences in motivational traits as they affect goal choice and striving in workplace / achievement settings" (p. 481).

### Personal Mastery

Individuals measuring high on this trait establish standards of excellence in terms of their own performance, and strive to improve their performance according to their self-set standard. They tend to persist in their pursuit of excellence despite frustrations and difficulties. Their competition is with themselves, "to be the best that they can be." Both subscales assess approach-oriented motivational traits.

*Desire to Learn.* This subscale contains 8 items and focuses on the need to achieve "in the context of learning new skills or acquiring knowledge" ($\alpha$ = .81). Example item: "I prefer activities that provide me the opportunity to learn something new" (Kanfer & Ackerman, 2000, p. 474).

*Mastery Goals.* This subscale also contains 8 items and focuses on "personal goal setting and other aspects of the achievement context that represent an orientation toward continued task improvement or mastery – even when it is not required" ($\alpha$ = .83). Example:

60

"I set high standards for myself and work toward achieving them" (Kanfer & Ackerman, 2000, p. 474).

*Competitive Excellence*

While the standard for excellence in **Personal Mastery** is *internal*, for **Competitive Excellence**, the standard for excellence is *external*. Surpassing one's own performance is not sufficient; one must also win *against others*. Individuals high in this trait look to see how well others are doing, and evaluate their performance based on knowledge of the comparison.

*Other Referenced Goals*. This subscale contains 7 items and measures comparison to other performers, for example, co-workers and peers, for the purpose of establishing a basis for setting standards and evaluating relative performance. ($\alpha = .85$) Example: "Whether or not I feel good about my performance depends on how it compares to the performance of others" (Kanfer & Ackerman, 2000, p. 474).

*Competition Seeking*. The competitiveness subscale contains 6 items and involves comparison of one's performance with others – focusing on competition and performing better than co-workers or peers. ($\alpha = .89$) Example: "I would rather cooperate than compete" [reverse-scored].

While *Competition Seeking* is clearly represented as an approach-oriented trait, *Other Referenced Goals* involves both approach- and avoidance-related tendencies. Kanfer and Ackerman (2000) suggest that individuals "may compare their own performance to that of others for two very different reasons: (a) to evaluate whether they are performing better than others (e.g. competition), or (b) to evaluate whether others are doing better than they are (e.g. fear of failure)" (p. 476). These two possibilities are confounded in the *Other Referenced Goals* subscale.

*Motivation Anxiety*

*Motivation Anxiety* is similar to test anxiety, but is broader, reflecting a tendency to experience anxiety across a wide range of situations "such as meeting a deadline at work, participating in an athletic competition, or planning and hosting an important party" (Heggestad & Kanfer, 2000, p. 757). Both subscales of Achievement Anxiety represent avoidance-related tendencies.

*Worry.* This subscale contains 10 items that focus on worry and other aspects of evaluation apprehension in performance contexts ($\alpha = .88$). Example: "Before beginning an important project, I think of the consequences of failing."

*Emotionality.* This subscale contains 9 items that focus on emotions associated with performance in evaluation contexts ($\alpha = .79$). Example: "I am able to remain calm and relaxed before I take a test" [reverse-scored].

The six subscales of the MTQ reflect core traits that influence motivation in achievement and goal-striving situations (Hinsz & Jundt, 2005; Kanfer & Ackerman, 2000). As Hinsz and Jundt (2005) point out, "the MTQ is a relatively recent contribution to the literature on personality and individual-difference approaches to motivation" (p. 568). The present study extends the use of the motivational trait questionnaire from undergraduate collegiate samples to a sample of working adults with a wide range of ages, educational backgrounds, and pay.


**Regulatory Focus Questionnaire**

According to McClelland and Atkinson's classic theory of achievement motivation (McClelland, 1961b), feelings in past achievement settings tend to influence feelings in new achievement tasks. Consequently, feelings of success incline an individual to approach new tasks with eagerness, whereas feelings of failure incline an individual to approach a new

achievement task with vigilance.   Regulatory Focus Theory (Higgins, 1997) claims that "all goal-directed behavior is regulated by two distinct motivational systems" and that these motivational systems "employ qualitatively different means of regulating toward desired end-states" (Higgins et. al., 2001, p. 4).   The Regulatory Focus Questionnaire (RFQ) was developed by Higgins and associates in 1997 (unpublished manuscript) to measure persistent individual differences in accessible history of past success (Higgins et al., 2001).  The RFQ contains two psychometrically distinct subscales measuring a person's subjective history of promotion success and prevention success.  *Promotion success* involves succeeding using an *approach strategy*, whereas *prevention success* involves succeeding using an *avoidance strategy*.

Scale construction for the RFQ (described in Higgins et al., 2001, pp. 7-9) began with a balance of promotion and prevention items referencing both parental content, for example, "My parents rarely listened to my ideas and opinions" and non-parental content, for example, "How often have you accomplished things that got you 'psyched' to work even harder?" Large samples of undergraduate students from two private urban universities were administered in successive waves during scale development.   Psychometric analyses including item distributions, exploratory factor analysis and reliability analyses were conducted after each wave of administration "to determine which items provided good variability and formed coherent subscales, and also which items correlated with other self-regulation measures similar to those under investigation.  After several iterations, a final scale containing 11 items remained" (p. 7).  Factor analysis (n=207) revealed two factors with eigenvalues greater than 1, and accounting for 29% and 21% of the variance, respectively.   Each item loaded on only one of the factors, and the correlation between factors was modest (r = .21, p<0001). Both subscales exhibited good reliability ($\alpha$ = .73 for the Promotion scale; $\alpha$ = .80 for the Prevention scale).  Test-retest reliability, over a two-

month period (n=71) found that "the RFQ Promotion scale had a 0.79 correlation (p<0.0001) and the RFQ Prevention scale had a 0.81 correlation (p<0.0001)." (p. 8-9).

A series of five studies (Higgins et al., 2001) provided strong support for the claim that the RFQ scales are effective in measuring an individual's subjective history of success with promotion-related eagerness or prevention-related vigilance and that these subjective histories of success are related to individuals' goal-achieving *strategies* in the present. Using a manipulation study to prime, or temporarily influence, individual's subjective history, Higgins and associates were able to demonstrate that it is indeed one's subjective history, and *not* competence or self-efficacy in using a particular approach or avoidance strategy that is the more important determinant of the propensity to use an approach or avoidance regulatory strategy.

In the research literature, there have been a number of different measures of regulatory focus. Two measures, in particular, have been used frequently in previously published studies. These are the *Self-Guide Strength* measure and the *Selves Questionnaire* (Higgins, Roney, Crowe, & Hymes, 1994; Kruglanski et al., 2000; Liberman, Idson, Camacho, & Higgins, 1999). Because the constructs measured by the **Regulatory Focus Questionnaire** differ from the constructs measured by these more common instruments, it is worthwhile to clarify the distinctions.

### Differences between the RFQ and other Regulatory Focus measures

Classic measures of regulatory focus use *response speed* to assess persistent accessibility of an ideal and ought "self-guide." *Ideal Discrepancy* is a person's perception of the gap between his or her <u>ideal</u> <u>self</u> (the person one would ideally *like to be*) and the <u>actual</u> <u>or</u> <u>existing</u> self. In other words, ideal discrepancy measures the extent to which one is *failing* in promotion self-regulation. Similarly, *Ought Discrepancy* is a person's perception

of the gap between his or her <u>ought</u> <u>self</u> (the person one believes he or she *should be*) and the actual or existing self.  Stated differently, ought discrepancy is the extent that one is failing in prevention self-regulation.  In addition to measuring the gap between ideal or ought and actual self, it has been common to measure the *strength* of the ideal and ought self-guides. *Ideal Strength* is the persistent accessibility of *present ideal* goals, and *Ought Strength* is the persistent accessibility of *present ought* goals.  Prior research has shown that ideal and ought strength (accessibility of <u>present</u> goals) are independent of <u>past</u> success or failure in actually attaining those goals (Higgins et al., 2001; Higgins, Shah, & Friedman, 1997).

As expected, there are no statistically significant relations between RFQ Promotion and Prevention and ideal or ought strength. There are, however, moderate relationships between RFQ subscales and discrepancy measures.  RFQ Promotion (controlling for prevention) is negatively related to Ideal Discrepancy and RFQ Prevention (controlling for promotion) is negatively related to Ought Discrepancy.  The instrument's authors point out,

> It is not surprising that RFQ Promotion and Prevention scores, which relate to subjective histories of success, would relate negatively to failures to fulfill current concerns (i.e. ideal and ought discrepancies).  What is notable is that the relations are rather modest and that the RFQ is clearly not simply a reverse self-discrepancy measure.  Indeed, … the relations predicted by the RFQ can be obtained even when self-discrepancies are controlled for (Higgins, Shah, & Friedman, 1997, p. 9).

The Regulatory Focus Questionnaire scales are related to the *achievement*, *cognitive structure*, and *impulsivity* scales of the Jackson (1974) Personality Research Form and the *Reward Responsiveness* and *Fun Seeking* scales of the Carver and White (1994) Behavioral Approach System (BAS).  Both RFQ Promotion and Prevention have a moderate positive correlation with Jackson's *achievement*.  RFQ Prevention (controlling for Promotion) has a positive relation to *cognitive structure* (which has items related to avoiding mistakes), and a negative relation to *impulsivity*.  RFQ Promotion has no relation to either *cognitive structure*

or *impulsivity*. RFQ Promotion has positive relations to BAS *Reward Responsiveness* (eagerness in pursuing new things) and *Fun Seeking* (willingness to take a risk). RFQ Prevention, on the other hand has no relation to *Reward Responsiveness* and a negative relation to *Fun Seeking*. Table 10 summarizes convergent and discriminant relations between the RFQ scales and other measures (Higgins et al., 2001).

Table 10:    Relations Between RFQ Scales and Other Measures.

|  | *Subjective History of Success* | |
|---|---|---|
|  | **RFQ Promotion** | **RFQ Prevention** |
| *Self-Guide Strength* | | |
| Ideal Strength | N/S (p>.4) | N/S (p>.4) |
| Ought Strength | N/S (p>.4) | N/S (p>.4) |
| *Selves Questionnaire* | | |
| Ideal Discrepancy | -.29 | N/S |
| Ought Discrepancy | N/S | -.13 (borderline) |
| *Jackson (1974) Personality Research Form* | **RFQ Promotion** | **RFQ Prevention** |
| Achievement | moderate positive | moderate positive |
| Cognitive Structure | N/S | positive |
| Impulsivity | N/S | negative |
| *Carver and White (1994) BAS* | | |
| Reward Responsiveness | positive | N/S |
| Fun Seeking | positive | negative |

Note: Source of table correlations is Higgins et al., 2001.

A copy of the Regulatory Focus Questionnaire with item scoring and previously published factor loading is included in Appendix F on page 210. Of course, the factor loading and scoring information does not appear on the form completed by participants.

**Schwartz Value Survey**

The Schwartz Value Survey (SVS) was developed in the early 1990s as the primary means of testing and refining the Schwartz value theory after its roots with the Rokeach Value Survey (Schwartz & Bilsky, 1987). The SVS has now been used with over 60,000 individuals in more than 60 nations (Schwartz & Boehnke, 2004). The current version measures the extent to which individuals consider each of 57 different values important "as a guiding principle in MY life." The list of values is arranged in two groups. Items 1-30 describe desired end results or end states (terminal values), and items 31-57 describe ways of behaving (instrumental values). Like the Rokeach survey, each item is followed by a brief clarifying definition in parentheses. Twenty-one of the values are identical to those in the Rokeach Value Survey. Items in both groups are rated on a nine-point scale as follows: 7-*of supreme importance*, 6-*very important*, 5,4 (unlabeled), 3-*important*, 2,1 (unlabeled), 0-*not important*, -1-*opposed to my values*. The use of rating, as opposed to ranking, allows individuals to consider the full range of universally recognized values without becoming overwhelmed by the difficulty of the mental challenge. It also allows the measurement of "negative" values – "values people seek to avoid expressing or promoting through their choices and behavior" (Schwartz, 1992, p. 22). The scale is asymmetrical, meaning that it provides more opportunities for distinguishing values at the high positive end than the neutral and low end. This characteristic of the scale reflects the fact that values are by definition, *desirable*.

Before rating the values in the first list (the terminal values), participants first choose the value *most important* to them in that list and assign it a rating of 7. They then select the value they most oppose, or the one least important to them in the same list and assign it a rating of -1 or 0. This "anchors" the extremes of the response scale and encourages participants to consider the ratings of other values between the extremes they have first

67

identified. After rating items 1-30, the second list of values is anchored in the same way and then the remaining items rated. The order of the items in each list was determined by random selection, with two additional constraints. First, values reflecting the same "motivational type" are separated by at least two other values. Second, values in the same quintile of importance, based on early pretests, are separated by values from higher or lower importance ratings. This ordering approach reduces the tendency for a participant to select the same rating number repeatedly and consequently, disengage from the mental attentiveness required to actively consider and weigh the importance of the individual value items.

Forty-six of the 57 values (see Table 2 page 35) have meanings that are consistent across virtually all of the countries and cultures in which values research has been conducted (Schwartz, 1992). The meaning of the remaining eleven value items is not consistent across cultures (see Figure 12 page 43). Consequently, these values are not considered in the index of values reflecting the ten primary value types explicated in the theory. The scoring for each of the ten primary values is based on the *average* rating given to the individual value items that comprise that type after correcting for the individual's scale use. The scale use correction can be done in one of two ways. First, the individual's overall or global average of each of the 57 value items can be used as a covariate in any analyses. The second (equivalent) method is to "center" the ten value types around the individual's average response by subtracting the overall average from each of the ten value scores (which already reflects an average of individual value items). After applying this correction, the relatively more important values in the individual's personal value system have a positive score, while the values that are relatively less important to that person have a negative score. This technique (through either of the two methods) allows for a meaningful comparison of value priorities between individuals while controlling for individual differences in scale use. For example, if one individual primarily uses scale values of 1, 2, or 3 to rate his values, but

another individual concentrates her responses from 4 to 7, it would not be meaningful to compare the raw scores of these two individuals. Even though one individual's raw score (for example, for power) may be higher than the other's, to determine which individual places more *relative* value on power, we need to know how each individual's power value measure relates to each of the other values *within that person's value system.* Value scores should **not** be *standardized*, however, since the magnitude or spread of value scores is a meaningful individual difference.

In published studies, test-retest reliability for the SVS over a six-week interval exceeds 0.70 for each of the ten value indexes: Benevolence (BE), Universalism (UN), Self-Direction (SD), Stimulation (ST), Hedonism, (HE), Achievement (AC), Power (PO), Security (SE), Conformity (CO), and Tradition (TR). Internal reliability of the value indexes ranges also hovers in this range. Table 11 shows the number of items, previously published test-retest reliability over six weeks, based on a sample of 205 Israeli adults, mean internal reliability based on representative national samples from 23 nations, and the mean importance ranking based on 13 countries (Schwartz, 2005).

Table 11:    Descriptive Statistics for Values Measured by the SVS[27].

| Value | BE | UN | SD | ST | HE | AC | PO | SE | CO | TR |
|---|---|---|---|---|---|---|---|---|---|---|
| # items | 5 | 8 | 5 | 3 | 3 | 4 | 4 | 5 | 4 | 5 |
| Test-Retest Reliability | .75 | .74 | .70 | .76 | .71 | .70 | .76 | .76 | .77 | .82 |
| Mean Internal Reliability | .70 | .75 | .68 | .72 | .74 | .72 | .68 | .70 | .72 | .60 |
| Pan-Cultural Importance | 1 | 2.5 | 2.5 | 8 | 7 | 6 | 10 | 4 | 5 | 9 |

Note: BE = Benevolence, UN = Universalism, SD = Self Direction, etc. as defined in the paragraph above Table 11.

---

[27] Adapted from Table 1 in "Robustness and Fruitfulness of a Theory of Universals in Individual Values" by Shalom Schwartz, 2005, in A. Tamayo & J. Porto (Eds.), *Valores e trabalho [Values and work]* Brasilia: Editora Universidade de Brasilla.

**PROCEDURE**

**Assessment**

*Anonymous Web-Based Survey Administration*

As I have previously mentioned, each participant received by email, the Statement of Informed Consent approved by the IRB. A copy of the email text is included as Appendix C (p. 189). The Informed Consent email contained a URL web link to the secure (encrypted) website containing one survey that included the three measures. The survey began with six background questions and then asked participants to specify the sequence assigned to them in the email. Before and after completing each of the three study measures, participants were asked to specify which survey they needed to complete next – in order to ensure that they completed the surveys in the order in their specific (one of six) versions of the email. Appendix D contains screen prints of the online survey. Questions from the MTQ are masked.

The median time to complete all three questionnaires was 30 minutes,[28] and the middle 50% of participants took from 23 to 45 minutes. Responses to all items involved selecting a choice from a drop-down menu. Wording within the drop-down menu consisted of the verbatim response choices for the particular survey. For example, for the MTQ, one of the responses was "6 VERY TRUE OF ME."

*Counterbalancing Questionnaire Sequence*

All participants were asked to complete three measures: (1) Schwartz Value Survey (SVS), (2) Motivational Trait Questionnaire (MTQ), and (3) Regulatory Focus Questionnaire

---

[28] Data from the web-based surveys include the start and end date and time for each participant.

(RFQ). The order of measures was counterbalanced. With three measures, there are six possible orders. These are (1) SVS-RFQ-MTQ, (2) RFQ-SVS-MTQ, (3) SVS-MTQ-RFQ (4) RFQ-MTQ-SVS, (5) MTQ-SVS-RFQ, and (6) MTQ-RFQ-SVS. In the original group of 148 employees, 25 employees were assigned the first four of the six possible sequences and 24 employees were assigned the last two of the six possible sequences. In the second group of 300 employees, 60 employees were assigned to each possible sequence. While an equal number of participants were assigned to each possible sequence, differing response rates among the groups resulted in uneven numbers of participant per sequence, as I will discuss in the Results chapter.

**Analyses**

*Overview of Raw and Calculated Data*

The three measures used in this study result in *ordinal* data, discrete categories that can be ordered from low to high. Data analysis consisted of two parts: (a) preliminary scale scoring in an Excel workbook and then (b) more detailed analyses using SPSS statistical analysis software, version 11.0.4 for Macintosh[29]. Scoring keys for the SVS and RFQ measures are provided in the Appendices and specify which individual items comprise each subscale construct, as well as whether the item is reverse-scored. As previously mentioned, access to the MTQ questions and scoring key is restricted and not included in an appendix.

The Excel workbook I constructed for this project automatically reversed the scoring of items that require this procedure and calculated total, average, and relative (centered)

---

[29] I created all but two of the MDS plots using ALSCAL, available in SPSS. Two MDS plots specified as using "SSA" or "Smallest Space Analysis" were provided, courtesy Shalom Schwartz, using software available from the Hebrew University of Jerusalem. The technique is detailed in Guttman, L. (1968), *A general nonmetric technique for finding the smallest coordinate space for a configuration of points*, Psychometrica, 33, 469-506. Similar SSA software (MINISSA – MINI-SSA (**M**ichigan-**I**srael-**N**etherlands-**I**ntegrated **S**mallest **S**pace **A**nalysis) is available on the web at http://www.newmdsx.com/minissa/minissa.htm.

subscale scores for each measure. The first tab of the Excel workbook contained raw data exported from Survey Monkey, originally in a CSV (comma-separated-variable) format. The raw data was interpreted by Excel as a "text variable" rather than as a "numeric variable" as required for data analysis. The second worksheet modified the raw data, truncating un-needed text from responses (example "3 important" became "3"), and transforming text to numerals. The third worksheet was identical to the second, but items in the MTQ and RFQ that should be reverse-scored were transformed so that low scores became high scores, and vice-versa. The fourth tab of the workbook was identical to the third tab but contained numerical data in place of formulae and I replaced some verbatim responses containing long text strings with shorter descriptions (for example, on some of the background questions). The contents of this fourth tab (which I imported into SPSS for analysis) are described below. Each <u>row</u> in the workbook contained data from one participant. The <u>columns</u> contained raw or calculated data as described in Table 12.

Table 12:     Data Prepared in Excel for Export to Statistics Software

| Cell Column | Name | Description |
|---|---|---|
| 1 | Sample | 1 or 2 to distinguish 148 and 300 sample responses |
| 2 | Duration | calculated difference between end and start time |
| 3 | Sex | M or F |
| 4 | Age | In 5-year intervals |
| 5 | Tenure | In 5-year intervals |
| 6 | PayScale | Company Pay Grade scale name (from a list) |
| 7 | Location | Work Location (from a list) |
| 8 | Leadership | Code related to participation in a formal program |
| 9 | Sequence | One of the six possible sequences of the 3 measures |
| 10-66 | SVS1 - SVS57 | Raw item scores for SVS survey (range from -1 to 7) |
| 67-114 | MTQ1-MTQ48 | Raw item scores for MTQ survey (range from 1 to 6) |
| 115-125 | RFQ1R-RFQ11R | Raw item scores for RFQ survey (range from 1 to 5) |
| 126 | SVS_UN | Universalism index (based on average of raw items) |
| 127 | SVS_BE | Benevolence index (based on average of raw items) |
| 128 | SVS_TR | Tradition index (based on average of raw items) |
| 129 | SVS_CO | Conformity index (based on average of raw items) |
| 130 | SVS_SE | Security index (based on average of raw items) |

Table 12, continued.

| Cell Column | Name | Description |
|---|---|---|
| 131 | SVS_PO | Power index (based on average of raw items) |
| 132 | SVS_AC | Achievement index (based on average of raw items) |
| 133 | SVS_HE | Hedonism index (based on average of raw items) |
| 134 | SVS_ST | Stimulation index (based on average of raw items) |
| 135 | SVS_SD | Self-Direction index (based on average of raw items) |
| 136 | SVS_"MRAT" | Average of all 57 SVS item scores |
| 137 | SVS_SDL1 | Standard deviation of SVS items #1-30 |
| 138 | SVS_SDL2 | Standard deviation of SVS items #31-57 |
| 139-148 | SVS Centered (same order) | Corresponding value from cells 126-135 minus cell 136 |
| 149-158 | RANK of centered (same order) | Numerical rank of cell relative to range 139-148 |
| 159 | SOCIAL | Average of raw scores from UN and BE |
| 160 | STABLE | Average of raw scores from CO, TR, and SE |
| 161 | INDIV | Average of raw scores from PO, AC, and half of HE |
| 162 | OPPOR | Average of raw scores from ST, SD, and half of HE |
| 163 | AC&SD | Average of raw scores from AC and SD |
| 164 | TR&SE | Average of raw scores from TR and SE |
| 165 | SOCIAL_C | Same as cell 159 but based on centered not raw items |
| 166 | STABLE_C | Same as cell 160 but based on centered not raw items |
| 167 | INDIV_C | Same as cell 161 but based on centered not raw items |
| 168 | OPPOR_C | Same as cell 162 but based on centered not raw items |
| 169 | AC+SD_C | Same as cell 163 but based on centered not raw items |
| 170 | TR+SE_C | Same as cell 164 but based on centered not raw items |
| 171 | RFQ_PROM | Total Score for RFQ Promotion Scale |
| 172 | RFQ_PREV | Total Score for RFQ Prevention Scale |
| 173 | PROM_AVG | Average Score for RFQ Promotion Scale |
| 174 | PREV_AVG | Average Score for RFQ Prevention Scale |
| 175 | RFQ_AVG | Average of all RFQ items |
| 176 | PRO(PRE) | Cell 173 minus cell 175 |
| 177 | PRE(PRO) | Cell 174 minus cell 175 |
| 178 | NET_PROM | Total RFQ Promotion minus Total RFQ Prevention |
| 179 | TOT_DL | Total Score for MTQ Desire to Learn Scale |
| 180 | TOT_MG | Total Score for MTQ Mastery Goals Scale |
| 181 | TOT_ORG | Total Score for MTQ Other Referenced Goals Scale |
| 182 | TOT_CS | Total Score for MTQ Competition Seeking Scale |
| 183 | TOT_WY | Total Score for MTQ Worry Scale |
| 184 | TOT_EM | Total Score for MTQ Emotionality Scale |
| 185 | TOT_PM | Sum of cells 179 and 180 |
| 186 | TOT_CE | Sum of cells 181 and 182 |
| 187 | TOT_MA | Sum of cells 183 and 184 |
| 188 | AVG_DL | Average Score for MTQ Desire to Learn Items |
| 189 | AVG_MG | Average Score for MTQ Mastery Goals Items |
| 190 | AVG_ORG | Average Score for MTQ Other Referenced Goals Items |
| 191 | AVG_CS | Average Score for MTQ Competition Seeking Items |
| 192 | AVG_WY | Average Score for MTQ Worry Items |

Table 12, continued.

| Cell Column | Name | Description |
| --- | --- | --- |
| 193 | AVG_EM | Average Score for MTQ Emotionality Items |
| 194 | TRAIT_PM | Average of cells 188 and 189 |
| 195 | TRAIT_CE | Average of cells 190 and 191 |
| 196 | TRAIT_EM | Average of cells 192 and 193 |
| 197 | MTQ_AVG | Average of all MTQ Items |
| 198 | DL_C | Cell 188 minus cell 197 (Centered Desire to Learn) |
| 199 | MG_C | Cell 189 minus cell 197 (Centered Mastery Goals) |
| 200 | ORG_C | Cell 190 minus cell 197 (Centered Other Ref. Goals) |
| 201 | CS_C | Cell 191 minus cell 197 (Centered Competition Seeking) |
| 202 | WY_C | Cell 192 minus cell 197 (Centered Worry) |
| 203 | EM_C | Cell 193 minus cell 197 (Centered Emotionality) |
| 204 | PM_CEN | Cell 194 minus cell 197 (Centered Trait Personal Mastery) |
| 205 | CE_CEN | Cell 195 minus cell 197 (Centered Trait Competition) |
| 206 | EM_CEN | Cell 196 minus cell 197 (Centered Trait Emotionality) |
| 207 | Experience | Rating of enjoyment as a participant (range from 1 to 7) |

Appendix F (p. 210) contains the scoring key for the Regulatory Focus Questionnaire. Detailed instructions for preparing SVS value data for analysis are included in Appendix G (p. 211). These calculations (reversing and averaging appropriate individual item scores) were done in the Excel workbook. Following Schwartz, I *centered* the ten value types specified in the theory by subtracting the global average or **m**ean importance **rat**ing (Schwartz calls this the "MRAT") from the calculated index (which itself is an average of individual items). This procedure enables meaningful comparison of value types across individuals by controlling for differences in scale use.

I also included this "centering" procedure for the Motivational Trait Questionnaire and the Regulatory Focus Questionnaire. The result is that subscale or trait scores represent the amount of that trait (or subscale) in *relation to the other traits or subscales on the same*

*measure*.[30]   The Excel spreadsheet contained both the raw score totals and averages (not centered) and the centered indexes obtained by subtracting the global average for the participant from each item in the measure[31].

### *Evaluation of Raw and Calculated Data*

I created histograms (with the normal curve overlaid) for all variables used in hypotheses.  My purpose was to examine the item range and degree of normality in the distribution of responses to the calculated subscales and value indices.   See Appendix I, p. 221).

#### *Correlation Procedures*

For H1 – H6: I used bivariate correlations (product-moment coefficient of correlation) rather than partial correlations because the input variables were "centered."  I created and examined scatter plots (of each pair of planned comparisons) for indications of nonlinearity, homoscedasticity (equal spread of variance in Y for differing values of X), and the presence of outliers, all of which can affect the value or interpretation of the Pearson correlation coefficient.

---

[30] See Appendix G for a detailed description of the theoretical justification for centering <u>value</u> items.  I may be on less solid ground theoretically, in centering the MTQ and RFQ scores but propose the following rationale: For RFQ correlations, Higgins advises *controlling for* the other subscale.  In other words, the theoretically important variable is ***not*** *the level of* Promotion Pride (as an example), but the level of Promotion Pride *in relation to* the level of Prevention Pride for the same individual. This procedure has the same effect as using the average score on a measure as a covariate and removes the effect of individual differences in scale use.

[31] I later decided that while centering is theoretically appropriate and meaningful for both values and regulatory focus, it is not as appropriate or meaningful with motivational traits.  The three motivational traits measured by the MTQ are conceptually independent.  I did not use the centered values from the MTQ in my primary analyses, but have included, in Appendix K (p. 240), tables of correlations between total scores and centered scores for the same variables.

*Multi-dimensional Scaling Procedures*

For the MDS analyses, input variables usually consisted of the average of the indexed scale values. For the MDS plots with variables from more than one measure, I transformed the input variables using a z-score or a 0 to 1 transformation. This enabled meaningful ranking of variables between measures that use a different response scale. For example, the range of possible scores on the RFQ is 1 to 5 whereas the range of scores on the MTQ is 1 to 6. Possible scores on the SVS range from -1 to +7.

I experimented with a number of different scaling options in the MDS analyses. In general, I used the Euclidean distance model to create distances from data. When the input variables were centered (by subtracting the mean), I used the ratio model. For raw input with variables from only the Schwartz values measure, lower values of stress (indicating a better fit) were obtained when I used ordinal units of measure. [32] I specified 1, 2, 3, and 4 dimensional solutions, then plotted the resulting stress from Kruskal's Formula 1 (Kruskal & Wish, 1978).

**SVS**

I included three different MDS plots with only SVS items. The first shows all 57 individual value items. For each of the 57 individual values, I indicated whether it was in the expected polar facet (as specified in Table 2) and if not, the number of "moves" away from the expected position. If the individual value item was located within an *adjacent* value type, it was listed as "one move" away from the expected position. Since the "moves" could be in either direction around the circumplex, I used the smaller of the two possible move scores, corresponding to the shorter distance around the circumplex. The second MDS plot

---

[32] When using ALSCAL with SVS data, Schwartz indicated to me that he generally uses Euclidean distances, ordinal data, with z-score transformations of the data. Source: email from Shalom Schwartz July 2, 2006.

consisting of only SVS variables shows the location of the ten indexed value types.    I compared the order of the polar facets with the theoretical order specified in Figure 10.  The third MDS plot consisted of the four Quadrant indexes (Social, Stability, Individual, and Opportunity, along with two other similar indices: Aspiration and Status Quo, which I defined in Table 4 on page 49).  I compared the observed arrangement with the expected theoretical arrangement.  The purpose of the MDS analyses using only value items was to verify that the data from my sample conformed sufficiently to the expected relationships among values that are predicted in the Schwartz model.

### MTQ

I included two MDS plots using only MTQ data.  These consisted of all 48 individual item scores in two- and three-dimensional space.  While the scales were developed using exploratory factor analysis, I was interested in the structural arrangement of the individual items.  I checked to see that items with strong factor loadings on only one factor appeared in the same content space as other items loading on that factor.  This analysis was exploratory only, and no hypotheses were offered.  In my proposal, I stated that I intended to evaluate the MDS solution of the six subscales from the MTQ.  However, placement of items in the MDS solution with only the six subscales is not reliable so I did not include this plot in my results chapter.

### RFQ

I generated two MDS plots using only RFQ variables.  These include all of the eleven items, in two- and three-dimensional space.  The plot of only the two RFQ subscales, unaccompanied by other variables, is not meaningful, and is not included in my results chapter.  With both the two- and three- dimensional MDS solutions, I checked to see that the items appeared in separate MDS regions, corresponding to two distinct subscales specified by Higgins in the RFQ scoring key.

77

### All Three Constructs: SVS, MTQ, and RFQ

I generated two MDS plots with the (1) ten SVS indexed value types, (2) the six MTQ subscales one time, and the three motivational traits, the second time, and (3) the two RFQ subscales. I checked the location of variables in content space for consistency with the formal hypotheses H1 through H6 described earlier in this chapter.

I also included other MDS plots with various subsets of variables specified in H1 through H6. These include (for example) the average value priority given to Self-Direction and Achievement (Aspiration) and the average value priority given to Tradition and Security (Status Quo). I plotted these "derived indices" along with the four "higher level" indices from the Schwartz model (opportunity, stability, individual, social). For each of the MDS plots, I created and examined graphs showing the level of stress and $R^2$ for one-, two-, three-, and four-dimensional MDS solutions.

### *Scale Evaluation Procedures*

### MTQ and RFQ

For each measure, independently, I calculated the internal subscale reliability (coefficient alpha) and compared that obtained from my sample with published reliability statistics. I ran exploratory factor analyses using Principal Component Analysis. Because the subscales within each measure are correlated, I used an Oblimin rotation with Kaiser Normalization. I then checked the loadings of each item on latent factors, using the rule of retaining eigenvalues greater than one and also specifying the known number of subscales for the measures. I included scree plots from both the MTQ and RFQ, and plotted the factor solutions and compared these with the MDS solutions.

# Chapter 4: Results

**OVERVIEW OF CHAPTER ORGANIZATION**

This results chapter is organized in five sections. In Section 1, I discuss data issues. Specifically, I discuss the extent that participants did not provide data for all three measures. I then discuss differences in the samples due to the counterbalanced sequence. In Section 2, I present the results of my six hypotheses and the strength and structure of the relationships between personal value priorities, motivational traits, and regulatory focus. In Section 3, I present my analyses of the fit of my data to the Schwartz model. In Section 4, I present the measurement performance of the Motivational Trait Questionnaire with my sample of working adults, and in Section 5, the performance of the Regulatory Focus Questionnaire with working adults.

As I have previously mentioned, the Schwartz Value Theory has been used in a wide variety of cultures, with a very wide range of participant ages, religious and political backgrounds, and levels of education and wealth. The SVS has been used to measure the value priorities of people from large cities and small villages. The conclusion, supported by hundreds of data samples, is that the ten broad value types specified in the theory relate to each other in a nearly universal way. In other words, the conflicts and compatibilities among values are relatively consistent despite widely divergent backgrounds of people whose value priorities have been assessed. In Section 3 of this chapter, I present evidence for the validity of the Schwartz Value Model using my data.

The MTQ and RFQ have not been as widely used or tested as the SVS. The MTQ has been used *only* with college students, or college-educated adults. Participants in studies using the RFQ have similar educational backgrounds. As I have previously discussed, in my sample, a minimum of a fourth, and probably a third to a half of participants have little or no

formal educational experience beyond high school. The MTQ and RFQ are untested with these populations. In Section 4 and 5, I present evidence that the MTQ and RFQ do an adequate job measuring the constructs they have been designed to measure, in the more diverse sample used for my study. In essence, Sections 3, 4, and 5 are *necessary* to support the results I present in Section 2. The main results of the study are presented in Section 2, and I present the required supporting information on the three measures afterwards. The supporting information on the measures is needed because my study extends their use from college students to a diverse sample of working adults.

## SECTION 1: DATA ISSUES

### Missing Data

As I discussed in the Chapter 3, my total study sample includes two sub-samples that I have combined for all analyses. A total of 171 individuals answered at least one question in the survey. Eleven of these individuals answered no questions from any of the three measures used in my study. In other words, they provided demographic information only, and exited the survey early. This leaves 160 individuals who answered one or more questions on the SVS, the MTQ, or the RFQ. For all analyses, I excluded data "list-wise." This means that for any comparison or calculation, if an individual had omitted one or more items used in the analysis, that individual's data was dropped completely from the analysis. This practice of "list-wise data exclusion" is generally regarded as a more "conservative" approach in data analysis because it results in smaller usable sample sizes, and consequently, lower statistical power. By contrast, "pair-wise data exclusion" results in differing numbers of participants for different comparisons, and preserves larger sample sizes for some comparisons. Overall, there were nine different combinations of participant responses to the

three questionnaires.  I monitored survey responses daily.  Within the first few days, I observed that some individuals did not answer all three of the questionnaires.  Eleven individuals (from the 12 total in the **bold rows** below) appear to have attempted to answer all three questionnaires but were unable to do so because of an error in the survey.

| | |
|---|---|
| 1 | person answered only the RFQ (11 items) |
| 1 | answered only the RFQ and the first half of the SVS (11 + 30 = 41 items) |
| 1 | answered only the MTQ (48 items) |
| 1 | answered only the SVS (57 items) |
| **1** | **answered only the MTQ and RFQ (48 + 11 = 59 items)** |
| **4** | **answered only the SVS and RFQ (57 + 11 = 68 items)** |
| 1 | answered the MTQ, the RFQ, and half of the SVS (48 + 11 + 30 = 89 items) |
| **7** | **answered only the SVS and the MTQ (57 + 48 = 105 items),** and |
| 143 | answered all 3 questionnaires (57 + 48 + 11 = 116 items) |

I therefore modified the survey to notify participants of the importance of answering all items from all three questionnaires.  I also added a fourth possible response to a question I included before and after each of the three measures.  This question asked participants "Based on the sequence (order) of surveys listed in the email, which questionnaire do you need to answer next?"  Possible responses originally included: "SVS", "MTQ", "RFQ", and "I have answered all 3 questionnaires."  The fourth response I added was "I have not finished, and will return later."  At the time I inserted this choice, I introduced a "logic error" into the survey by mistake.  Depending on the particular sequence assigned to them, participants might select "SVS" as the survey to answer next, but be "routed" or taken to one of the two surveys already completed.  I have concluded that this error I inadvertently introduced to the survey contributed to incomplete data from eleven individuals before I became aware of the problem (through two phone calls) and was able to "fix" the "skip logic" in the survey.

81

In summary, I received complete data (combining the two samples) as shown in Table 13 below:

Table 13:     Summary of Complete Responses to Study Questionnaires

| Sections Completed | Respondents | Sample % (160) | Possible % (448) |
|---|---|---|---|
| SVS | 155 | 96.9 % | 34.6 % |
| MTQ | 153 | 95.6 % | 34.2 % |
| RFQ | 151 | 94.4 % | 33.7 % |
| SVS & MTQ | 150 | 93.8 % | 33.5 % |
| SVS & RFQ | 147 | 91.9 % | 32.8 % |
| MTQ & RFQ | 145 | 90.6 % | 32.4 % |
| SVS, MTQ, & RFQ | 143 | 89.4 % | 31.9 % |

Note: Possible % is the percentage of questionnaire responses obtained compared with the number of people actually contacted to participate in the study.

## Questionnaire Sequence

As discussed in Chapter 3 (p. 70-71), I attempted, as much as possible, to balance the number of participants assigned to each of the six possible sequences for the three questionnaires. The purpose for counterbalancing the sequence of the questionnaires was to minimize any influence on results that might be attributable to order in which participants completed the questionnaires. In other words, if answering the RFQ first tended to cause participants to be skeptical or guarded (for example, because of the questions about their level of obedience to their parents, etc.), it is possible that the responses to the value (SVS) or motivational trait (MTQ) questions could be altered. The study design of counterbalancing was intended to reduce possible order effects and make it possible to evaluate their influence. Ideally, there should be *no difference* in the summary statistics of the responses between the six groups based on their assigned sequence.

It is not possible to determine conclusively whether or not there were differences in the questionnaire responses that are attributable solely to questionnaire order. However, I have evaluated the responses from the six groups. Table 14 shows the number of participants

82

actually responding by the six possible sequences (count), and the rank order of value

priorities based on the average scores of participants in each group.  As shown in Table 14,

on average, participants in each of the six sequences ranked Power as the lowest of the 10

broad values.  This result is consistent with data Schwartz has obtained in a large number of

cultures.  See Table 11 on page 69.  As with Table 11, "1" indicates the highest value

priority, and "10" indicates the lowest value priority.  I have transferred rankings from Table

11 to the bottom row of Table 14.  The "pan-cultural" importance reflects 13 countries

(Schwartz, 2005).

Table 14:     Count and Rank of Value Scores for Each Questionnaire Sequence

| Sequence | Count | Rank of Value Priorities (1 = highest priority, 10 = lowest priority) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UN | BE | TR | CO | SE | PO | AC | HE | ST | SD |
| MTQ-RFQ-SVS | 22 | 6 | 2 | 9 | 6 | 4 | 10 | 3 | 7 | 8 | 1 |
| MTQ-SVS-RFQ | 21 | 5 | 1 | 9 | 3 | 6 | 10 | 4 | 7 | 8 | 2 |
| RFQ-MTQ-SVS | 30 | 6 | 1 | 9 | 4 | 5 | 10 | 4 | 7 | 8 | 2 |
| RFQ-SVS-MTQ | 28 | 6 | 1 | 7 | 3 | 5 | 10 | 4 | 8 | 9 | 2 |
| SVS-MTQ-RFQ | 38 | 6 | 1 | 8 | 2 | 4 | 10 | 3 | 7 | 9 | 5 |
| SVS-RFQ-MTQ | 21 | 6 | 1 | 8 | 2 | 5 | 10 | 4 | 7 | 9 | 3 |
| **Overall** | **160** | **6** | **1** | **9** | **3** | **5** | **10** | **4** | **7** | **8** | **2** |
| Pan-Cultural Rank | | 2.5 | 1 | 9 | 5 | 4 | 10 | 6 | 7 | 8 | 2.5 |

Note: UN = Universalism, BE = Benevolence, TR = Tradition, CO = Conformity, SE = Security, PO = Power, AC = Achievement, HE = Hedonism, ST = Stimulation, and SD = Self-Direction.

The average value ranks in my sample reflect a higher priority on conformity and

achievement, and a lower priority on universalism than in the broader "pan-cultural" sample.

These results are consistent with prior research findings.  Schwartz (1992) used primarily

teachers and students for participants.  In footnote number 19, Schwartz indicates:

> Students and teachers from the United States are conspicuous for the high importance they attribute to values expressing a desire to get ahead personally in the social hierarchy (e.g., wealth, authority, ambitious, successful) and the low importance they attribute to values expressing social concern (e.g., social justice, equality, loyal, responsible).  Spanish and Italian students and teachers show the opposite pattern.

The response rate for the six groups ranged from 28% (21 / 75) to 51% (38 / 74). In Appendix H beginning on page 207, I have provided an extensive analysis of the impact of the questionnaire sequence on the scores of key variables in the study. For example, Appendix H1 (page 215) contains, for the two samples (sample 1: n=148, sample 2: n=300), independently and combined, the number of respondents for each sequence by (1) gender, (2) age, (3) tenure, and (4) participation in a 12 month company leadership program (which could conceivably influence participant values or trait scores). Appendix H2 (page 217) shows the average score for (1) values, (2) motivational traits, and (3) regulatory focus by sequence. Appendix H3 (page 218) contains an analysis of the 95% confidence intervals for each of the six sequence groups compared with the 95% confidence interval for the combined sample (n=160). For each of the six possible sequences, average scores below the lower limit of the 95% confidence interval or above the upper limit of the 95% confidence interval are marked. These marked (highlighted) areas indicate scores in a sub-sample (specific sequence) that do NOT overlap with the 95% confidence interval for the entire sample. In other words, scores on this variable in this specific sub-sample differ from the global average. It is not possible to conclusively determine the reason why they differ, only that they do differ.

For RFQ promotion, four of the six groups were within the 95% confidence interval for the global average, and the difference above or below the 95% confidence interval for the other two groups was less than one percent. All six groups for RFQ Prevention were within the 95% confidence interval for the global average. For Trait Personal Mastery, two groups were above, and two groups were below the 95% confidence interval around the global average. The magnitude of the difference for these four groups ranged from 1.5% to 3%. For Trait Competitive Excellence, three groups were under and two groups were over the 95% confidence interval around the global average. Discrepancy averaged less than one percent, with a maximum of 3%. For Trait Motivation Anxiety, two scores were below and

one score was above the 95% confidence interval around the global average. The greatest discrepancy was less than 3%, with the average less than one percent. Overall, the average scores for each of the six groups were remarkably consistent for regulatory focus and motivational traits across all six groups.

Differences in the average value scores for the six groups were only slightly larger than those for the RFQ and MTQ scores. With ten value types and six groups, there are 60 scores to evaluate. More than half of the scores were within the 95% confidence interval of the global average. Fourteen were below, and ten were above the 95% confidence interval. There was one score 13% higher than the 95% confidence interval for Tradition, one score 7% below the 95% confidence interval for Power, and another score 6.5% above the 95% confidence interval for Power. All other scores were less than 5% outside the confidence interval, with most scores within a couple of percent. In summary, there were not major differences in the average value scores for each of the six sequences.

I have also included frequency histograms (superimposed with the normal curve) of key variables in Appendix I (p. 221). I included the frequency histograms because Exploratory Factor Analysis (EFA), that I used to check the measurement performance of the MTQ and the RFQ, assumes that input variables are continuous and normally distributed. For the sample, age was approximately normally distributed. Additionally, the SVS indices, MTQ Traits, and RFQ subscales all were approximately normally distributed. Appendix J (p. 229) shows the subscale score statistics for the MTQ and the RFQ. For each raw score obtained by at least one participant, Appendix J provides the number and percent of participants with the same score, and the cumulative percent of participants with that score or lower. The cumulative percents can be used to compare scores in this study with those of participants in future research that may use the Motivational Trait Questionnaire Short Form or the Regulatory Focus Questionnaire.

**SECTION 2: STRENGTH AND STRUCTURE OF RELATIONSHIPS**

In this section, I present results of tests of my primary hypotheses, the main purpose for conducting the study. This section presents relationships among variables from three constructs that originated and have developed independently in the research literature. To the best of my knowledge, no prior studies have directly related (1) personal value priorities, (2) motivational traits, and (3) subjective history of success using a promotion or prevention regulatory focus.

First, I present results of the six hypotheses I discussed at the end of Chapter 2. I present these results as scatter plots between variables as well as in tabular form. The plots present more information than I can reveal and discuss with correlation coefficients alone. For each scatter plot in which the correlation between variables is statistically significant at $p < .01$, I have also included regression lines using the least-squares formula.

**Centering the Variables**

The theoretical purpose for "centering" value priorities is clear: values do not function in isolation. What is practically and theoretically meaningful is the strength of a value (importance of the value), *within the context of other values for the same individual.* In other words, it is the <u>trade-offs between value priorities</u> that are most meaningful (Kahle, 1996; Kristiansen & Hotte, 1996; Rokeach, 1979b; Schwartz, 1996; Seligman & Katz, 1996; Tetlock, 1986; Tetlock, Peterson, & Lerner, 1996). Consequently, in the presentation of my results, I have used centered values (raw score minus the average of all values for the individual) for all scatter plots. I include a comparison of raw (total) scores and "centered" scores in Appendix K (p. 240).

Just as values should be "centered" for analyses, promotion or prevention regulatory focus should be "controlled" for the level of the other focus. In much of the published research using regulatory focus as a variable, the level of promotion or prevention, *controlling for its counterpart* is how the construct is operationalized in studies (Förster & Higgins, 2005; Higgins, 2002; Higgins, Shah, & Friedman, 1997; Spiegel, Grant-Pillow, & Higgins, 2004). Within most studied populations, the level of RFQ promotion focus is higher than the level of RFQ prevention focus (Higgins et al., 2001). When using promotion or prevention focus in the scatter plots in this section, I have subtracted the level of prevention focus from the level of promotion focus to create a variable I have termed "Net Promotion." Higgins (2001) used a similar approach, but dichotomized the difference as greater or less than zero. Both my findings and his reveal a skewed distribution with a small proportion of individuals scoring higher on RFQ prevention than on RFQ promotion.

In contrast to the values and regulatory focus variables, however, I have used total scores for motivational traits. This approach preserves maximum variability in the trait scores and recognizes the theoretical independence of the motivational traits. Prior research (Snell, Hargrove, & Falbo, 1986; Spence & Helmreich, 1983) suggests that performance outcomes differ for specific patterns of mastery and competitive traits. Specifically, when mastery is high, performance is better when competitiveness is low. On the other hand, when mastery is low, performance is better when competition is high. In studies of students, academic scientists, and MBA graduates, individuals with high mastery and low competitiveness "perform better in schools, are cited more often than their professional colleagues, and draw larger initial salaries in their jobs" (Snell, Hargrove, & Falbo, 1986, p. 428-9). This research supports my decision to treat trait scores as independent contributors and not "center" the scores as I did for the value priorities. However, for comparison, I also calculated correlations using centered trait scores. The strength of relationships was slightly

different from that obtained using total score (not "centered") traits, but the same relationships were statistically significant (or not). Correlations between raw scores and centered scores are shown in Appendix K (p. 240).

**Strength of Relations – Values, Motivational Traits & Regulatory Focus**

*Hypotheses H1-H3: Motivational Traits and Personal Value Priorities*

H1: **Personal Mastery** (trait) is positively associated with **Personal Aspiration Values** (achievement and self-direction) and negatively associated with **Status Quo Values** (tradition and security).
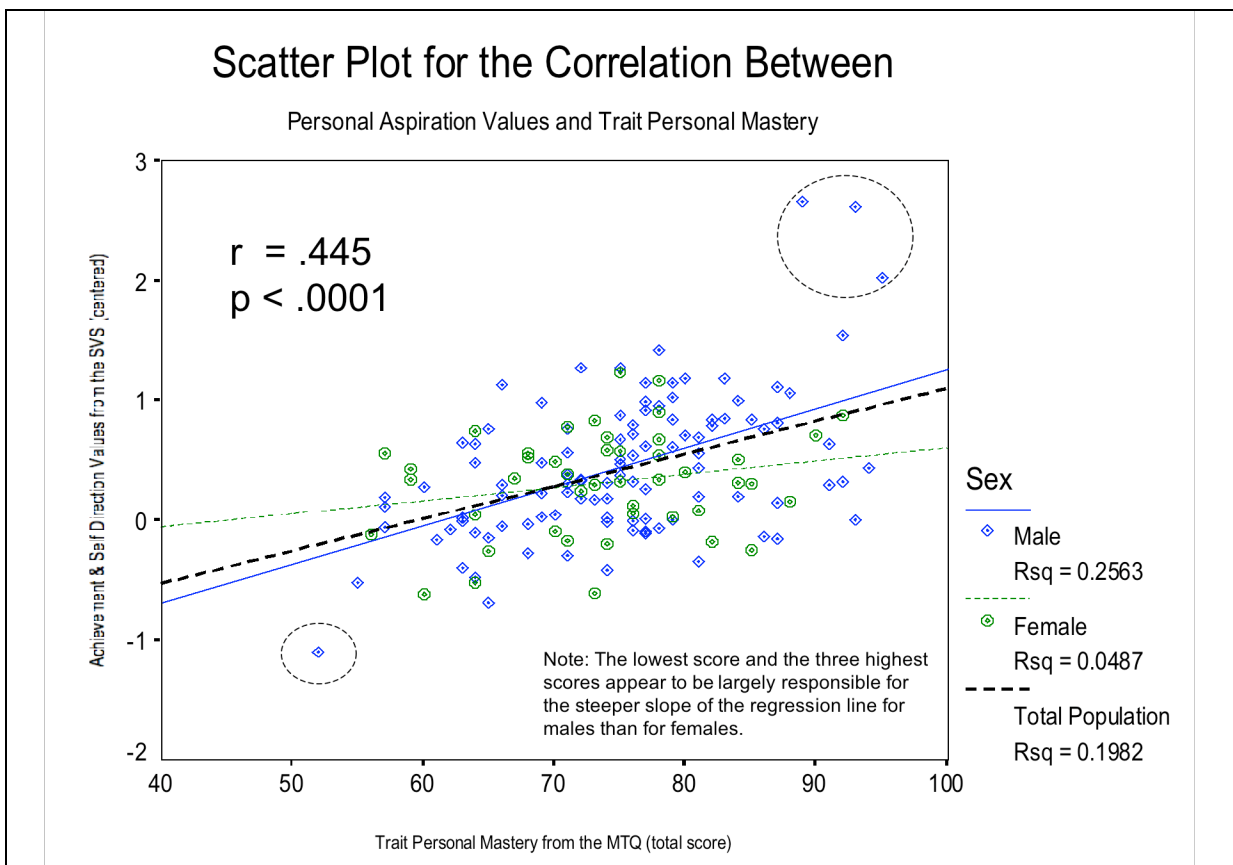


Figure 15: Scatter Plot of Aspiration Values with Trait Mastery

As shown in Figure 15, I found a moderate positive relationship between the importance attributed to Achievement and Self Direction values, and the level of trait Personal Mastery. The relationship was much stronger for males (r = .506) than for females (r = .221). The steeper slope for males may be partially attributable to the scores of four individuals - the lowest scoring and the three highest scoring for both value priorities and motivational traits. For males and females combined, the correlation was .445, significant at p<.0001. At the end of this section, after presenting the results of all hypotheses, I summarize the probability level of the findings[33].
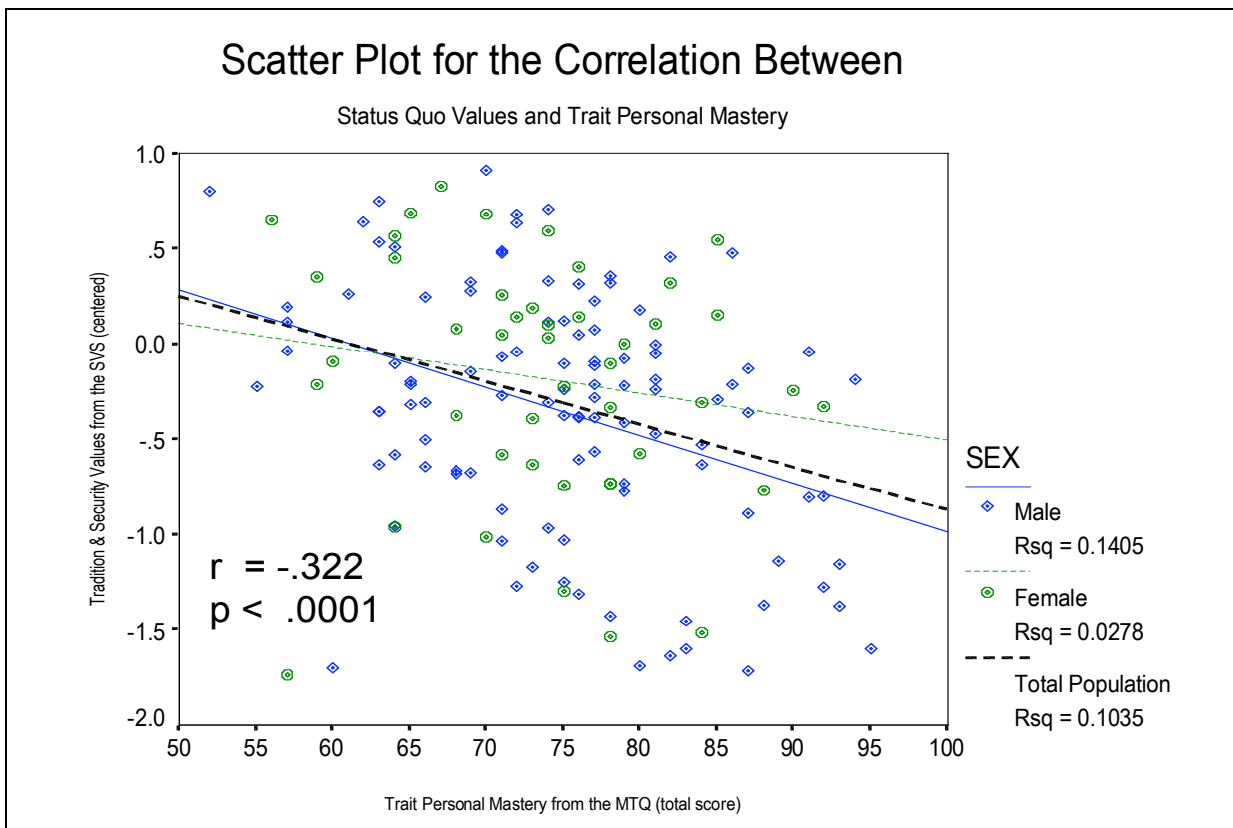


Figure 16:    Scatter Plot of Status Quo Values with Trait Mastery

---

[33] The probability level is a measure of the likelihood of finding a relationship of a given magnitude when in fact there is <u>not</u> a relationship between the variables in the population from which the sample was drawn.

As expected, and shown in Figure 16, I found a negative relationship between the level of trait personal mastery and the averaged value priority assigned to tradition and security. As before, the relationship is stronger for males (r = -.374) than for females (r = -.167). For the sexes combined, the correlation is -.322, significant at p<.0001.

H2:    **Competitive Excellence** (trait) is positively associated with **Individual** value priorities.
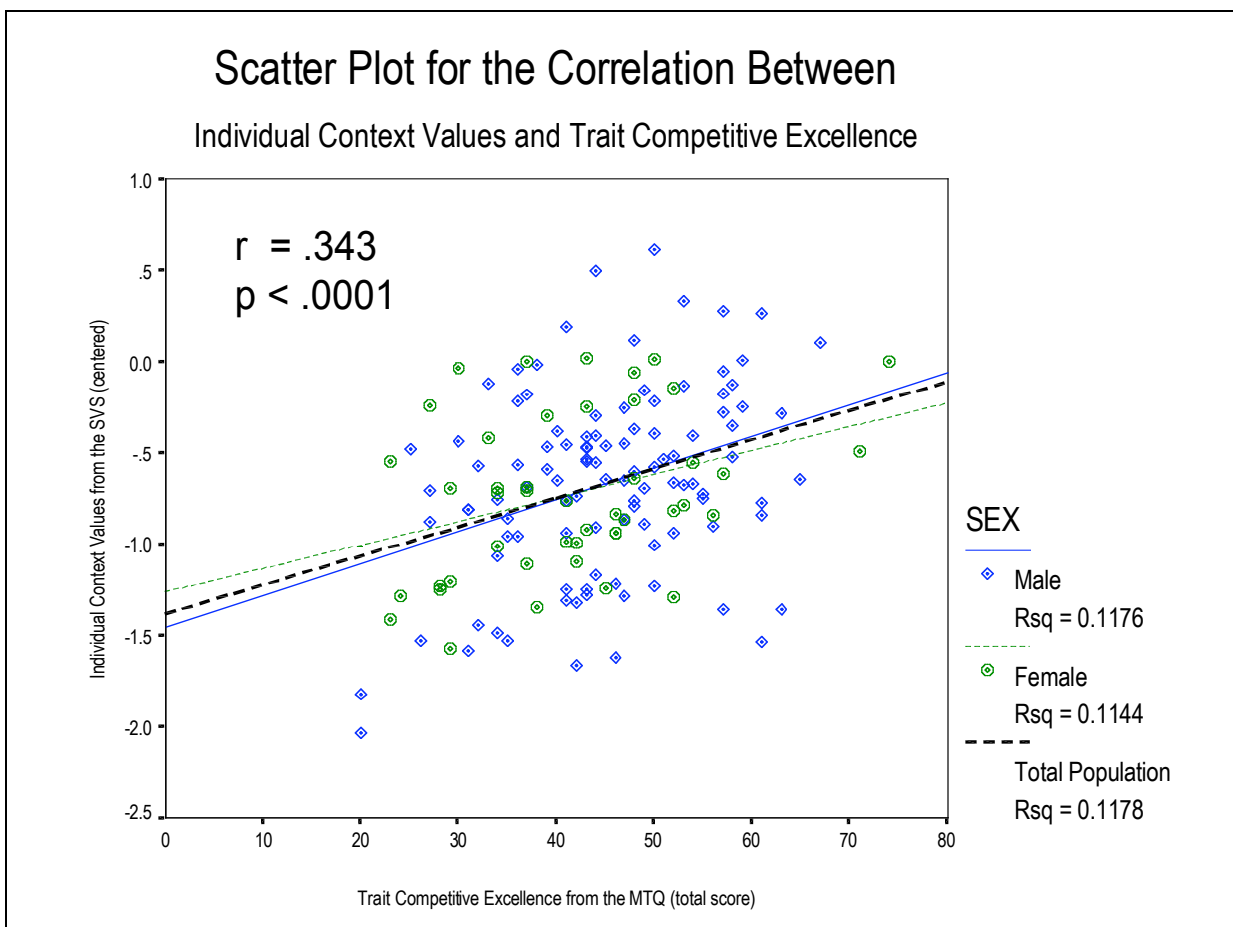


Figure 17:    Scatter Plot of Individual Context Values with Competitive Excellence

I predicted and found a moderate positive relationship between the level of trait Competitive Excellence, and the priority assigned to individual values (Power, Achievement,

Hedonism). The magnitude of the correlation was not appreciably different for males (r = .343) and females (r = .338). The correlation for the sexes combined was .343, statistically significant at p< .0001.

H3:  **Motivation Anxiety** (trait) is negatively associated with the social context value Benevolence.



## Scatter Plot for the Correlation Between
### Benevolence Values and Trait Motivation Anxiety

r = .029
p > .724
Not Significant
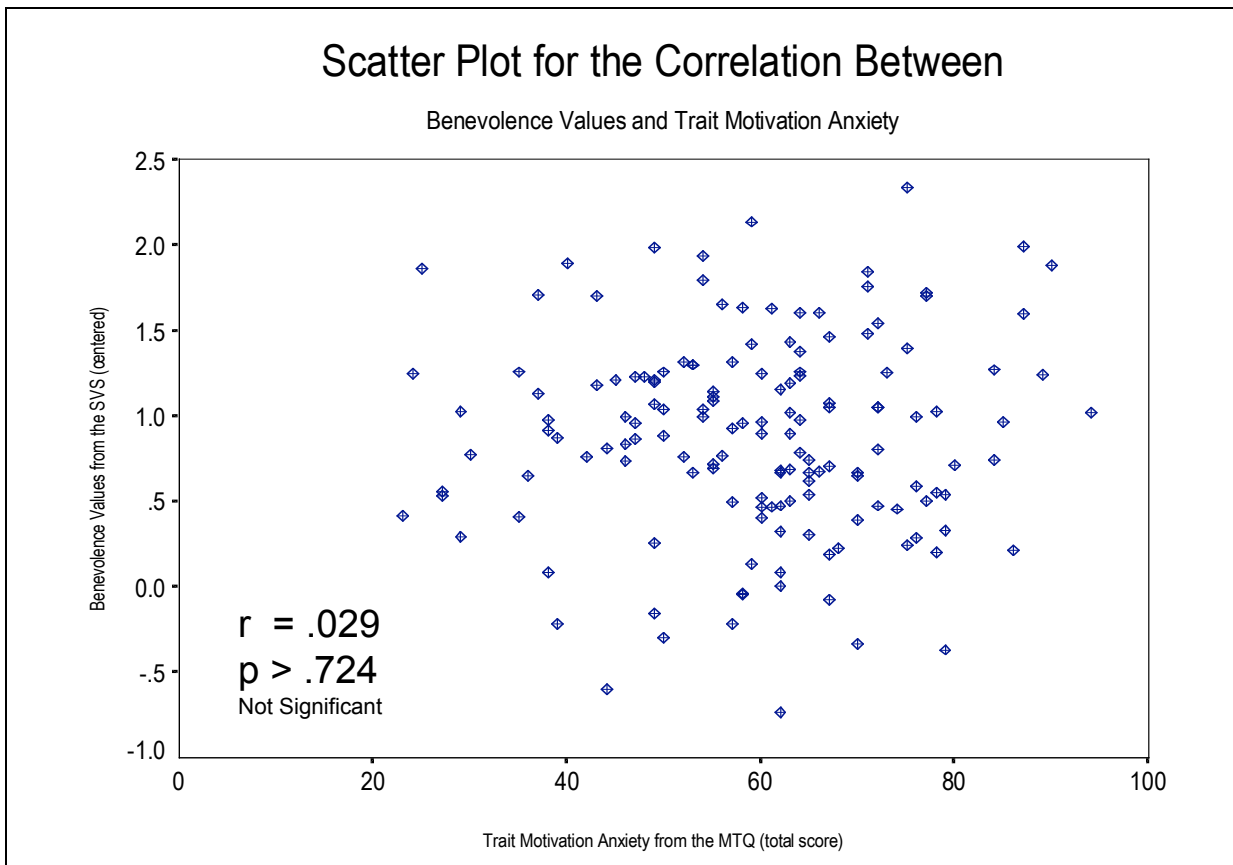
Figure 18:  Scatter Plot of Benevolence Values with Trait Motivation Anxiety

As shown in Figure 18, the correlation between trait Motivation Anxiety and the importance attributed to Benevolence values was not statistically significant. The magnitude of the correlation (r = .029) indicates virtually no relationship.

***Hypotheses H4-H6: Motivational Traits and Regulatory Focus***

H4:    Personal Mastery (trait) is positively associated with subjective history of success using a promotion regulatory focus, controlling for prevention regulatory focus.
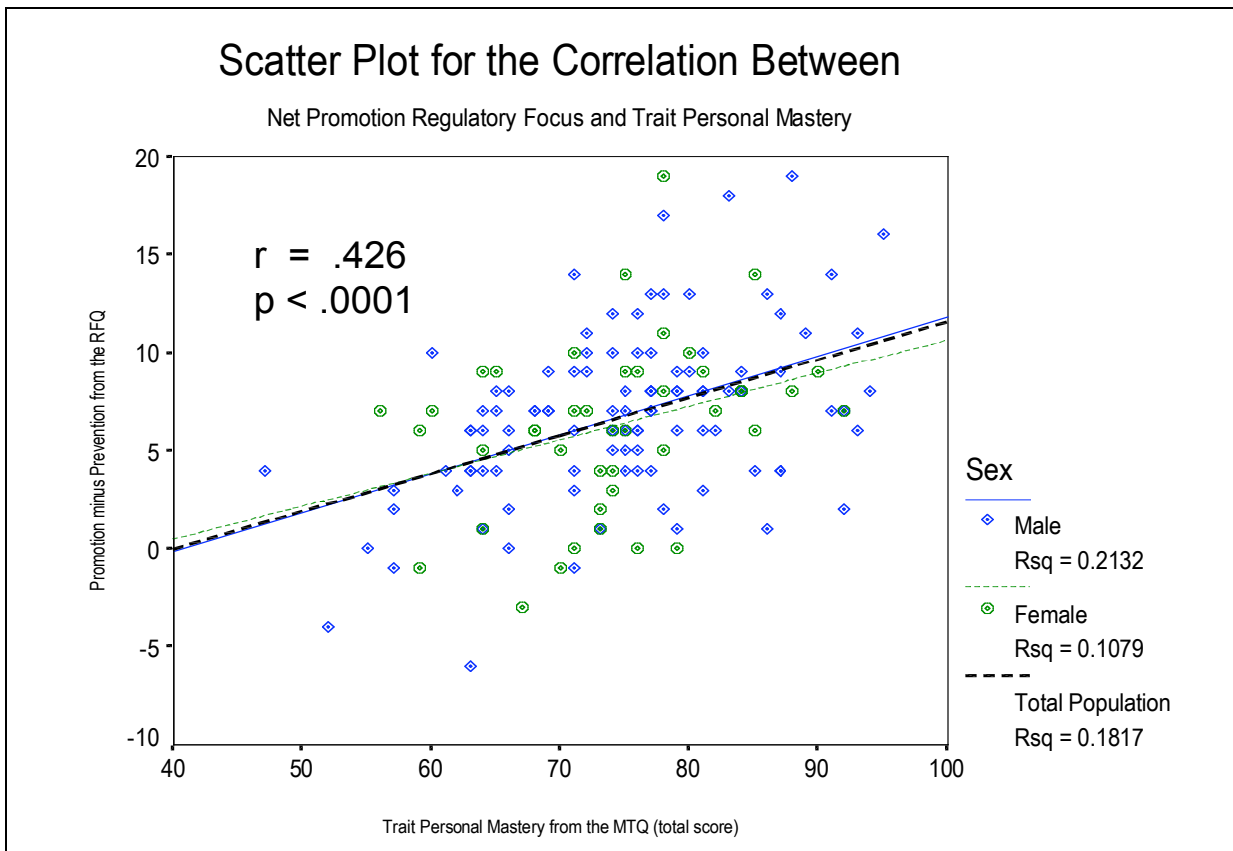


Figure 19:    Scatter Plot of RFQ Net Promotion with Trait Mastery

As shown in Figure 19, there is a moderate positive relationship between trait Personal Mastery and subjective history of success using eagerness rather than with caution. For males, the correlation was .461, and for females, .328. For the sexes combined, the correlation between Trait Personal Mastery and Net Promotion (RFQ promotion minus RFQ prevention) was .426, statistically significant at p< .0001. The correlation for RFQ total score was slightly higher, at .474.

H5:    Competition Seeking (trait *subscale* but not necessarily the other subscale of the Competitive Excellence trait) is positively associated with a subjective history of success using a promotion regulatory focus, controlling for prevention regulatory focus.



## Scatter Plot for the Correlation Between

Net Promotion Regulatory Focus and Competition Seeking

r = .142
p > .089
Not Significant

Promotion minus Prevention from the RFQ

Competition Seeking Subscale from the MTQ (total score)
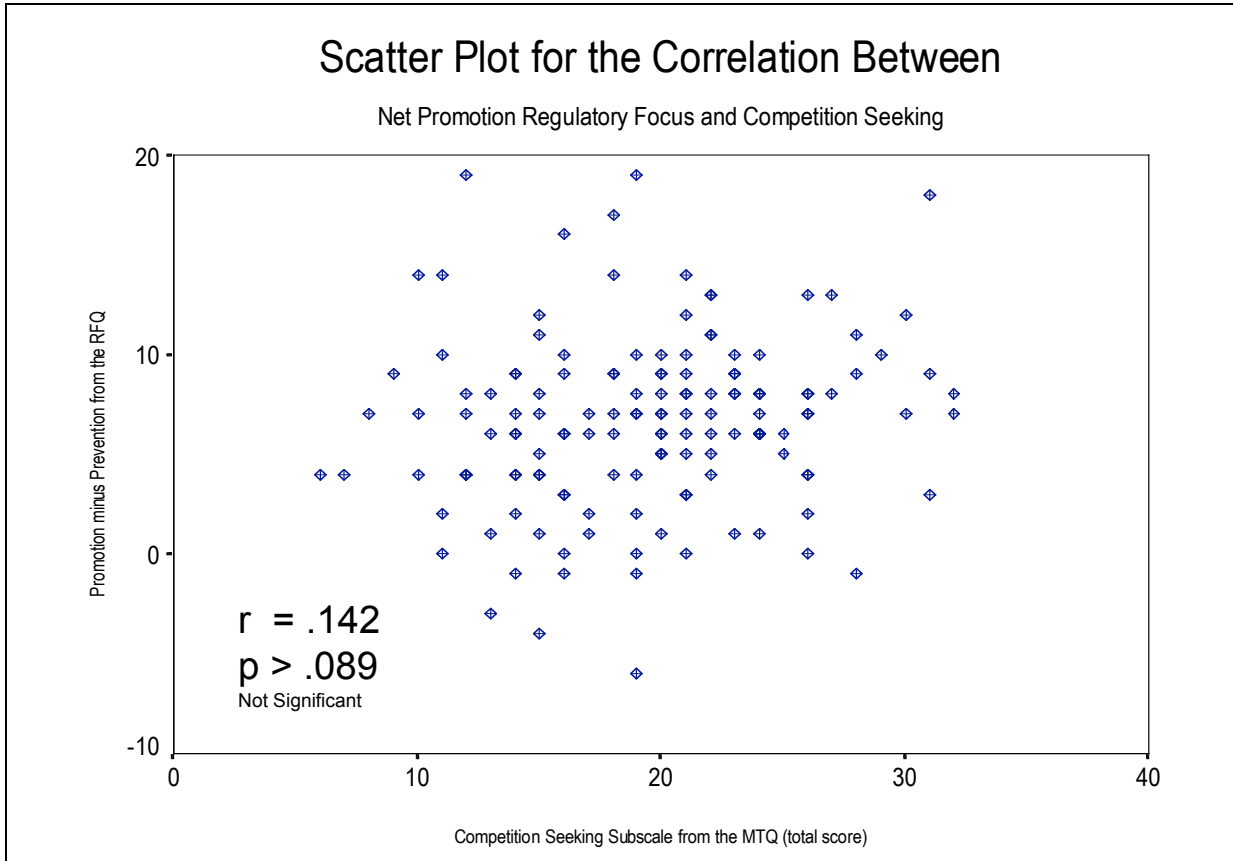
Figure 20:    Scatter Plot of RFQ Net Promotion with Competition Subscale

In H5, I predicted a positive relationship between Competition Seeking (subscale) and the tendency to approach tasks with enthusiasm rather than with caution. This correlation, though positive, did not reach statistical significance at the .05 level.[34]

---

[34] At p> .089, there is a one in eleven chance (1 / .089 = 11.24) that a positive correlation would not be found by chance in the population of all employees. A Type I error is the chance of finding a result when there is none. By convention, many researchers set the level of acceptable Type I error at .05. This error rate equates to a one in twenty chance of finding a relationship when in reality no relationship exists. So while the results I obtained do not rule out the possibility that there is a positive relationship as I predicted, neither are the results so strong (in a statistical sense) that I can claim that the relationship does exist.

H5 was the only one of the six hypotheses, for which my prediction is based on a subscale score rather than a trait score (which combines two subscales). Recall from Chapter 2 (see Figure 4 on page 22) that the Other Referenced Goals subscale of trait Competitive Excellence is not a pure approach or avoidance subscale; it confounds approach and avoidance tendencies.

H6:    Motivational Anxiety (trait) is negatively associated with a subjective history of success using a promotion regulatory focus, controlling for prevention regulatory focus.



## Scatter Plot for the Correlation Between
Net Promotion Regulatory Focus and Trait Motivation Anxiety

r = -.243
p < .003

Sex
◇ Male
Rsq = 0.0862
⊙ Female
Rsq = 0.0141
Total Population
Rsq = 0.0588

Promotion minus Prevention from the RFQ

Trait Motivation Anxiety from the MTQ (total score)
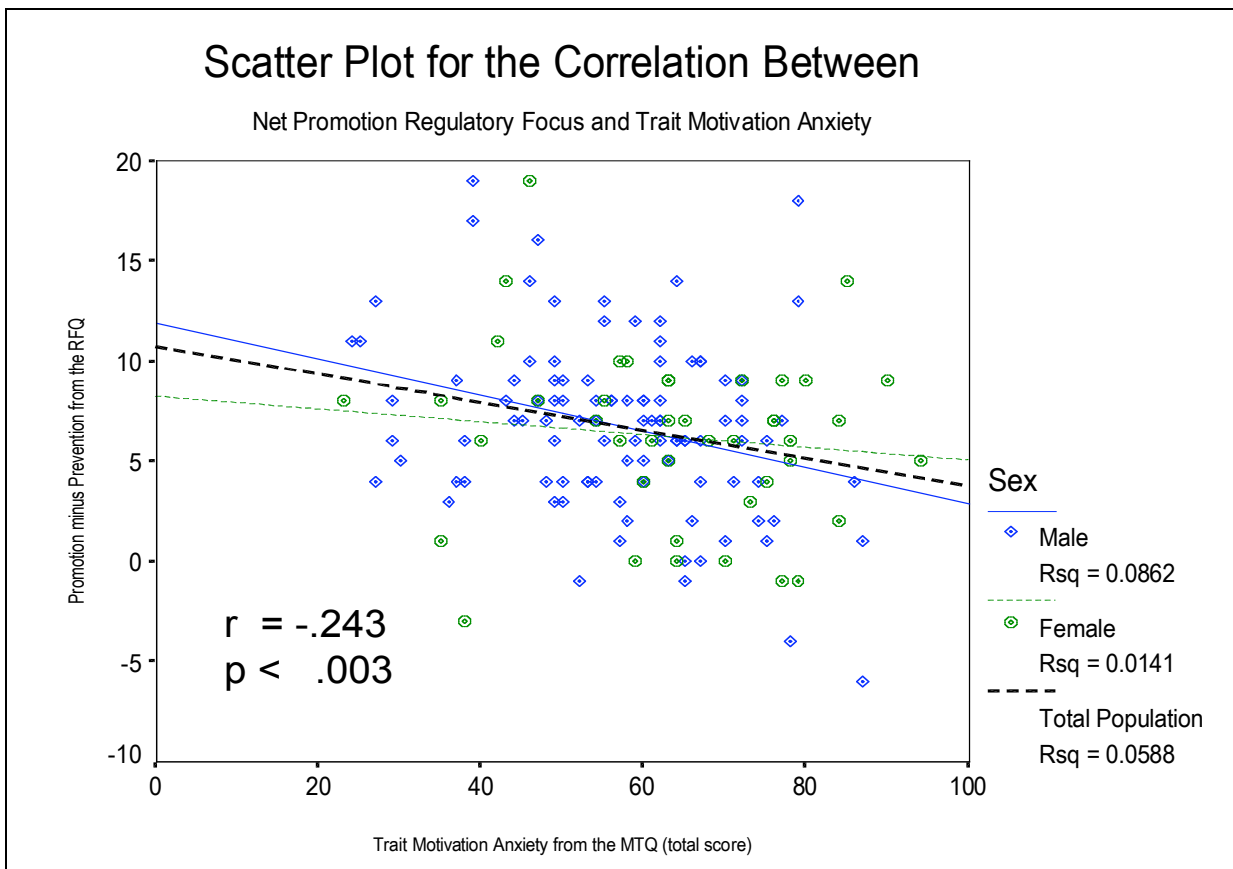
Figure 21:    Scatter Plot of RFQ Net Promotion with Trait Motivation Anxiety

94

In the final of my six hypotheses, I predicted and found a small negative relationship between the level of an individual's trait Motivation Anxiety and his or her tendency to approach tasks with eagerness rather than with caution. Stating this differently, I predicted that the higher an individual scores on trait Motivation Anxiety, the less likely that individual is to approach achievement tasks with enthusiasm. I found a stronger relationship for males (r = -.294) than for females (r = -.119). With the sexes combined, r = -.243 as shown in Figure 21.[35]

### *Summary of Correlations Among Study Variables*

Table 15 shows the correlations between centered value priorities and the three motivational traits and two types of regulatory focus. I have included the total promotion and prevention scale scores and promotion, *controlling for prevention* by two different methods.

Table 15:    Correlations Between Centered Values, Total Trait & Focus

| Personal Value Priority | Motivational trait Questionnaire | | | Regulatory Focus Questionnaire | | | |
|---|---|---|---|---|---|---|---|
| | Personal Mastery | Competitive Excellence | Motivation Anxiety | Total RFQ Promotion | Total RFQ Prevention | ***Controlled Promotion | Net RFQ Promotion |
| Universalism | .075 | -.121 | -.042 | .002 | -.094 | .083 | .078 |
| Benevolence | -.052 | -.212 | .016 | -.055 | .107 | -.131 | -.129 |
| Tradition | **-.228** | -.185 | **.285** | **-.238** | .163 | **-.304** | **-.313** |
| Conformity | -.044 | -.119 | .092 | -.069 | .133 | -.163 | -.160 |
| Security | **-.284** | .133 | .172 | -.120 | .103 | -.171 | -.174 |
| Power | -.134 | **.319*** | .178 | -.094 | .039 | -.098 | -.103 |
| Achievement | **.281** | .127 | -.157 | **.248*** | .038 | .135 | .157 |
| Hedonism | **-.217** | .148 | .087 | -.123 | -.191 | .083 | .062 |
| Stimulation | .213 | .199 | **-.249** | .067 | -.07 | .106 | .107 |
| Self-Direction | **.371*** | .001 | **-.386*** | .188 | **-.300*** | **.390*** | **.386*** |

Note: N=143; Correlations not significant at .05, two-tailed are shown in grey to make the significant correlations easier to see. Correlations significant at .05, two-tailed are shown in black or blue. Correlations significant at .01, two-tailed are shown in bold. The highest correlation for each pair of variables (significant at .01, two-tailed) is shown in dark blue and bold font with an asterisk.   ***The correlations for Controlled Promotion are with RFQ Promotion, controlled for RFQ Prevention. The correlations with RFQ Prevention controlling for RFQ Promotion are identical in magnitude, but reversed in sign. For example, the correlation between Self-Direction value priority and RFQ Prevention, controlling for RFQ Promotion is -.390.

---

[35] At p<.003, there is one chance in 333 that there is NOT a negative relationship between trait Motivation Anxiety and Net RFQ Promotion (RFQ Promotion minus RFQ Prevention).

Table 16:    Correlations Between Centered Values and MTQ Subscales

| Personal Value Priority | Desire to Learn | Mastery Goals | Competition Seeking | Other Referenced Goals | Worry | Emotionality |
|---|---|---|---|---|---|---|
| Universalism | .106 | .031 | -.136 | -.086 | -.014 | -.075 |
| Benevolence | -.052 | -.043 | -.153 | **-.229** | -.013 | .053 |
| Tradition | -.198 | **-.219** | -.157 | -.179 | **.243** | **.307** |
| Conformity | -.127 | .049 | -.106 | -.110 | .044 | .144 |
| Security | **-.326** | -.192 | .147 | .096 | .145 | .188 |
| Power | **-.220** | .023 | **.249\*** | **.328\*** | .199 | .128 |
| Achievement | .200 | **.315\*** | .147 | .086 | -.136 | -.168 |
| Hedonism | -.197 | .199 | .128 | .140 | .063 | .110 |
| Stimulation | **.282** | .105 | **.231** | .136 | **-.219** | **-.259** |
| Self-Direction | **.390\*** | **.286** | .019 | -.016 | **-.379\*** | **-.349\*** |

Note:  N=143; Correlations not significant at .05, two-tailed are shown in grey.  Correlations significant at .05, two-tailed are shown in black or blue.  Correlations significant at .01, two-tailed are shown in bold.  The highest correlation for each pair of variables (significant at .01, two-tailed) is shown in dark blue and bold font with an asterisk.

Table 16 shows the correlations between centered value priorities and the subscales that comprise the three motivational traits shown in Table 15.  Each motivational trait consists of two subscales; the first two from Personal Mastery, the middle two from Competitive Excellence, and the last two from Motivation Anxiety.  Table 17 shows these same subscales correlated with total and controlled promotion regulatory focus.

Table 17:    Correlations Between MTQ Subscales and Regulatory Focus

| | Total Score Promotion | Total Score Prevention | Controlled Promotion | Net Promotion |
|---|---|---|---|---|
| Trait Personal Mastery | **.474** | -.080 | **.394** | **.426** |
| Trait Competitive Excellence | .151 | .012 | .093 | .106 |
| Trait Motivation Anxiety | **-.342** | -.023 | **-.214** | **-.243** |
| | | | | |
| Desire to Learn | **.365** | -.068 | **.309** | **.333** |
| Mastery Goals | **.508\*** | -.079 | **.416\*** | **.451\*** |
| Competition Seeking | .165 | -.019 | .130 | .142 |
| Other Referenced Goals | .113 | .039 | .043 | .054 |
| Worry | **-.288** | -.020 | -.180 | -.204 |
| Emotionality | **-.373** | -.024 | **-.234** | **-.265** |

Note:  N=145; Correlations not significant at .05, two-tailed are shown in grey.  Correlations significant at .05, two-tailed are shown in black or blue.  Correlations significant at .01, two-tailed are shown in bold.  The highest correlation for each pair of variables (significant at .01, two-tailed) is shown in dark blue and bold font with an asterisk.

**Correlations:** Centered Values & Motivational Traits

SELF-DIRECTION

PERSONAL
ASPIRATION

Mastery (.44, p<.000)
Competitive (N/S)
Anxiety (-.37, p<.000)

Mastery (-.32, p<.000)
Competitive (N/S)
Anxiety (.29, p<.000)

STATUS QUO

TRADITION
SECURITY

ACHIEVEMENT

**Correlations:** Centered Values & Motivational Traits

FOCUS ON
OPPORTUNITY

FOCUS ON
SOCIAL CONTEXT
OUTCOMES

Mastery (.23, p<.004)
Competitive (N/S)
Anxiety (-.30, p<.000)

Mastery (N/S)
Competitive (-.19, p<.02)
Anxiety (N/S)

Mastery (N/S)
Competitive (.34, p<.000)
Anxiety (N/S)

Mastery (-.26, p<.001)
Competitive (N/S)
Anxiety (.26, p<.001)

FOCUS ON
INDIVIDUAL
OUTCOMES

FOCUS ON
STABILITY
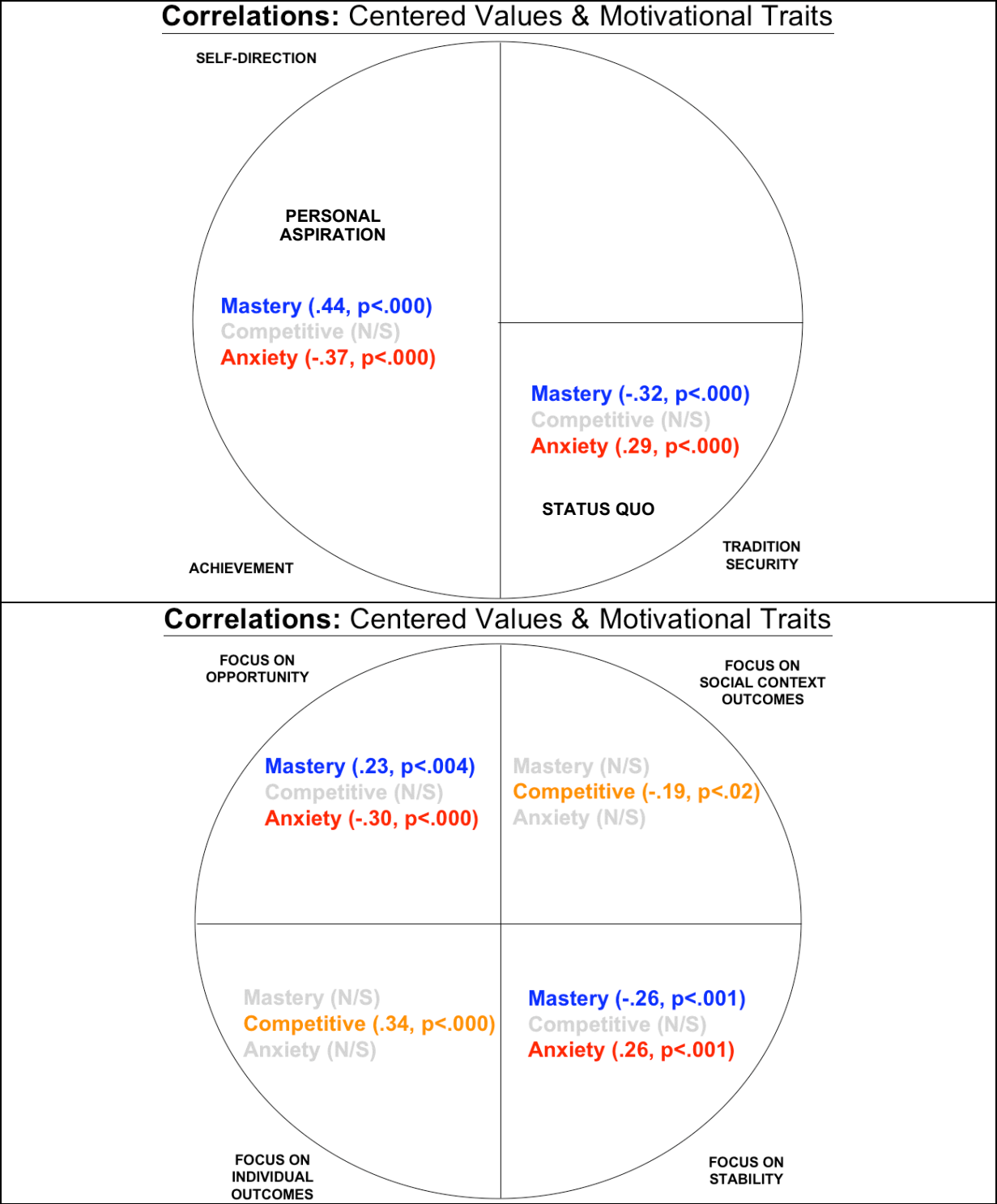
Figure 22:    Correlations from H1-H3: Centered Values and Motivational Traits

97

Figure 22 summarizes the correlations in H1, H2, and H3. Table 18 below summarizes the correlations between my derived value indices and RFQ Net Promotion (RFQ Promotion minus RFQ Prevention).

Table 18:    Correlations between RFQ Net Promotion and Centered Values

| Value Index | RFQ Net Promotion |
|---|---|
| Aspiration | **.380** |
| Status Quo | **-.333** |
| Social | .036 |
| Stability | **-.303** |
| Individual | .050 |
| Opportunity | **.254** |

Note: Missing data deleted list-wise, n=147. Correlations significant at p <.01 shown in bold.

In Table 19, I have summarized the statistically significant relationships among variables in my hypotheses. There is one chance in 297 that the correlations in Table 19 are attributable to chance[++].

Table 19:    Summary of Statistically Significant Relationships

| Planned Comparison** | Correlation | Probability* |
|---|---|---|
| Value Priority vs. Motivational Trait (n=150) | | |
| H1a: Personal Aspiration vs. Personal Mastery | .445 | 1.14 E-8 |
| H1b: Status Quo vs. Personal Mastery | -.322 | 5.94 E-5 |
| H2:  Individual vs. Competitive Excellence | .343 | 1.72 E-5 |
| Regulatory Focus vs. Motivational Trait (n=145) | | |
| H4:  Net Promotion vs. Personal Mastery | .426 | 8.99 E-8 |
| H6:  Net Promotion vs. Motivation Anxiety | -.243 | .0032886 |

**Note:  In my dissertation proposal, I did not specify correlations between Regulatory Focus and Value Priorities.

[++]Using the Dunn method of multiple comparisons (Bonferroni inequality), the maximum Type I error is .003365 across all 5 comparisons.

* Probability levels less than .001 are displayed in Table 19 using scientific notation. The notation is E-8 is interpreted "times $10^{-8}$. For example, H1b: Status Quo vs. Personal Mastery, 5.94 E-5, the probability level is 5.94 x $10^{-5}$, or .0000594.

**Structural Relations – Values, Motivational Traits & Regulatory Focus**

Having described the strength of relationships among personal value priorities, motivational traits, and regulatory focus, I now present the structure of relationships as revealed through multi-dimensional scaling solutions. Figure 23 shows the two-dimensional solution with the 10 Schwartz value indices, the 3 MTQ motivational traits, and the 2 RFQ subscales in a single "concept space." This MDS solution uses ALSCAL, with ordinal units of measure and z-score transformation of the input variables.
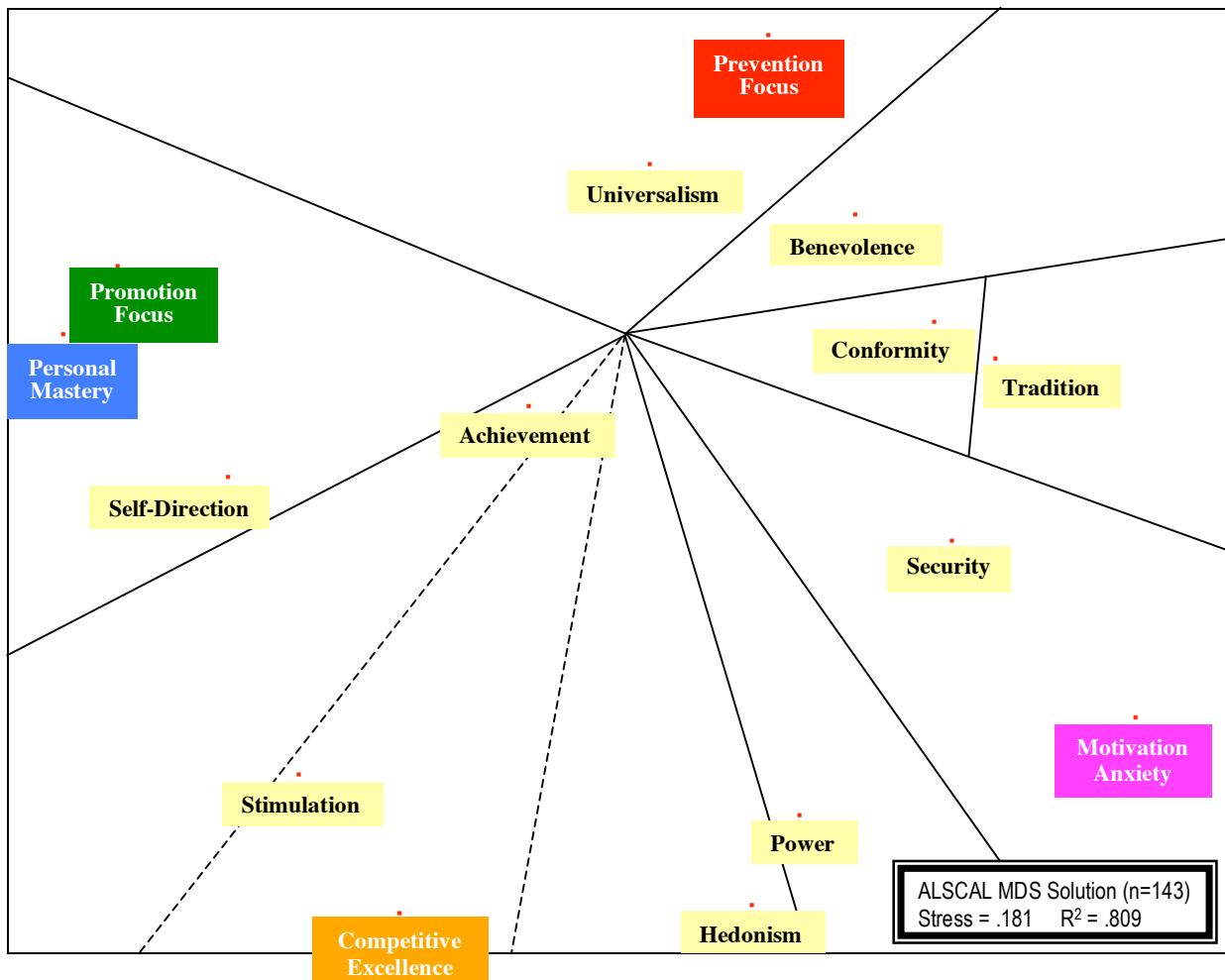


Figure 23:    ALSCAL Solution for Values, Traits, and Regulatory Focus

As shown in Figure 23, the relationship among values generally conforms to the Schwartz model. For example, in the Schwartz model (see Figure 10 on page 37), items from achievement, stimulation, and hedonism are intermixed. This fact is indicated in Figure 10 by the dashed rather than solid lines separating these regions. Similarly, I have shown the separation between achievement, stimulation, and hedonism with dashed lines.

Compare Figure 23 with Table 15 (page 95). Recall that the value priority with the strongest correlation to trait Personal Mastery is Self Direction (r= .371). Similarly, Self-Direction is also the value with the strongest correlation (r= .390) to promotion regulatory focus, controlling for prevention, and to net promotion (r= .386). Note that in Figure 23, both Personal Mastery and Promotion Focus are positioned in the same region as the Self-Direction value. Achievement had the second-highest positive correlation to the raw score promotion focus (r= .281) and is the second-closest value to promotion focus in Figure 23. Security had the highest negative correlation to trait Personal Mastery (r= -.284) and is far from Personal Mastery in Figure 23. Also note that Motivation Anxiety had the strongest negative correlation with Self-Direction (r= -.386). In the Schwartz model, the value most opposed to (opposite from) Self-Direction is Security. In Figure 23, Motivation Anxiety is in the region for Security. The Value with the second highest correlation with Motivation Anxiety is Tradition (r = .285). Note that Motivation Anxiety is relatively close to Tradition in Figure 23.

The relationships in Table 17 (Traits and Regulatory Focus, p. 96) are also reflected in Figure 23. The motivational trait with the highest positive correlation with promotion focus is Personal Mastery (r= .474). The motivational trait with the highest negative correlation with promotion focus is Motivation Anxiety (r= -.342). In Figure 23, promotion focus is adjacent to Personal Mastery and opposite from Motivation Anxiety. Competitive

Excellence has no statistically significant correlations with promotion or prevention focus; in Figure 23, Competitive Excellence is not particularly close to promotion or prevention focus.

### *Evaluating "Fit" of an MDS Solution*

Multi-dimensional scaling (MDS) solutions transform differences between input variables into distances between physical points in "concept space." All MDS solutions contain a level of distortion or discrepancy in the physical distances between the variable coordinates in the solution space and the calculated differences ("distances") among the input variables. The level of distortion is revealed in a quantity termed "stress." Higher levels of stress (the square root of a normalized "residual sum of squares.") indicate a greater level of distortion in the solution.

In addition to stress, MDS solutions typically also specify $R^2$, the squared correlation between the inter-item Euclidian distances and the disparities arising from the non-metric scaling transformation. Another way of envisioning the squared correlation is the percentage of the variance of the input data accounted for by the scaling solution. In Figure 24, I have plotted stress and $R^2$ for 1, 2, and 3-dimensional solutions. Though not very apparent in Figure 4, there is normally a leveling off, or flattening out of both the stress and R-squared curves. Stress should always decrease as the number of dimensions is increased (Kruskal & Wish, 1978, p. 51); however, when too many dimensions are used, "the configuration may be fitting the noise" (p. 77).

In Figure 24, there is a slight bend or "elbow" in the stress line at 2 dimensions. This elbow is one indication that a two-dimensional solution is appropriate for the MDS solution. Dimensions in MDS are similar to dimensions in factor analysis; in MDS, dimensionality "is frequently thought of as being the minimum number of orthogonal coordinate axes necessary

to accommodate the order relations present among the input variables by means of their inter-point distances in Euclidean space" (Koch, 1983, p. 3).



**Fit Indices of MDS Solution for Values, Trait Subscales, and Regulatory Focus Combined**

*Uncentered Values, Total Scores for Traits & Regulatory Focus, Ordinal Model (ties untied), with z-transformation of the input data*

Squared Correlation $R^2$ values: 0.66095, 0.80853, 0.94435

Stress (Young's Formula 1) values: 0.32832, 0.18099, 0.07909

Note: Only 3 dimensions are shown because the MDS solution for 4 dimensions is not reliable. The number of parameters being estimated (# of stimulus coordinates) is large relative to the number of data values in the data matrix.

Dimensions of MDS Solution

Figure 24:    Stress and Squared Correlation for 1 to 3 Dimensional Solutions

Another measure of (lack of) fit besides stress is "coefficient of alienation," supplied by computer routines based on Guttman & Lingoes smallest space analysis (SSA or MINISSA). The coefficient of alienation (K) has both an upper and lower bound, whereas stress has only a lower bound. The coefficient of alienation and R-squared are related by the equation $K^2 + R^2 = 1$. While Guttman insisted "no coefficient has anything to do with choosing dimensionality," he also suggested a "rule of thumb that K should be .15 or less" (Guttman, 1982).   Using the formula $K^2 + R^2 = 1$, a K value of .15 corresponds to an $R^2$ value of .978. Note that the $R^2$ in my ALSCAL solution is only .809, considerably lower

(worse) than Guttman's rule of thumb. Fortunately, even though the stress value is higher than ideal, in general, MDS *configurations* are robust, "which permits the configuration to be discovered even in the presence of substantial random error. This general robustness is one important reason for the practical success of MDS. It is also a reason why so many different methods of calculation can work successfully" (Kruskal & Wish, 1978, p. 78).

I obtained a solution using SSA to compare with my ALSCAL solution shown in Figure 23. The SSA solution uses 18 data points rather than the 15 points in Figure 23; instead of using the three motivational traits, I used the six motivational trait subscales in the SSA solution to show the location of the trait subscales. Note, as expected, the two subscale scores for each trait are close together in the MDS solution. The SSA solution coordinates for each of the 18 variables are shown below in Table 20.

Table 20:    SSA Coordinates for Values, Motivational Traits, and Regulatory Focus

| Coefficient of Alienation .............. .20299 | | | | |
| --- | --- | --- | --- | --- |
| Serial Number | Item coeff. of Alienation | Plotted Coordinates 1 | 2 | Item |
| 1 | .29495 | 52.30 | 61.92 | Universalism |
| 2 | .17006 | 31.11 | 62.51 | Benevolence |
| 3 | .10115 | 17.32 | 54.38 | Tradition |
| 4 | .14179 | 23.88 | 54.12 | Conformity |
| 5 | .08451 | 19.21 | 43.72 | Security |
| 6 | .16173 | 28.67 | 19.97 | Power |
| 7 | .24434 | 53.17 | 42.12 | Achievement |
| 8 | .21984 | 31.46 | 11.13 | Hedonism |
| 9 | .25724 | 74.43 | 19.46 | Stimulation |
| 10 | .21763 | 79.87 | 48.77 | Self-Direction |
| 11 | .23698 | 96.47 | 43.81 | RFQ Promotion |
| 12 | .31139 | 38.61 | 86.17 | RFQ Prevention |
| 13 | .07626 | 100.00 | 48.52 | Desire to Learn |
| 14 | .16751 | 96.72 | 34.39 | Mastery Goals |
| 15 | .26895 | 51.93 | .00 | Competition Seeking |
| 16 | .18525 | 63.78 | .66 | Other Referenced Goals |
| 17 | .16455 | 3.46 | 19.68 | Worry |
| 18 | .09399 | .00 | 29.19 | Emotionality |

Figure 25 below shows the SSA output for these 18 sets of coordinates. I have added a legend showing the names of the variables associated with each plotted number.
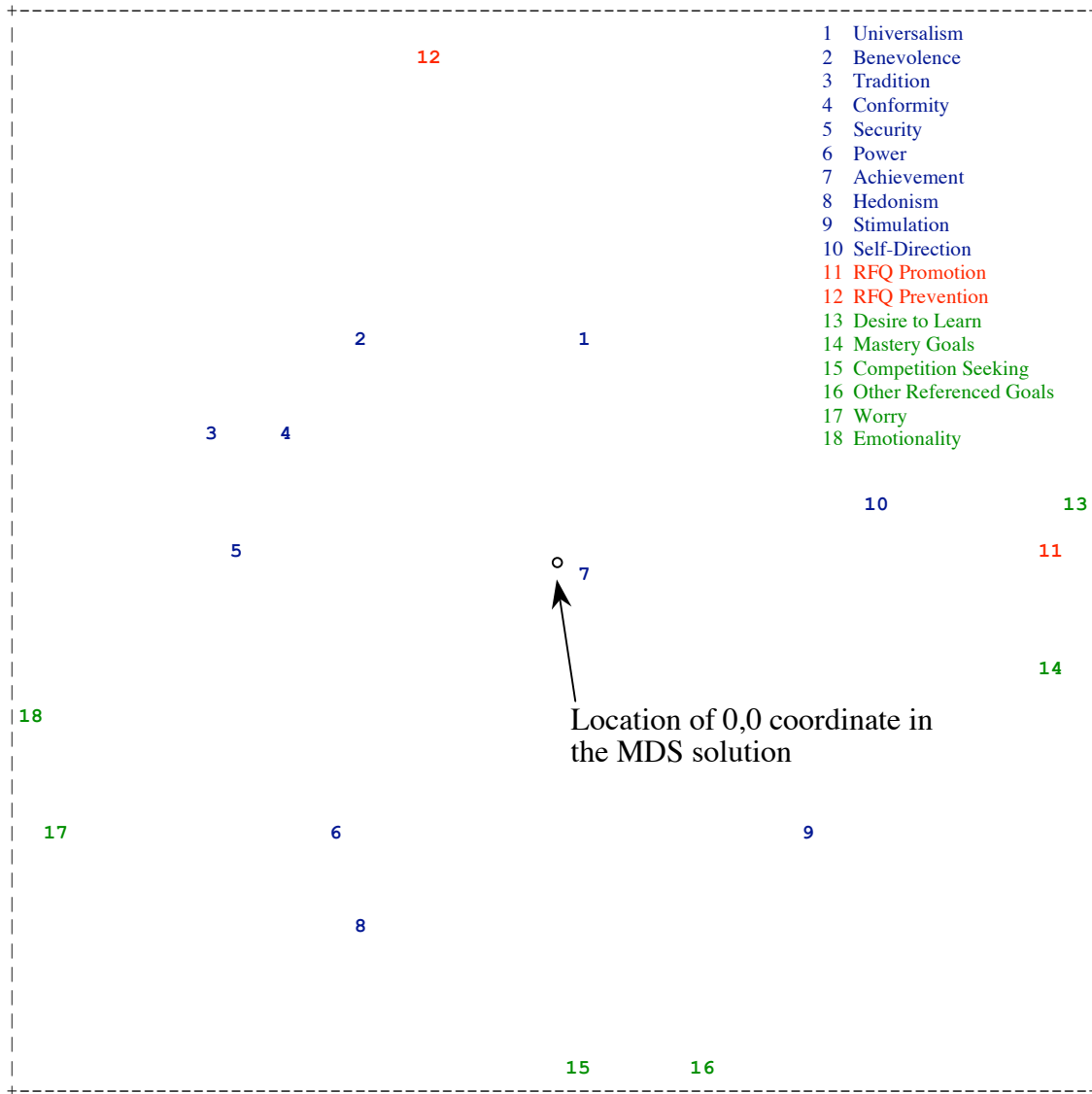


Figure 25:    SSA Solution for Values, Trait Subscales, and Regulatory Focus

In Figure 26 on the next page, I have "flipped" the SSA solution so that the left and right edges are reversed. In the *mirror image*, the value items are arranged (as much as possible) to be consistent with the theoretical configuration of the values in Figure 10.
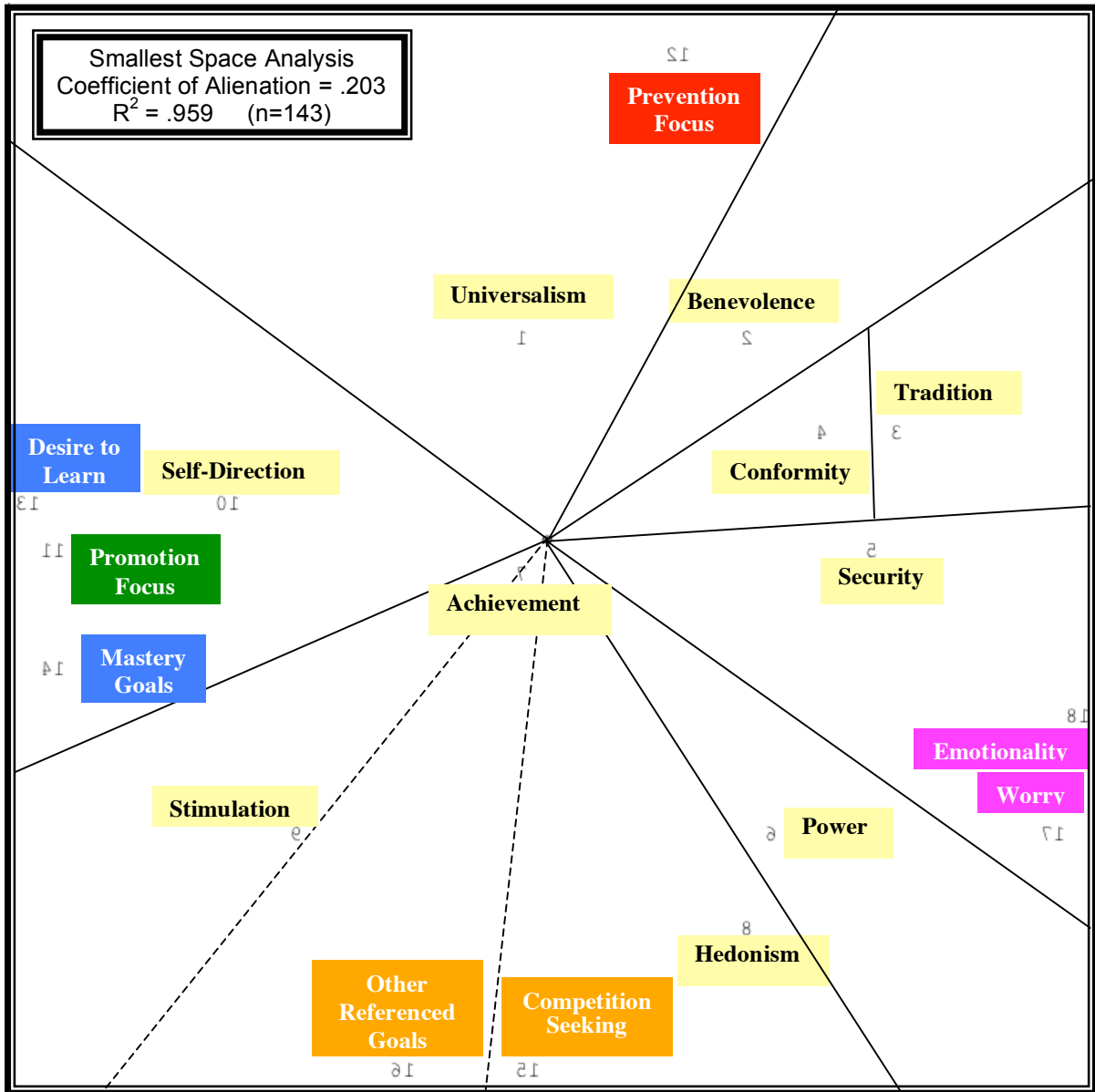
Figure 26: SSA Solution for all 3 Constructs (mirror image)

In Figure 26, I have avoided obscuring the numbers from the SSA solution shown in Figure 25. Other than having two points for each motivational trait (representing the two subscales per trait from the MTQ), the SSA configuration is remarkably similar to the ALSCAL solution in Figure 23. One notable exception is the arrangement of achievement

and stimulation values; in Figure 23, achievement is between self-direction and stimulation, whereas in Figure 26, achievement is between stimulation and hedonism. In the Schwartz theoretical model (Figure 10), the dashed lines between self-direction and power reflect the fact that in some data samples, the value items that comprise the indexes for stimulation, hedonism, and achievement are intermixed. In summary, the arrangement of the ten indexed values are nearly identically placed in the ALSCAL and SSA solutions, and in both cases, very closely reflect the theoretical arrangement predicted by the Schwartz value model. Despite different MDS algorithms and subsequent fit ($R^2$), the relative consistency of item placement across the two MDS solutions supports the claim by Kruskal and Wish (1978) that the spatial configuration resulting from MDS solutions is indeed, comparatively robust.

### *Summarizing the Structure of Construct Relations*

Recall that the Schwartz value theory is based upon two orthogonal sets of motivational conflicts: individual versus social interests, and opportunity versus status quo or stability concerns. Based on the MDS solutions shown in Figure 23 and Figure 26, it appears that MTQ Personal Mastery and Motivational Anxiety are aligned roughly along the openness / stability axis of the Schwartz model, and MTQ Competitive Excellence and Prevention Focus are aligned along the individual / social axis.

To make these claims, however, it is important that the measures I have used to assess value priorities, motivational traits, and the propensity to approach situations with eagerness or with caution are reliable. In the remaining sections of this chapter, I present my analyses of the measurement properties of the Schwartz Value Survey (SVS-57), the Motivational Trait Questionnaire (MTQ Short Form) and the Regulatory Focus Questionnaire (RFQ) with my sample of 160 working adults.

106

SECTION 3: FIT OF SCHWARTZ MODEL WITH STUDY SAMPLE

In this third section, I present my analysis of the fit of my data to the Schwartz Value Model. As previously discussed, the model specifies a set of compatible and conflicting value types recognizable across cultures. How well do the data in my dissertation fit the model?

To answer this question, I present the same analysis, with my study data, as has been used to derive the Schwartz value model; SSA plots of all value items in a single concept space. In Section 2, I presented the SSA coordinates for each value index, an SSA plot with numbered items, and finally an SSA plot that had been "flipped" horizontally (mirror image) so that the value indexes conformed to the same configuration as shown in Figure 10, the Schwartz value model. In Section 3, I follow the same approach.

Table 21 shows the horizontal and vertical coordinates for each of the 57 SVS value items. [36] Figure 27 shows the physical location of the items, according to these calculated coordinates. In Figure 27, I have also included lines separating the regions. The original SSA configuration is *backward and upside down* from Figure 10, but generally conforms well to the theoretical relationship among the value items. Figure 28 shows the same configuration, but rotated and flipped (mirror image) to be consistent with Figure 10, and the individual value items labeled. The labels (value names) are, as nearly as possible, directly centered over the numbers from Figure 27. Figure 27 and 28 conform closely to the Schwartz model (Figure 10) except that the regions for Tradition and Conformity value items are not distinct. In other words, the coordinate locations of the items that comprise Tradition and Conformity are intermixed.

---

[36] Shalom Schwartz graciously supplied me with SSA output for Table 21 and Figure 27. Both were created using SSA software from the Hebrew University of Jerusalem.

## Calculated Coordinate Locations for the 57 SVS Value Items

Table 21:    SSA Item Coordinates for 57 SVS Items

```
Coefficient of Alienation ..............  .32316

Serial      Item coeff. of    Plotted Coordinates
Number      Alienation          1        2        SVS VALUE ITEM
```

| Serial Number | Item coeff. of Alienation | Plotted Coordinates 1 | Plotted Coordinates 2 | SVS VALUE ITEM |
|---|---|---|---|---|
| 1 | .31862 | 47.71 | .00 | EQUALITY |
| 2 | .30873 | 48.30 | 26.39 | INNER HARMONY |
| 3 | .27815 | 37.39 | 91.95 | SOCIAL POWER |
| 4 | .33181 | 66.82 | 71.57 | PLEASURE |
| 5 | .31209 | 70.37 | 17.55 | FREEDOM |
| 6 | .21494 | 17.43 | 14.34 | A SPIRITUAL LIFE |
| 7 | .35750 | 32.87 | 37.03 | SENSE OF BELONGING |
| 8 | .35122 | 54.28 | 62.41 | SOCIAL ORDER |
| 9 | .28297 | 87.30 | 62.77 | AN EXCITING LIFE |
| 10 | .43639 | 5.55 | 26.82 | MEANING IN LIFE |
| 11 | .30996 | 21.56 | 40.84 | POLITENESS |
| 12 | .18228 | 49.51 | 100.00 | WEALTH |
| 13 | .35994 | 18.36 | 51.95 | NATIONAL SECURITY |
| 14 | .31303 | 55.94 | 32.27 | SELF RESPECT |
| 15 | .36380 | 20.23 | 85.80 | RECIPROCATION OF FAVORS |
| 16 | .31865 | 80.45 | 21.81 | CREATIVITY |
| 17 | .33289 | 36.90 | 17.37 | A WORLD AT PEACE |
| 18 | .27786 | 21.22 | 45.91 | RESPECT FOR TRADITION |
| 19 | .32102 | 32.26 | 22.65 | MATURE LOVE |
| 20 | .31416 | 21.59 | 27.04 | SELF-DISCIPLINE |
| 21 | .43829 | 64.72 | 50.93 | PRIVACY |
| 22 | .38122 | 18.83 | 59.97 | FAMILY SECURITY |
| 23 | .33873 | 41.50 | 65.77 | SOCIAL RECOGNITION |
| 24 | .40213 | 56.24 | 27.30 | UNITY WITH NATURE |
| 25 | .28412 | 85.47 | 24.20 | A VARIED LIFE |
| 26 | .36481 | 54.74 | 13.86 | WISDOM |
| 27 | .32305 | 15.53 | 76.97 | AUTHORITY |
| 28 | .31120 | 34.09 | 17.39 | TRUE FRIENDSHIP |
| 29 | .27997 | 59.22 | 12.98 | A WORLD OF BEAUTY |
| 30 | .34146 | 48.49 | 11.48 | SOCIAL JUSTICE |
| 31 | .29789 | 81.74 | 66.82 | INDEPENDENT |
| 32 | .39875 | 3.90 | 50.82 | MODERATE |
| 33 | .32913 | 40.49 | 32.69 | LOYAL |
| 34 | .31545 | 51.83 | 82.44 | AMBITIOUS |
| 35 | .29307 | 87.25 | 29.27 | BROADMINDED |
| 36 | .33221 | 22.18 | 21.43 | HUMBLE |
| 37 | .26587 | 92.60 | 57.07 | DARING |
| 38 | .27477 | 56.90 | 5.61 | PROTECTING THE ENVIRONMENT |
| 39 | .40835 | 37.26 | 55.80 | INFLUENTIAL |
| 40 | .24994 | 12.67 | 36.15 | HONORING OF PARENTS AND ELDERS |
| 41 | .28982 | 76.16 | 39.18 | CHOOSING OWN GOALS |
| 42 | .36847 | 26.05 | 64.53 | HEALTHY |
| 43 | .37495 | 38.39 | 44.85 | CAPABLE |
| 44 | .34306 | 8.85 | 41.91 | ACCEPTING MY PORTION IN LIFE |
| 45 | .28386 | 18.24 | 10.83 | HONEST |
| 46 | .27635 | 32.83 | 71.51 | PRESERVING MY PUBLIC IMAGE |
| 47 | .31698 | 11.64 | 51.31 | OBEDIENT |
| 48 | .32747 | 64.68 | 23.56 | INTELLIGENT |
| 49 | .35340 | 28.04 | 31.21 | HELPFUL |
| 50 | .39506 | 72.38 | 65.75 | ENJOYING LIFE |
| 51 | .21307 | 4.73 | 32.18 | DEVOUT |
| 52 | .31281 | 26.44 | 24.31 | RESPONSIBLE |
| 53 | .20634 | 96.01 | 23.96 | CURIOUS |
| 54 | .25527 | 9.03 | 16.33 | FORGIVING |
| 55 | .34262 | 41.07 | 74.29 | SUCCESSFUL |
| 56 | .25823 | 4.79 | 56.29 | CLEAN |
| 57 | .29874 | 61.09 | 84.62 | SELF-INDULGENT |

108

**Original Plotted SSA Solution for the 57 SVS Value Items**
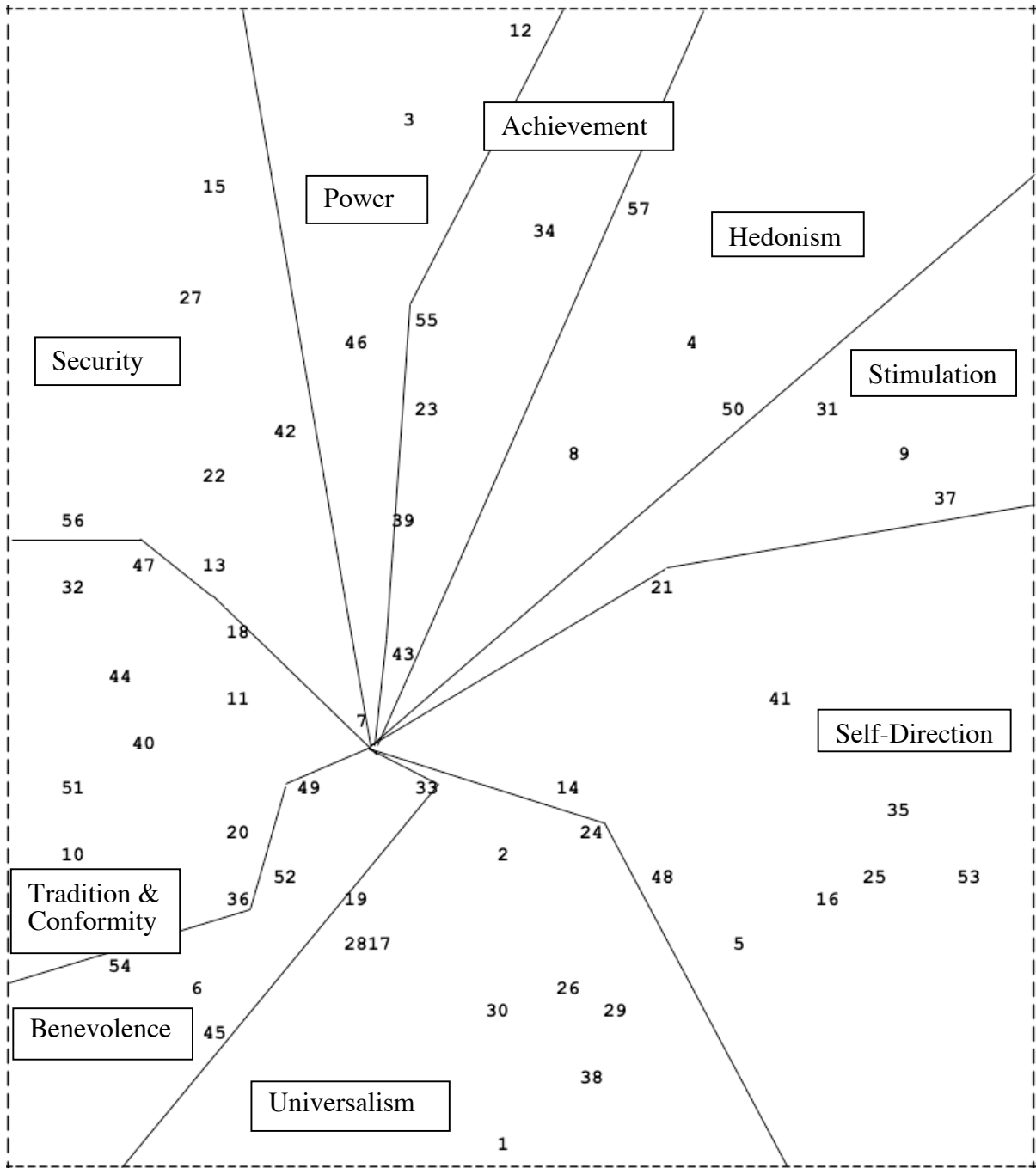


Figure 27:    Original SSA Solution for 57 SVS Value Items

**SSA Solution for 57 SVS Items (Rotated for Consistency with Figure 10)**
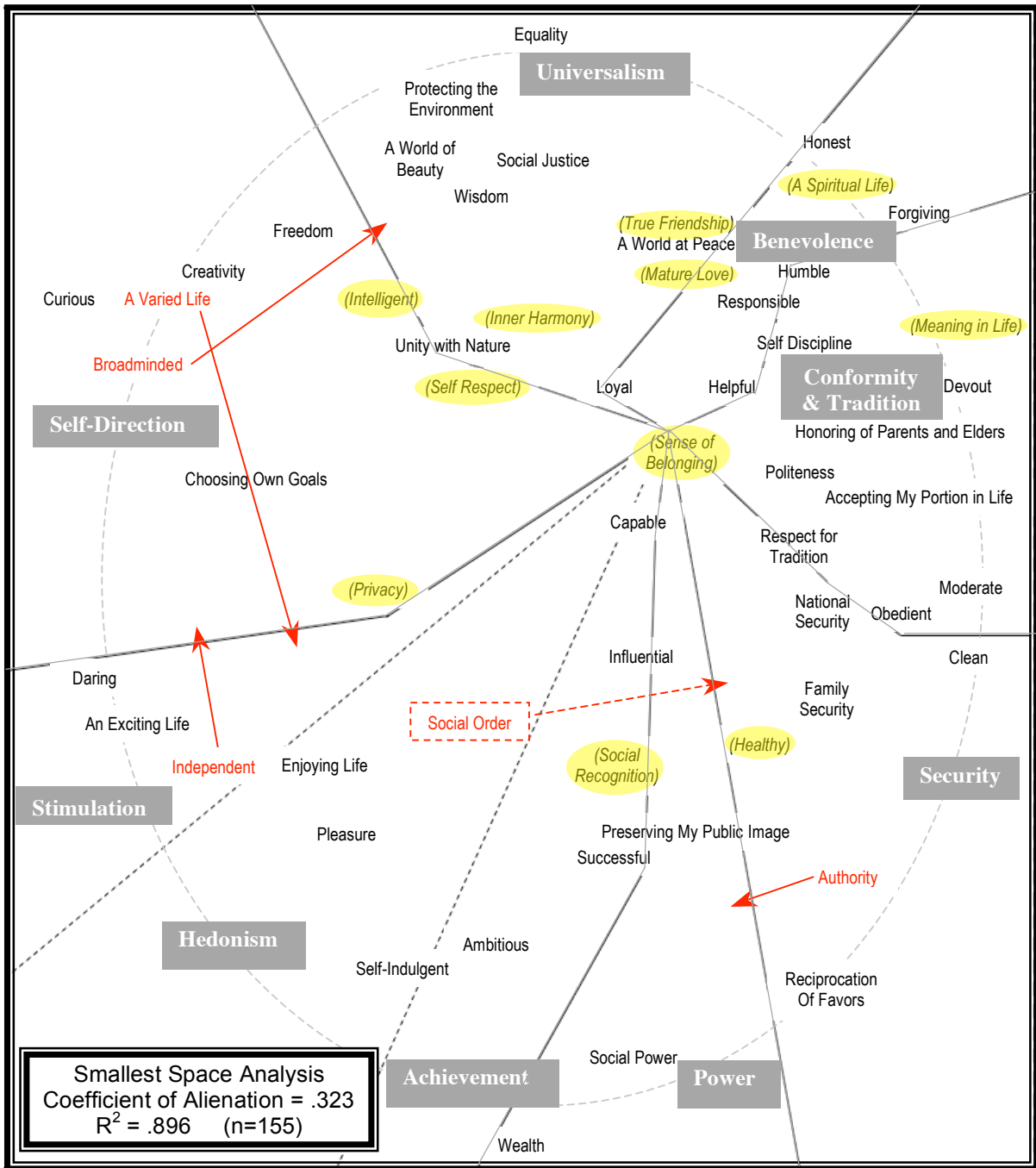


Figure 28: Rotated, Flipped, and Labeled SSA Solution for 57 SVS Value Items

Figure 28 shows each of the 57 value items in a single multi-dimensional space. Partition lines separate the regions containing conceptually similar value items. According to Schwartz, "it should be possible to connect the points of all the items in a region with one another without crossing the connecting lines with those of another region. The partitions can take any shape, but they should not violate this rule."[37]

Items included in the indices for a value, yet <u>not</u> appearing in that value's marked region, are shown with an arrow indicating their "correct" placement according to the Schwartz theory. There are 11 items (of the 57) whose meaning across cultures varies, and these items are shown with parentheses, italics, and light shading. Item 36 ("Humble") is borderline in its positioning, as indicated by the zigzag line separating Benevolence values from those in the combined Conformity and Tradition region. In my sample, Conformity and Tradition are not distinguishable as separate regions, as specified in the theory. Compare Figure 28 with Figure 10 on page 37, in which Tradition is in the same polar facet as Conformity, but towards the outside. Recall that Tradition and Conformity share the same motivational goal of "subordination of self in favor of socially imposed expectations" (see Figure 13 on page 45).

To evaluate the "fit" of my data to the Schwartz model, refer to Table 2 on page 35. In Figure 28, <u>Power</u> contains 3 of the 4 expected items (*Authority* is adjacent). <u>Achievement</u> contains all 4 expected items and <u>Hedonism</u> contains the expected 3 items. <u>Stimulation</u> contains 2 of the expected 3 (*A varied life* is adjacent). <u>Self-Direction</u> contains 4 of the expected 5 items (*Independent* is adjacent). <u>Universalism</u> contains 7 of the expected 8 items (*Broadminded* is adjacent). <u>Benevolence</u> contains all 5 of the expected items. As I mentioned previously, in my sample, <u>Conformity</u> and <u>Tradition</u> are not distinguishable as

---

[37] From an email I received from Shalom Schwartz, June 30, 2006. This rule is discussed in "Geometric representations of relational data" by J.C. Lingoes, 1977. Ann Arbor, MI. Mathesis.

separate regions.  As a pair, all 9 items are in the joint region; none are missing.  <u>Security</u> contains 4 of the 5 expected value items (*social order* is <u>two regions away</u> in Hedonism.)

In summary, the Schwartz Value Model specifies 46 of the 57 value items as comprising the 10 distinct broad value types.  In my sample, 41 of the 46 (89%) were in the expected value region.  Forty-five of the 46 were in the expected region, or in the adjacent region (98%).  Only one item (social order) was separated from its expected region by more than one "move."  Note that the theory was derived from examination of multi-dimensional scaling plots (using SSA – Smallest Space Analysis) in hundreds of separate samples.  Individual samples depart from the theory in minor ways, as did mine.  These variations are very minor and constitute "sampling error."[38]

Note also in Figure 28 that the coefficient of alienation (a measure of fit) is high, indicating a large amount of "stress" or "distortion" in the solution.  According to Schwartz,

> Considering you had only 155 respondents and that the coefficient of alienation is quite high, this is a surprisingly good structure. With 57 items, I usually get a coef of alien around .25. This one is .32. What this means is that the representation of relations among the 57 items in 2 dimensions results in considerable distortion. I ran a 3 dimensional solution as well and found essentially the same picture in dimensions 1x2. The fact that the structure is so good with a high coef of alien means that the basic motivational meanings of the items have a strong enough impact to show up even in the face of a lot of noise.[39]

---

[38] It is possible to derive a statistical measure of fit using the "configural verification" approach discussed in Davison, 1983.  This approach compares the actual configuration of regions (containing the discrete value items) to the theoretical configuration of regions as shown in my Figure 10 on page 37.  Rather than move an individual item, as I have done, the Davison method moves the entire region. According to Footnote 12 of Schwartz (1992), there are 181,440 different arrangements of the ten value types.  An arrangement requiring 7 or fewer moves to attain the theoretical arrangement differs significantly from a random arrangement at p<.05. If fewer than 5 moves are required, the difference is significant at p<.01.  In my Figure 27, splitting Tradition and Conformity represents only *half of one move*.  In my solution, there were 5 errors of item placement, 8 distinct regions, 10 that were distinct and adjacent.  Higher order regions and oppositions were all present. Schwartz included this summary for me when supplying the SSA output.

[39] Source: Email from Shalom Schwartz, June 29, 2006.  Note that when K=.323, $R^2$ = .896.

As I have mentioned, the Schwartz theory was developed using Smallest Space Analysis. With the exception of two plots graciously supplied to me by Shalom Schwartz, I created all of the MDS plots in this dissertation using ALSCAL. Figure 29 is based on the calculated indices for the 10 broad value types.

**SVS Centered Value Indexes Scaled 0-1 (Ratio Model)**
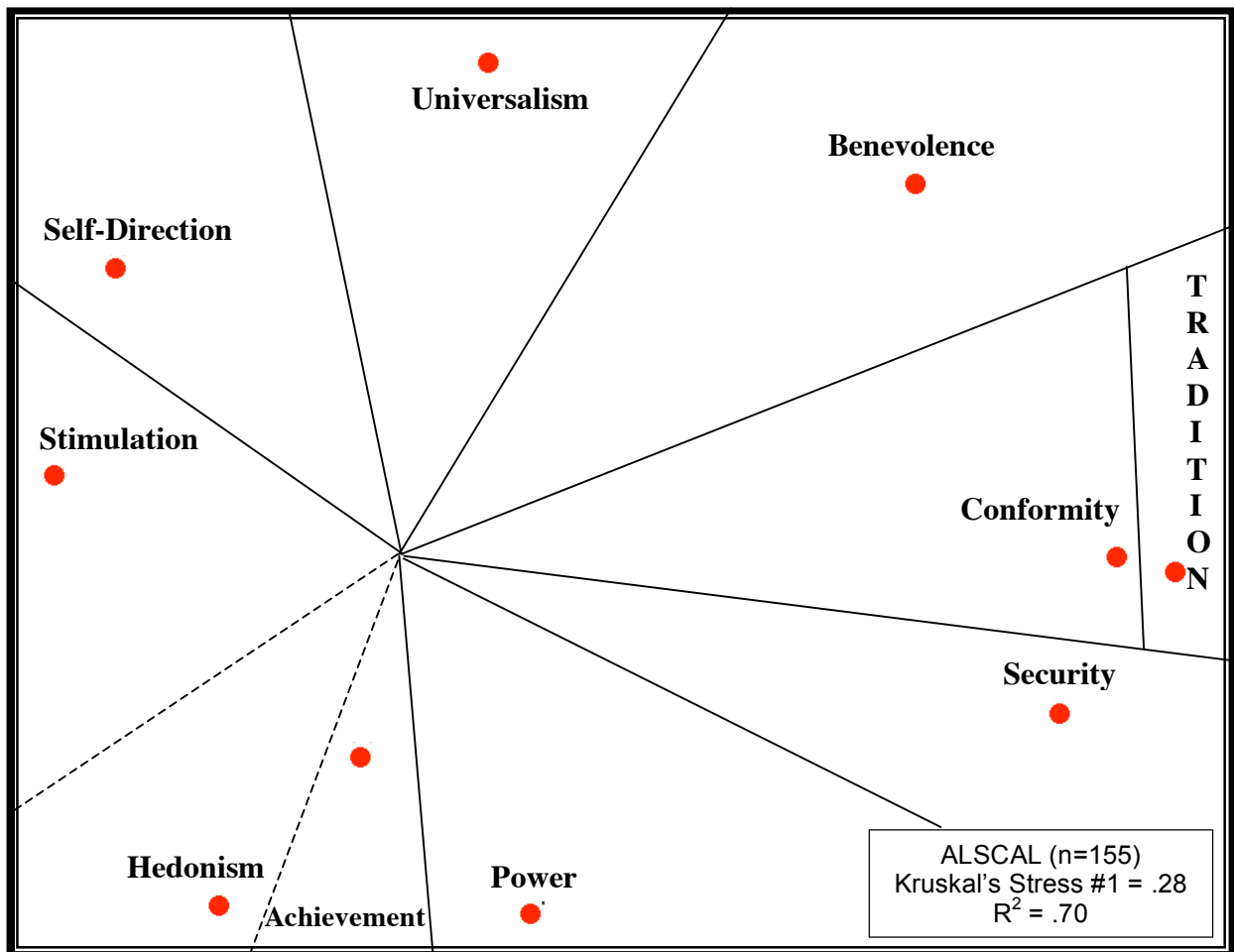


Figure 29: MDS Solution for SVS Value Indices (ALSCAL)

Compare Figure 29 above with the Schwartz model (see Figure 10). The structural arrangement in my sample matches the arrangement specified in the theoretical model.

Using the calculated indices (as specified by Schwartz and listed in my prior Table 2), power and achievement are adjacent as in the theoretical model.  Security, conformity, tradition, and benevolence are also spatially arranged as is specified in the theory.  Based on Figure 28 (SSA) and Figure 29 (ALSCAL), it appears that the model fits my sample very well.

In Figure 30 below, note the bend ("elbow") in the lower dashed line indicating stress.  The improvement in stress from 2 to 3 dimensions is not as great as the improvement in stress from 1 to 2 dimensions.  This "leveling off" of the improvement in stress and R-squared correlation is evidence that a two-dimensional solution is sufficient.  As I have previously discussed, the configuration of MDS solutions is generally robust, even with high levels of distortion or stress.
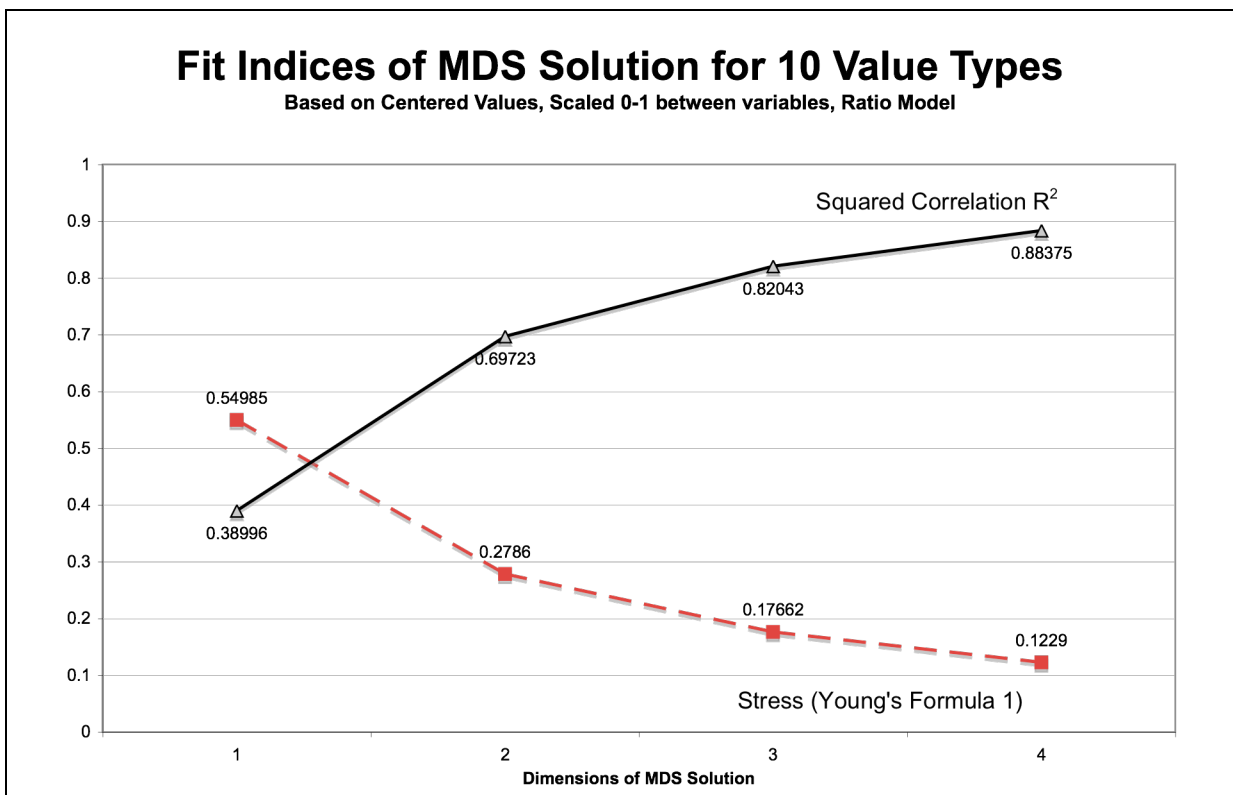


Figure 30:    MDS Fit Indices for 1 to 4 Dimensional Solutions to Value Types

**Internal Reliabilities of the Value Indices**

In addition to using MDS to evaluate the measurement performance of the SVS with my sample, I calculated the coefficient alpha (internal reliability) for each of the ten scales. Table 22 below compares the internal reliability and the "pan-cultural" value importance cited by Schwartz with those derived from my data (n=155). The internal reliabilities cited by Schwartz are based on representative national samples from 23 nations, and the mean importance ranking is based on data from 13 countries and cited in Schwartz (2005) and my prior Table 11 on page 69.

Table 22:     Internal Scale Reliability and Importance Rank of SVS Value Indices

| Value Type | Items | Schwartz $\alpha$ | My Sample $\alpha$ | Schwartz Rank | Sample Rank |
|---|---|---|---|---|---|
| Universalism | 8 | .75 | .77 | 2.5 | 6 |
| Benevolence | 5 | .70 | .61 | 1 | 1 |
| Tradition | 5 | .60 | .67 | 9 | 9 |
| Conformity | 4 | .72 | .70 | 5 | 3 |
| Security** | 5 | .70 | .41 | 4 | 5 |
| Power | 4 | .68 | .57 | 10 | 10 |
| Achievement | 4 | .72 | .60 | 6 | 4 |
| Hedonism | 3 | .74 | .65 | 7 | 7 |
| Stimulation | 3 | .72 | .61 | 8 | 8 |
| Self-Direction | 5 | .68 | .57 | 2.5 | 2 |

Note: Source for Schwartz internal reliability and rank is Schwartz, 2005. Security is based upon 5 items in the standard index. With my sample, social order is excluded from the Security index because of its placement within the MDS region for Hedonism (See Figure 28 on page 110). The internal reliability of .41 is based on 4 items. With all 5 items, the internal reliability drops to .38.

For 8 of the 10 indices, the published Schwartz internal reliability is higher than calculated using my sample. The average internal reliability of the 10 value indices is .70 in published literature, and .61 with my sample. The rank of value importance is markedly similar to that found in prior studies (Schwartz & Sagie, 2000).

In addition to these ten scales derived by Schwartz through evaluation of hundreds of samples using MDS, for this research, I combined scales to represent the four opposing

motivational goals: social versus individual concerns, and stability versus opportunity. I also combined Achievement and Self-Direction and called this combination "Aspiration," I combined Tradition and Security, and called that combination "Status Quo." These derived combinations of the value types specified by Schwartz were used in my hypotheses and shown in Table 4 on page 49. In Table 4, I called these contrived indices "Status Quo Values" and "Personal Aspiration Values." I have shortened the names to fit Tables 23 and 24 below:

Table 23:     Internal Scale Reliability for Derived SVS Values Indices (Centered)

| Composite Scales | Number of Items | Coefficient $\alpha$ |
|---|---|---|
| Aspiration (Achievement & Self-Direction) | 9 | .62 |
| Status Quo (Tradition & Security**) | 9 | .69 |
| Social (Universalism & Benevolence) | 13 | .78 |
| Stability (Tradition, Security** & Conformity) | 13 | .80 |
| Individual (Power, Achievement, & ½ Hedonism) | 11 | .69 |
| Opportunity (Self-Direction, Stimulation, ½ Hedonism) | 11 | .71 |

Note: SVS Item 8 (social order) has been removed from the index for security in Table 23. With social order included, Status Quo (with 10 items) drops to .68, and Stability (with 14 items) remains unchanged at .80. I take this finding as additional evidence that for the purposes of this study, using a standard or modified index for Security does not change the results. (n=155)

Table 24:     Correlation Matrix for Derived SVS Value Indices (Centered)

| | Aspiration | Status Quo | Social | Stability | Individual | Opportunity |
|---|---|---|---|---|---|---|
| Aspiration | **1** | **-.462** | -.126 | **-.475** | **.305** | **.457** |
| Status Quo | **-.462** | **1** | **-.273** | **.917** | -.114 | **-.523** |
| Social | -.126 | **-.273** | **1** | **-.242** | **-.559** | -.126 |
| Stability | **-.475** | **.917** | **-.242** | **1** | -.148 | **-.612** |
| Individual | **.305** | -.114 | **-.559** | -.148 | **1** | *.171 |
| Opportunity | **.457** | **-.523** | -.126 | **-.612** | *.171 | **1** |

Note: Missing data deleted list-wise, n=155. Correlations significant at $\alpha = .01$, 2-tailed are shown in bold. * The correlation between Individual and Opportunity (.171) is significant at .05.

Note the very high correlations between Stability and Status Quo (.917). Aspiration represents a blending of the Individual and Opportunity quadrants that I believed would relate positively to Trait Personal Mastery (my hypothesis H1).

Figure 31 below shows the MDS solution for the value indices shown in Tables 23 and 24. As expected from the Schwartz theory, Social and Individual values are opposed to each other, and Stability and Opportunity values are opposed to each other. Status Quo is conceptually similar to Stability (recall the .917 correlation in Table 24) and Aspiration is conceptually related to Opportunity.



## MDS Solution for 4 Value Quadrants
### Based on Centered Values, Ratio Model, Scaled 0-1 between variables
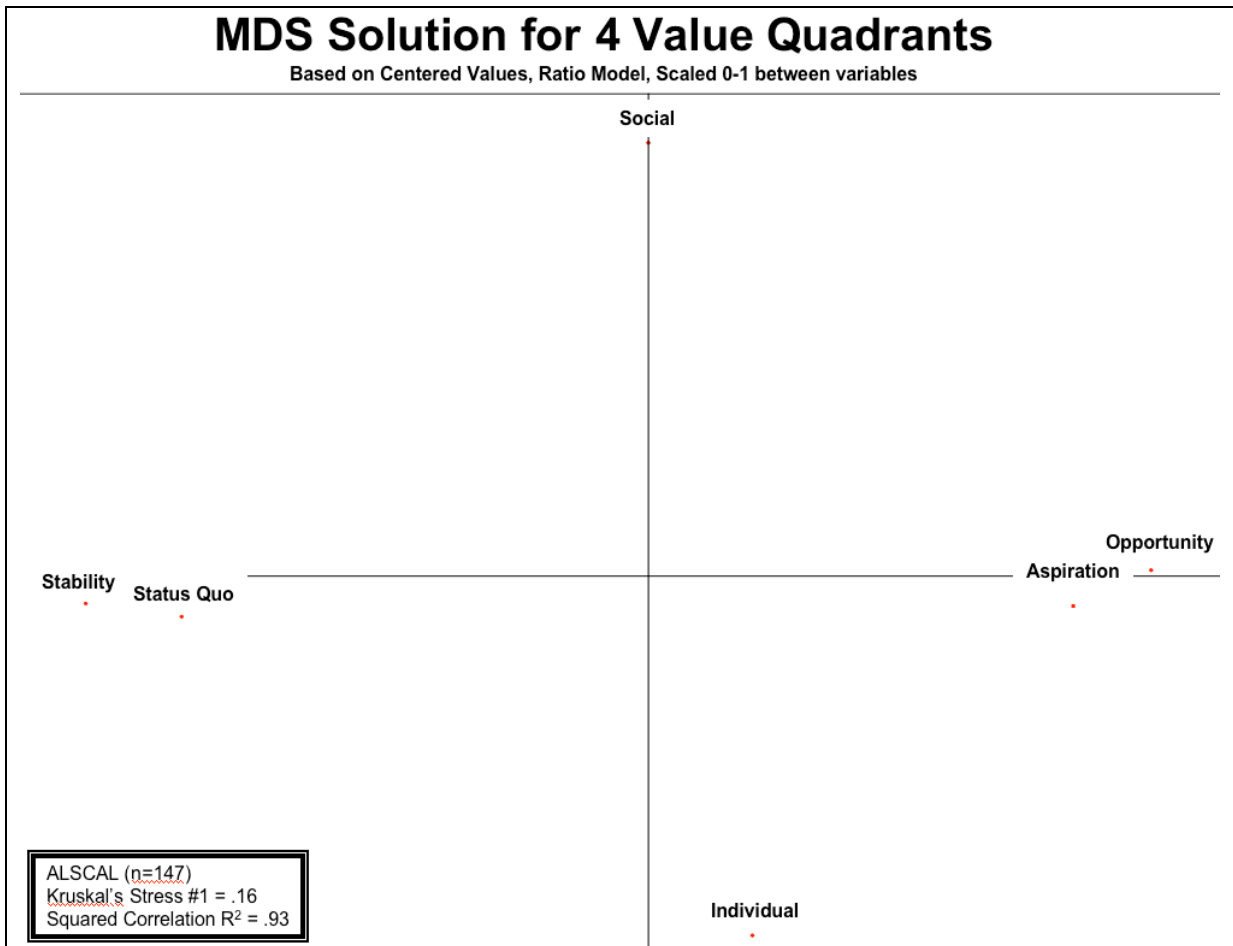
Figure 31: MDS Solution Derived SVS Value Indices

## Correlation Matrix of SVS Centered Indices

The final data I present in Section 3 are pair-wise correlations in the table of correlations for the ten calculated value indices.  The column (vertical) for Security (SE[**]) uses the modified index, which *excludes* social order.  The row (horizontal) for Security (SE) shows the correlations using the standard index (Table 2, page 35) that *includes* social order.

Table 25:    Pearson Correlations for Ten Value Indices (Centered)

|      | UN | BE | TR | CO | SE** | PO | AC | HE | ST | SD |
|------|------|------|------|------|------|------|------|------|------|------|
| UN | 1 | -.047 | -.303 | -.343 | -.294 | -.370 | -.263 | -.123 | .056 | .083 |
| BE | -.047 | 1 | .124 | .286 | -.003 | -.337 | .045 | -.372 | -.284 | -.109 |
| TR | -.303 | .124 | 1 | .435 | -.064 | -.044 | -.213 | -.156 | -.387 | -.459 |
| CO | -.343 | .286 | .435 | 1 | .163 | -.080 | -.073 | -.150 | -.493 | -.368 |
| SE | -.277 | -.072 | -.004 | .111 | 1 | .162 | -.034 | -.004 | -.208 | -.231 |
| PO | -.370 | -.337 | -.044 | -.080 | .123 | 1 | .116 | .190 | .020 | -.153 |
| AC | -.263 | .045 | -.213 | -.073 | -.022 | .116 | 1 | -.040 | -.027 | .019 |
| HE | -.123 | -.372 | -.156 | -.150 | -.046 | .190 | -.040 | 1 | .274 | -.056 |
| ST | .056 | -.284 | -.387 | -.493 | -.205 | .020 | -.027 | .274 | 1 | .361 |
| SD | .083 | -.109 | -.459 | -.368 | -.219 | -.153 | .019 | -.056 | .361 | 1 |

Note:  UN = Universalism, BE = Benevolence, TR = Tradition, CO = Conformity, SE = Security, PO = Power, AC = Achievement, ST = Stimulation, and SD = Self-Direction.

**The SE index excludes SVS item 8 (social order) as recommended by Schwartz when an item is not in the expected or an adjacent value region in the SSA solution with all 57 SVS items.  Recall from Figure 28 that social order appeared in the value region for HE (hedonism).  The magnitude of the correlations between Security and other values is similar and the sign is identical for all correlations (whether social order is included or not).  The correlation for Conformity (CO) is statistically significant without social order, but not significant (at $\alpha = .05$, two-tailed) using the standard Schwartz indices.  Similarly, the correlation for PO is not significant when social order is excluded from SE, but is significant with the standard Schwartz index.  The difference in magnitude for all correlations is negligible.  I conclude that for all analyses in this study, the inclusion or not of social order in the Security value index has no practical impact on results.

In Table 25, correlations shown in bold are significant ($\alpha = .05$, two-tailed).  These correlations are based on a sample size of 155 after missing data has been deleted list-wise.

## Conclusions Regarding Fit of Schwartz Model

Based on the MDS plots of my data, it is apparent that the Schwartz model provides a stable conceptual framework within which to overlay or integrate the other constructs I am investigating in this study.  This finding is critical to support the claims I made in Section 2.

As I have mentioned previously, the Schwartz Value Survey (SVS) has been used with hundreds of samples from every inhabited continent. Schwartz and his colleagues have collected data from a wide range of ages, economic, political, and cultural backgrounds. There is substantial evidence that 46 of the 57 individual value items have a stable meaning across linguistic and cultural borders. As I have shown in this section, the structural relationships in my data, as revealed in the SSA and ALSCAL plots of the Schwartz individual value items and calculated value indices generally conform to the predicted conflicts and compatibilities among the value items.

Unlike the Schwartz Value Survey (SVS), the Motivational Trait Questionnaire (MTQ) and Regulatory Focus Questionnaire (RFQ) have (to the best of my knowledge) *only* been used with college students or college graduates. In the next section, Section 4, I present my analyses of the measurement characteristics of the MTQ and, in Section 5, the RFQ, with my sample of 160 working adults.

Both the MTQ and the RFQ were developed using Exploratory Factor Analysis (EFA), a data reduction technique used to determine which items coalesce. Presuming that the RFQ and MTQ exhibit acceptable measurement qualities with my sample, it will be appropriate to use them to evaluate the relationship between constructs *across all 3 measures* as I have done in Section 2. In other words, if the MTQ and RFQ do not perform adequately with my sample, the conclusions I have drawn in Section 2 are suspect.

**SECTION 4: THE MTQ WITH A SAMPLE OF WORKING ADULTS**

**Factor Structure**

In Heggestad and Kanfer (2000), the three-factor solution was obliquely rotated using direct artificial personal probability function rotation (DAPPFR). The MTQ authors defined the salient loadings as those $> 0.40$. I used the more ubiquitous Oblimin rotation with Kaiser normalization. Although there were 12 eigenvalues greater than 1, there was a clear "elbow" after three eigenvalues as shown in the scree plot below. The three eigenvalues (inside the oval) account for 20.02%, 14.77%, and 7.56% of variance respectively. Together, these three factors account for 42.36 percent of the variance.
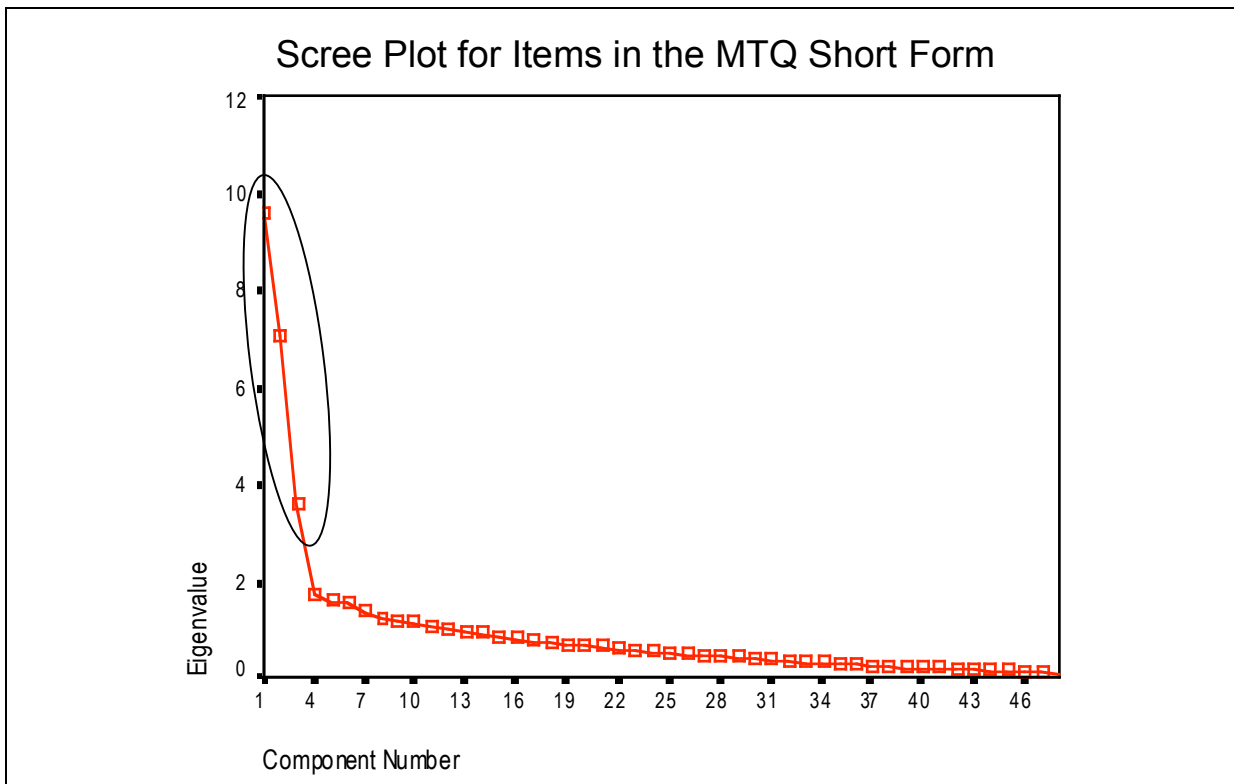
Figure 32: Scree Plot for MTQ Factor Analysis

120

With the three-factor solution, using my data, all 48 of the items loaded on the factors specified by Heggestad & Kanfer (2000). There was no apparent cross loading, and only Item 18 (in red) loaded less than .4. In keeping with Heggested & Kanfer's (2000) convention, all loadings greater than .4 are **bolded** in the table of loadings below. Table 26 below shows the loading of each item on the three factors.

Table 26:    Factor Loading for MTQ Items (3-Factor Solution)

Extraction Method: Principal Component Analysis.  Rotation Method: Oblimin with Kaiser Normalization.

| MTQ Item | Motivation Anxiety | Competitive Excellence | Personal Mastery | MTQ Item | Motivation Anxiety | Competitive Excellence | Personal Mastery |
|---|---|---|---|---|---|---|---|
| PM 1 | -.017 | -.078 | **.460** | PM 25 | -.063 | -.072 | **.662** |
| PM 2 | .003 | .201 | **.491** | PM 26 | -.182 | .299 | **.534** |
| CE 3 | .155 | **.487** | -.109 | CE 27 | .060 | **.653** | .263 |
| CE 4 | .019 | **.792** | -.043 | CE 28 | -040 | **.788** | .034 |
| MA 5 | **.727** | -.031 | -.019 | MA 29 | **.649** | .235 | -.023 |
| MA 6 | **.681** | -.073 | .011 | MA 30 | **.481** | -.152 | -.048 |
| PM 7 | .064 | -.248 | **.583** | PM 31 | .070 | -.128 | **.709** |
| PM 8R | -.097 | -.129 | **.485** | PM 32 | -.012 | .001 | **.482** |
| CE 9 | .060 | **.816** | -.029 | CE 33 | .190 | **.617** | .221 |
| CE 10R | -.157 | **.797** | -.031 | CE 34 | -.015 | **.758** | -.129 |
| MA 11R | **.506** | .007 | -.088 | MA 35 | **.746** | .131 | .043 |
| MA 12 | **.531** | .039 | -.054 | MA 36R | **.461** | -.109 | -.042 |
| PM 13 | .061 | -.043 | **.600** | PM 37 | -.229 | -.020 | **.634** |
| PM 14 | .124 | .047 | **.567** | PM 38R | -.092 | .161 | **.419** |
| CE 15 | .101 | **.790** | .093 | CE 39 | .226 | **.676** | .067 |
| CE 16R | -.305 | **.479** | .080 | MA 40 | **.750** | .022 | .022 |
| MA 17R | **.451** | .076 | -.002 | MA 41R | **.518** | -.204 | -.152 |
| MA 18 | .361 | .191 | .040 | PM 42 | -.098 | -.024 | **.743** |
| PM 19 | -.068 | -.048 | **.681** | PM 43 | -.036 | .211 | **.568** |
| PM 20 | -.160 | .151 | **.576** | MA 44 | **.750** | .064 | -.067 |
| CE 21 | .238 | **.464** | -.092 | MA 45 | **.675** | -.099 | .003 |
| CE 22R | -.115 | **.554** | -.189 | MA 46 | **.795** | .030 | .025 |
| MA 23 | **.589** | .175 | .167 | MA 47 | **.588** | .089 | -.108 |
| MA 24 | **.525** | -.038 | -.044 | MA 48 | **.554** | -.013 | -.034 |

Note: I have named the MTQ items by the motivational trait the item measures in the MTQ scoring key.  PM = Personal Mastery, CE = Competitive Excellence, and MA = Motivation Anxiety.  Items that have been reverse-scored end with R.

Figure 33 on the next page shows the three-factor rotated solution.  I have circled the items corresponding to each of the 3 factors as independent regions.  Item 18 does not appear problematic in Figure 33.
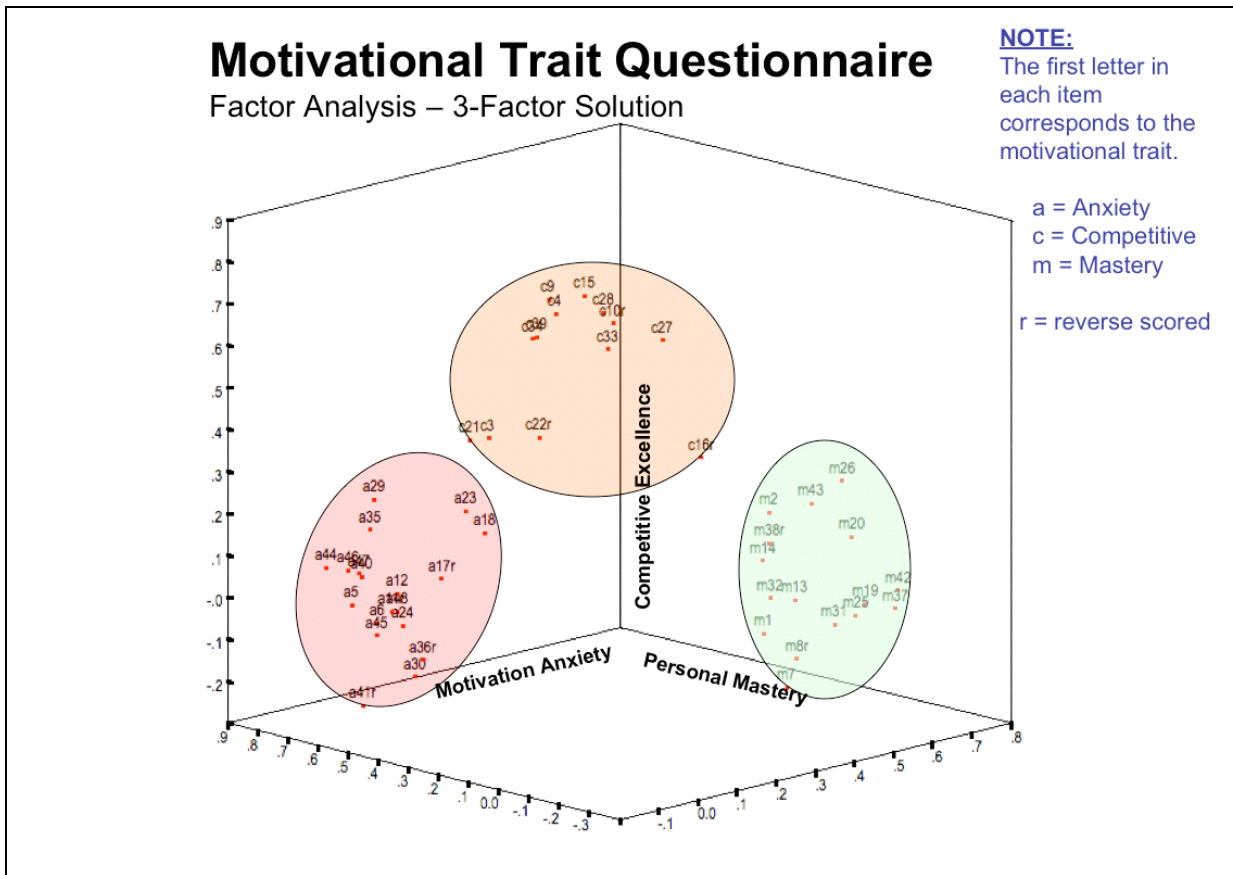
Figure 33:    Plot of Factor Analysis Solution for MTQ (3-Factor Solution)

**MDS Analysis of Motivational Trait Questionnaire**

In addition to exploratory factor analysis (EFA), I also used multi-dimensional scaling to evaluate the measurement characteristics of the MTQ with my sample of working adults.    Using ALSCAL, the two- and three-dimensional solutions are shown below in Figures 34 and 35 respectively.  Whereas item 18 does not look "out of place" in Figure 33 above, in the two dimensional MDS solution (Figure 34), Item 13 and Item 18 appear in the wrong region of MDS space.  As I note in Figure 34, Item 18 is assigned to a subscale in Motivation Anxiety but it appears in the region for Competitive Excellence.  Item 13, in the same region is assigned to one of the subscales of trait Personal Mastery in the MTQ.  So

overall, in the two-dimensional MDS solution for the individual items in the MTQ, two of the 48 items appear to have possible problems. Further evaluation of these two items may be warranted.
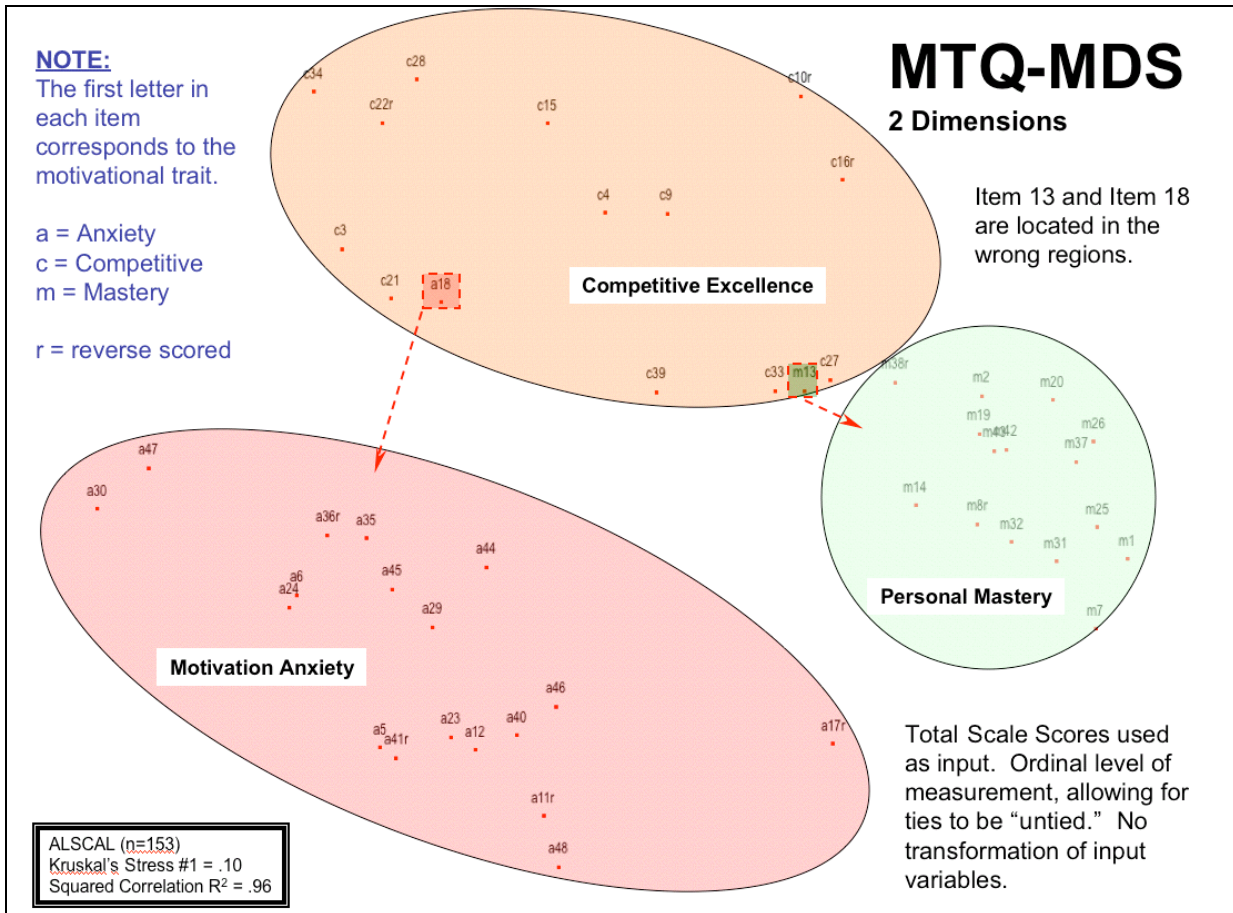


Figure 34:    MDS Solution of 48 MTQ Raw Items (2-Dimensions)

The MDS solutions presented in Figures 34 and 35 used the raw item score as input with no transformation of input variables, ordinal level of measurement, and allowing for ties to be "untied." The low stress and high $R^2$ indicates a good fit of the MDS solution.
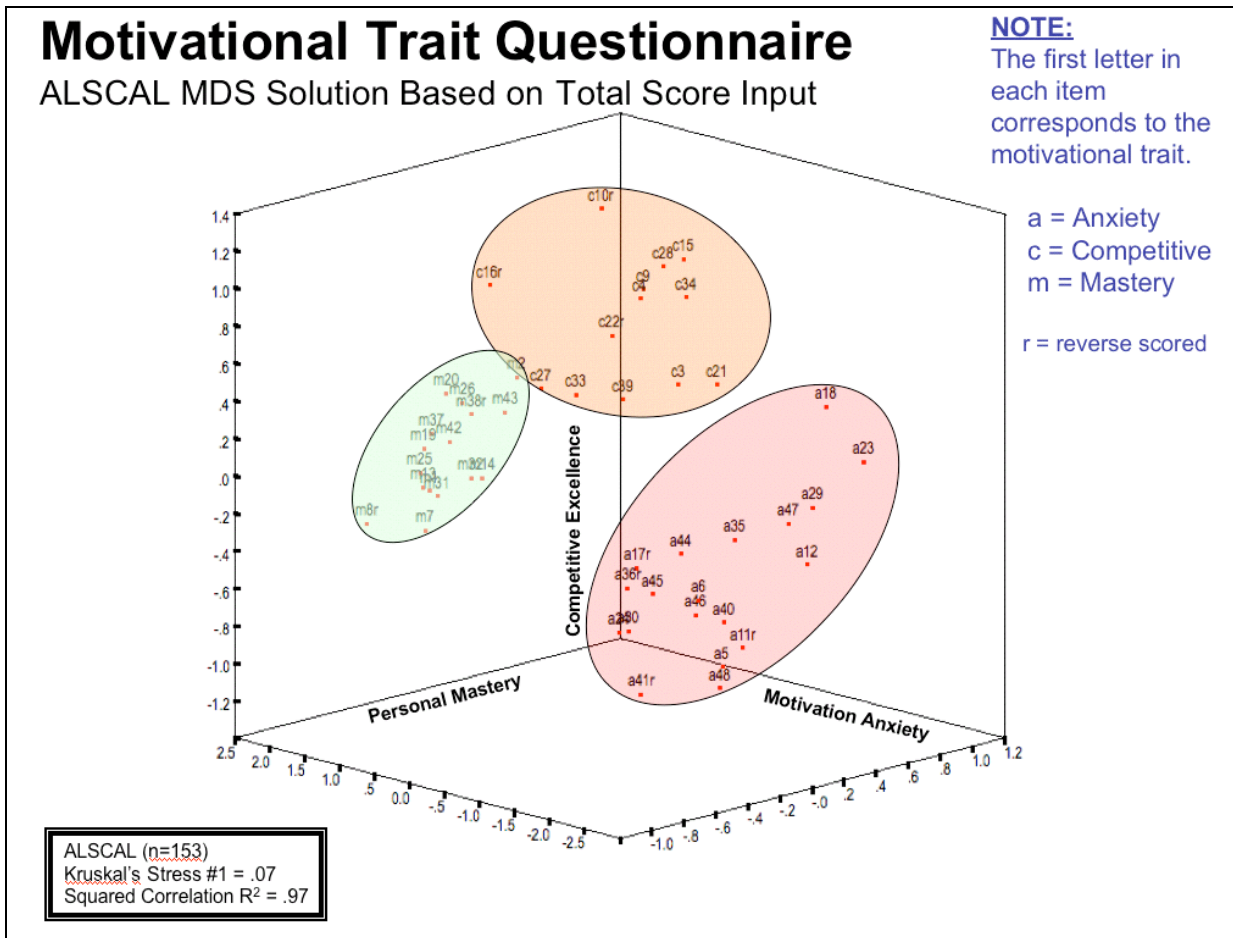
Figure 35:    MDS Solution of 48 MTQ Raw Items (3-Dimensions)

In Figure 35 above, all items appear in the expected region, but Item 18 (which loaded only .361 in the EFA solution (see Table 26 on page 121) is at the outer edge of the circle I have drawn around the items assigned to Trait Motivation Anxiety.  Table 27 shows the correlation between the three motivational traits.

Table 27:    Correlation Matrix for MTQ Trait Scales

|  | Competitive Excellence | Motivation Anxiety |
|---|---|---|
| Personal Mastery | .083 | -.404** |
| Competitive Excellence | 1 | .152 |

Note:  ** Correlation significant at p< .001, two-tailed.

124

Figure 36 shows the stress and squared correlation for 1, 2, 3, and 4-dimensional solutions. Note the slight "elbow" in the dashed stress line at 2 dimensions; this indicates that a two-dimensional solution is acceptable.



**Fit Indices of MDS Solution for MTQ**
Based on Raw Score Input, Ordinal, (ties untied), No transformation of variables
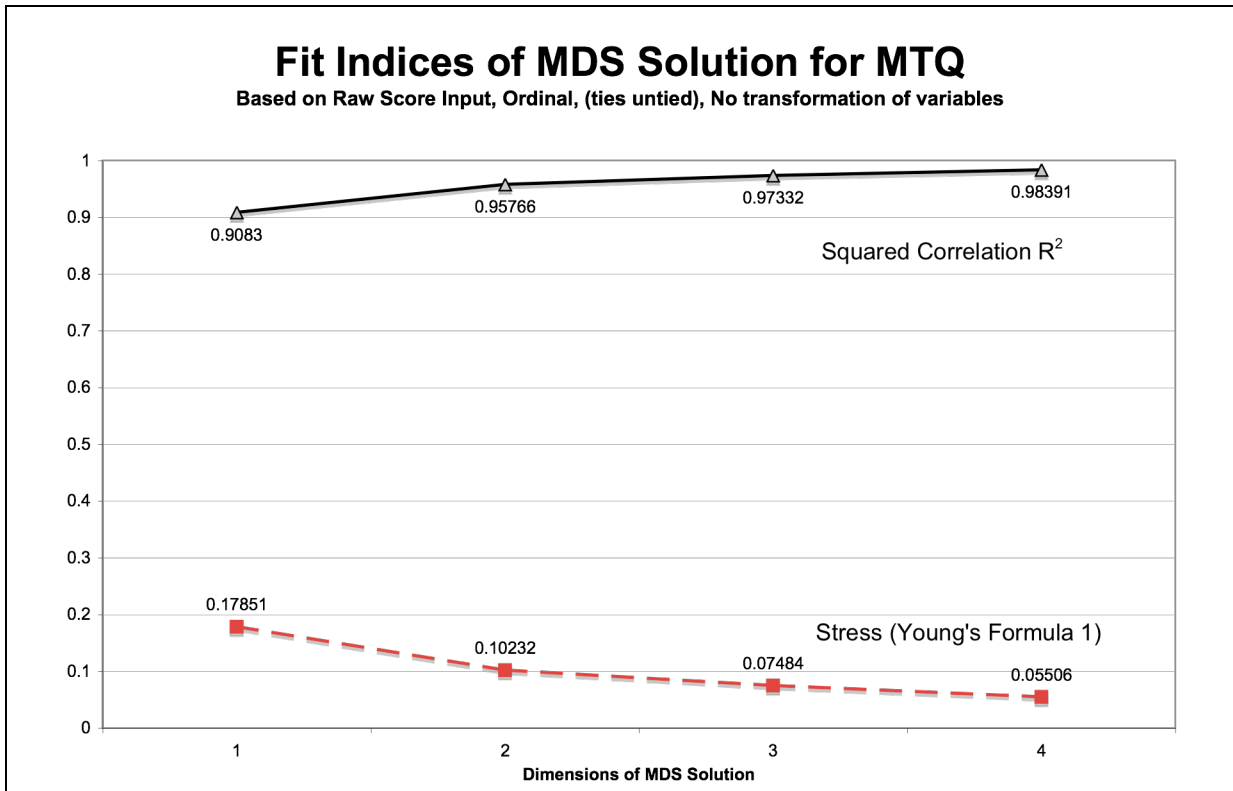
Figure 36:    MDS Fit Indices for 1 to 4 Dimensional Solutions to 48 MTQ Items

### Subscale Internal Reliabilities

The final evaluation I conducted of the Motivational Trait Questionnaire involved calculation of the internal reliabilities of the six subscales. In Table 28 on the next page, I show the calculated internal reliabilities (coefficient $\alpha$) with my data, and the coefficient $\alpha$ published in Kanfer & Ackerman, 2000.

Table 28:    Internal Scale Reliability for MTQ Traits and Subscales

| Scale Name | Items | Published α | My Coefficient α |
|---|---|---|---|
| Desire to Learn (subscale) | 8 | .81 | .84 |
| Mastery Goals (subscale) | 8 | .83 | .77 |
| Trait Personal Mastery (combined) | 16 | - | .88 |
| Other Referenced Goals (subscale) | 7 | .85 | .86 |
| Competition Seeking (subscale) | 6 | .89 | .85 |
| Trait Competitive Excellence | 13 | - | .90 |
| Worry (subscale) | 10 | .88 | .87 |
| Emotionality (subscale) | 9 | .79 | .78 |
| Trait Motivation Anxiety (combined) | 19 | - | .91 |

Note: Published internal reliabilities are from Kanfer & Ackerman, 2000; for my data n=153

As shown in Table 28, the internal reliability with my data is very similar to that from published studies. I have also included the internal reliability of the combined subscales for each of the three traits.

## Replication of Prior Research Findings

During the development and testing of the MTQ, Kanfer and Ackerman (2000) reported finding a negative correlation between achievement motivation and age, and also finding higher achievement anxiety for women than for men. My data, with an age range from the low 20s to the mid 70s allows me to investigate their claims using different data.

### *Achievement Motivation and Age*

Kanfer and Ackerman (2000) found significant negative correlations between age and both trait mastery and trait competitive excellence. Their findings are consistent with developmental studies of adults showing that middle-aged and older adults generally display a lower achievement motivation strength than younger adults (Heckhausen, 1997). As shown in Figure 37 on the next page, I also found a significant decrease in measured motivational

trait mastery with age. The decline was stronger for males than for females. I did not find significant correlations between competitive excellence or motivation anxiety and age. In general, males had higher scores on competitive excellence than females, and the gap was wider in the younger ages. These findings seem consistent with expectations and with gender stereotypes.
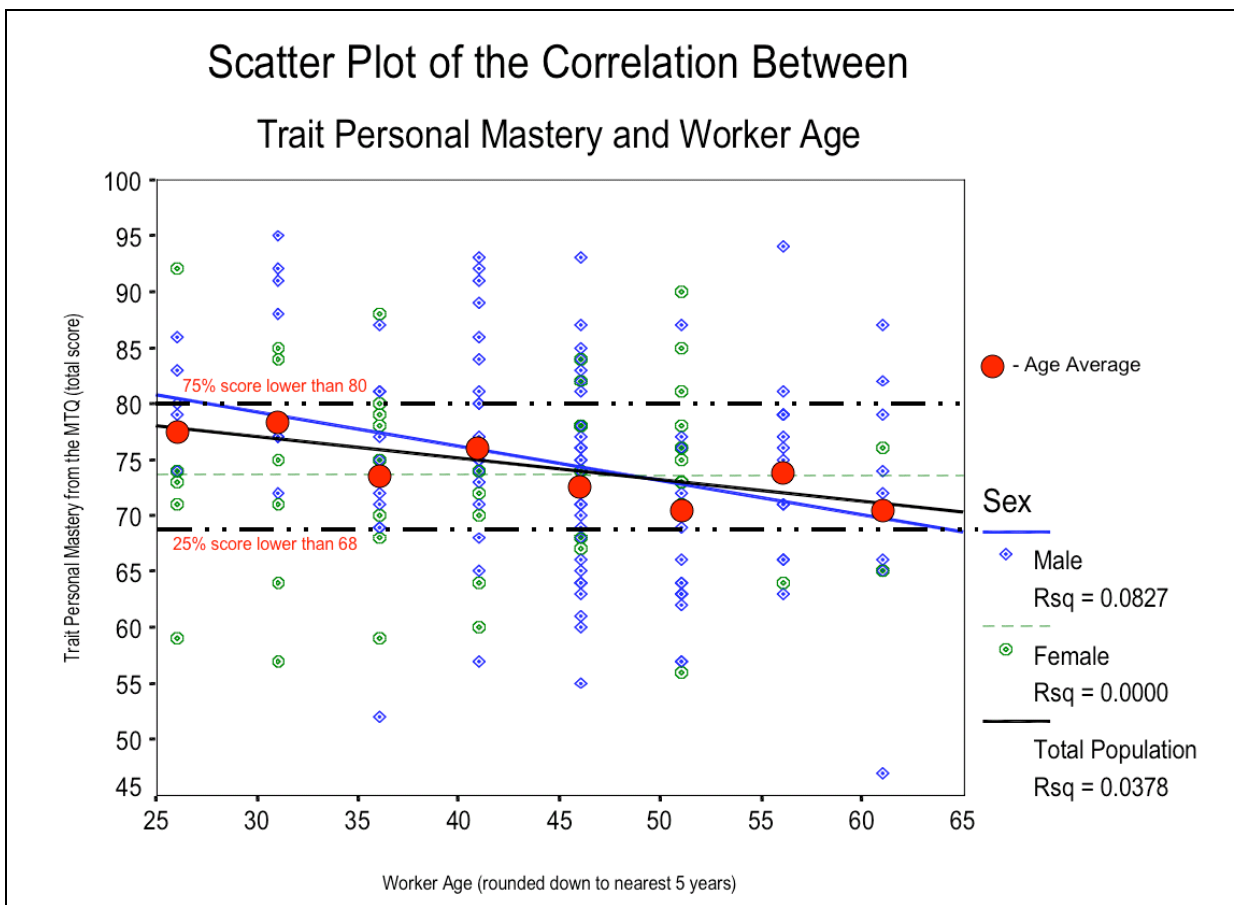


Figure 37:    Negative Relationship Between Age and Achievement Motivation

The solid circles (red) in Figure 37 show the average score on trait mastery for the corresponding age. Note that to increase anonymity for study participants, I have collapsed the ages to five-year intervals. Based on the least squares fit regression line for males, the

youngest group scored in the top 25% on trait mastery and the oldest group scored in the bottom 25%. However, these results cannot be taken to imply that workers become less productive as they age, because factors other than the level of motivation may affect productivity. For example, it is reasonable to assume that older workers are, in general, more experienced than younger workers, and their increased experience may provide a productivity advantage. Longitudinal studies of motivational traits could be valuable in addressing this question.

### *Achievement Anxiety and Gender*

Kanfer and Ackerman (2000) also found higher levels of mastery and achievement anxiety for females than for males. They suggest that people who score high on both personal mastery and achievement anxiety "may experience increased conflict and problems in the workplace. For these individuals, the positive effects of adopting challenging goals may be substantially offset by intensified anxiety during goal striving" (p. 479). They also noted that perhaps women are more *aware* of their anxiety than men and thus *report* higher levels of achievement anxiety. Physiological measures including galvanic skin response, heart rate, etc. would be required to conclude that females actually have higher levels of achievement anxiety than do males.

In Figure 38, I show the average score on motivation anxiety for males and females for each age. Note that the score for females is higher than for males for each age group except age 46-50. This difference may reflect gender-related developmental challenges. As I have noted in Figure 38, the score for females was reduced somewhat by the single lowest motivation anxiety score of any participant, male or female. Even with this score removed from the 46-50 year average, however, the score for females in this age range is still lower than that for males.
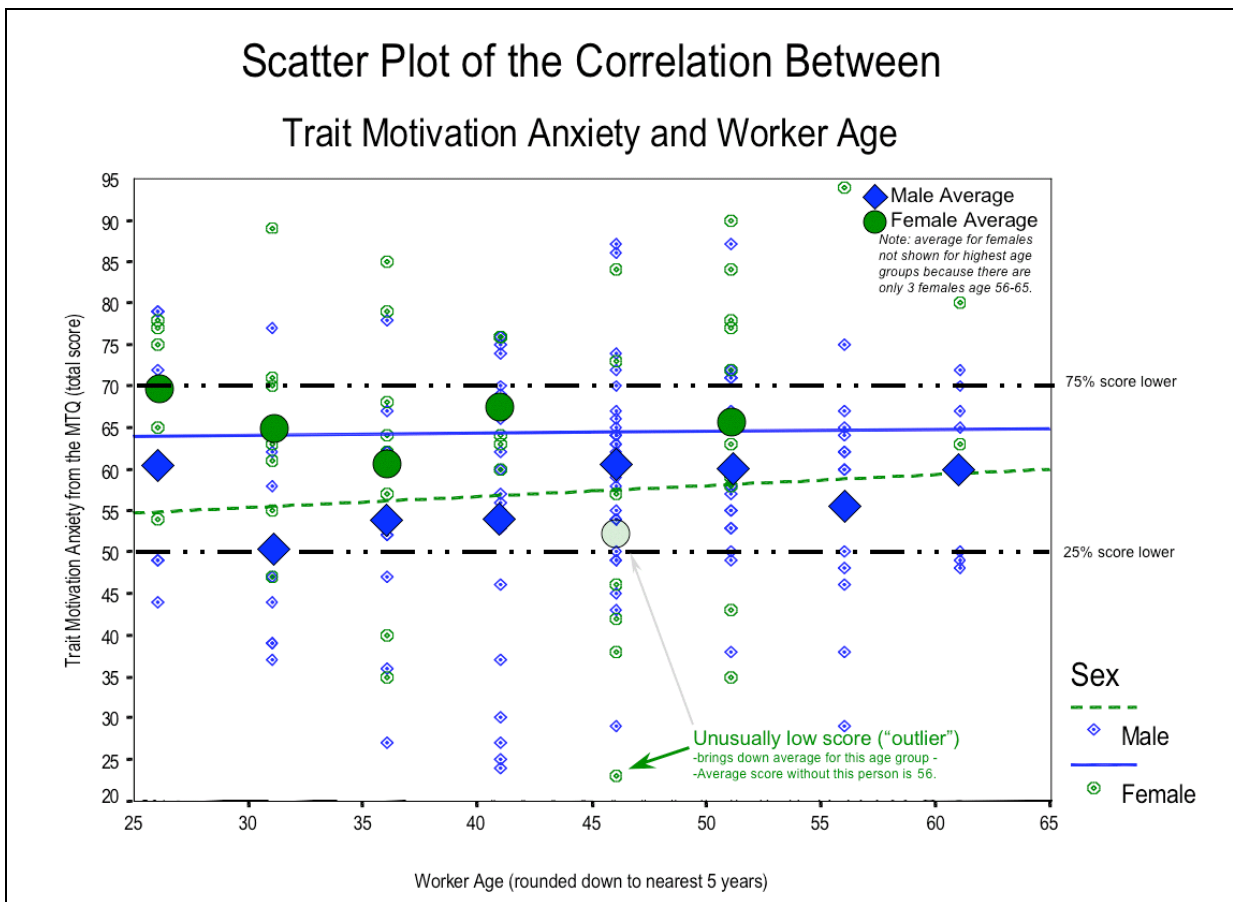


Figure 38:    Difference in Motivation Anxiety by Sex

**Conclusions about MTQ with Working Adult Sample**

As Hinsz and Jundt (2005) claimed, the MTQ appears to be a very well designed assessment that is suitable for measuring approach and avoidance work-related traits with adult populations. With my sample of working adults, the psychometric properties of the measure were remarkably good. In exploratory factor analysis, all 48 of the items loaded on the trait to which they had been assigned by Heggestad and Kanfer in the scoring key for the measure. Though items 13 and 18 may warrant some additional investigation, based on the results of the two-dimensional MDS solution, it appears that the MTQ performed well with my sample, and that the scores provided by the MTQ are free from measurement problems that might jeopardize the plausibility of the structural relations I found in Section 2.

**SECTION 5: THE RFQ WITH A SAMPLE OF WORKING ADULTS**

**Factor Structure**

Exploratory factor analysis of the Regulatory Focus Questionnaire, using Kaiser's extraction and oblimin rotation revealed three factors with eigenvalues greater than 1, but the third is only barely greater at 1.04, and should be considered part of the scree as shown in Figure 39 below. Two factors were expected.
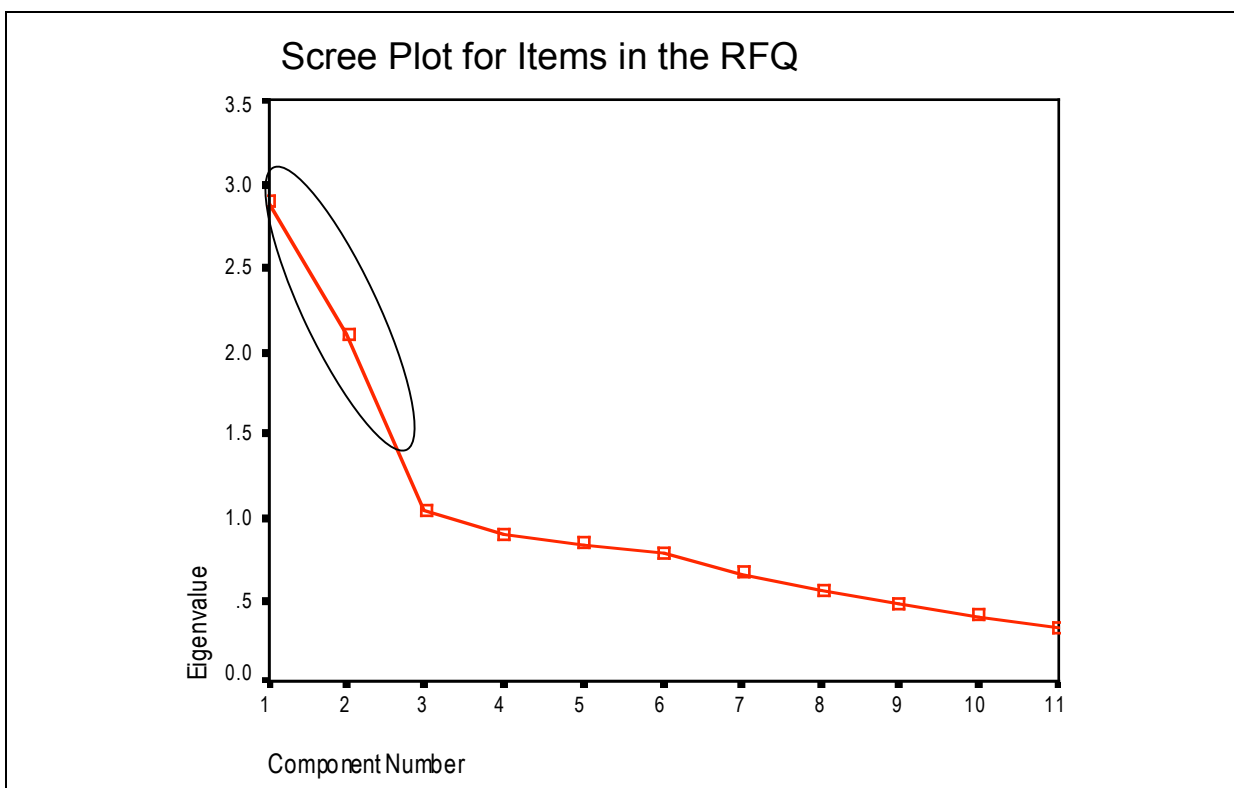


Figure 39:    Scree Plot for RFQ Factor Analysis

The first two factors accounted for 45.4% of the variance (26.3 and 19.1%). This is slightly less than the 50% of the variance (29% and 21) cited by Higgins et al., 2001. Correlation between the scales was virtually identical to Higgins et al. (2001) at .208, p<.012.

The two-factor rotated solution is presented below in Table 29. Items loading at least .4 are shown in **bold**. Ten of the 11 items loaded on the expected scales. Note that Item 8 loads properly on Prevention, but at only .310, and that Item 11 loads on both factors and loads higher on Prevention. Item 11 is assigned to the Promotion subscale by Higgins and associates in the RFQ scoring key. See Appendix F for the list of items.

Table 29:    Factor Loading for RFQ Items (2-Factor Solution)

Extraction Method: Principal Component Analysis.  Rotation Method: Oblimin with Kaiser Normalization.

|          | Prevention | Promotion |
|----------|-----------|-----------|
| PRO 1R   | .020      | **.644**  |
| PRE 2R   | **.805**  | -.078     |
| PRO 3    | -.102     | **.631**  |
| PRE 4R   | **.798**  | -.034     |
| PRE 5    | **.777**  | -.216     |
| PRE 6R   | **.738**  | .066      |
| PRO 7    | -.046     | **.608**  |
| PRE 8R   | .310      | .049      |
| PRO 9R   | .145      | **.493**  |
| PRO 10   | -.012     | **.830**  |
| PRO 11R  | **.455**  | .281      |

Note: In the item names, PRO indicates the item is assigned to the Promotion scale and PRE indicates the item is assigned to the prevention scale.  An "R" at the end of an item name indicates that this item has been reverse-scored.

Table 30 shows the full correlation matrix for all eleven items in the RFQ.

Table 30:    Table of Correlations for RFQ Items

|         | PRO-1 | PRE-2R | PRO-3 | PRE-4R | PRE-5 | PRE-6R | PRO-7 | PRE-8R | PRO-9R | PRO-10 | PRO-11R |
|---------|-------|--------|-------|--------|-------|--------|-------|--------|--------|--------|---------|
| PRO-1   | 1     | 0.002  | **0.266** | 0.103 | 0.025 | 0.108 | 0.161 | 0.058 | 0.199 | **0.481** | 0.145 |
| PRE-2R  | 0.002 | 1      | 0.01  | **0.514** | **0.576** | **0.496** | 0.044 | 0.109 | 0.087 | 0.081 | **0.267** |
| PRO-3   | **0.266** | 0.01 | 1  | -0.017 | -0.01 | 0.011 | **0.319** | -0.038 | 0.160 | **0.343** | 0.097 |
| PRE-4R  | 0.103 | **0.514** | -0.017 | 1 | **0.472** | **0.499** | -0.044 | 0.208 | 0.157 | 0.083 | **0.325** |
| PRE-5   | 0.025 | **0.576** | -0.010 | **0.472** | 1 | **0.399** | -0.063 | 0.204 | 0.014 | -0.084 | 0.189 |
| PRE-6R  | 0.108 | **0.496** | 0.011 | **0.499** | **0.399** | 1 | 0.141 | 0.12 | 0.178 | 0.08 | **0.337** |
| PRO-7   | 0.161 | 0.044  | **0.319** | -0.044 | -0.063 | 0.141 | 1 | 0.064 | 0.113 | **0.379** | 0.155 |
| PRE-8R  | 0.058 | 0.109  | -0.038 | 0.208 | 0.204 | 0.12 | 0.064 | 1 | 0.162 | 0.048 | 0.078 |
| PRO-9R  | 0.199 | 0.087  | 0.160 | 0.157 | 0.014 | 0.178 | 0.113 | 0.162 | 1 | **0.376** | 0.126 |
| PRO-10  | **0.481** | 0.081 | **0.343** | 0.083 | -0.084 | 0.08 | **0.379** | 0.048 | **0.376** | 1 | **0.247** |
| PRO-11R | 0.145 | **0.267** | 0.097 | **0.325** | 0.189 | **0.337** | 0.155 | 0.078 | 0.126 | **0.247** | 1 |

Note: In the item names, PRO indicates the item is assigned to the Promotion scale and PRE indicates the item is assigned to the prevention scale.  An "R" at the end of an item name indicates that this item has been reverse-scored. Correlations not significant are grey; significant at p<.05 in black, and at p<.01 in **bold**.

The two-factor solution from Table 29 is shown below in Figure 40. I have included Item 11 with the Promotion subscale (consistent with the RFQ scoring key), although the item loads higher on the Prevention subscale in the factor analysis using my data.



**Regulatory Focus Questionnaire**
Factor Analysis – 2-Factor Solution

Item Pro-11r loads .281 on Promotion and .445 on Prevention. RFQ Scoring Key assigns the item to the Promotion Subscale.

Item Pre-8r loads only .310 on Prevention.
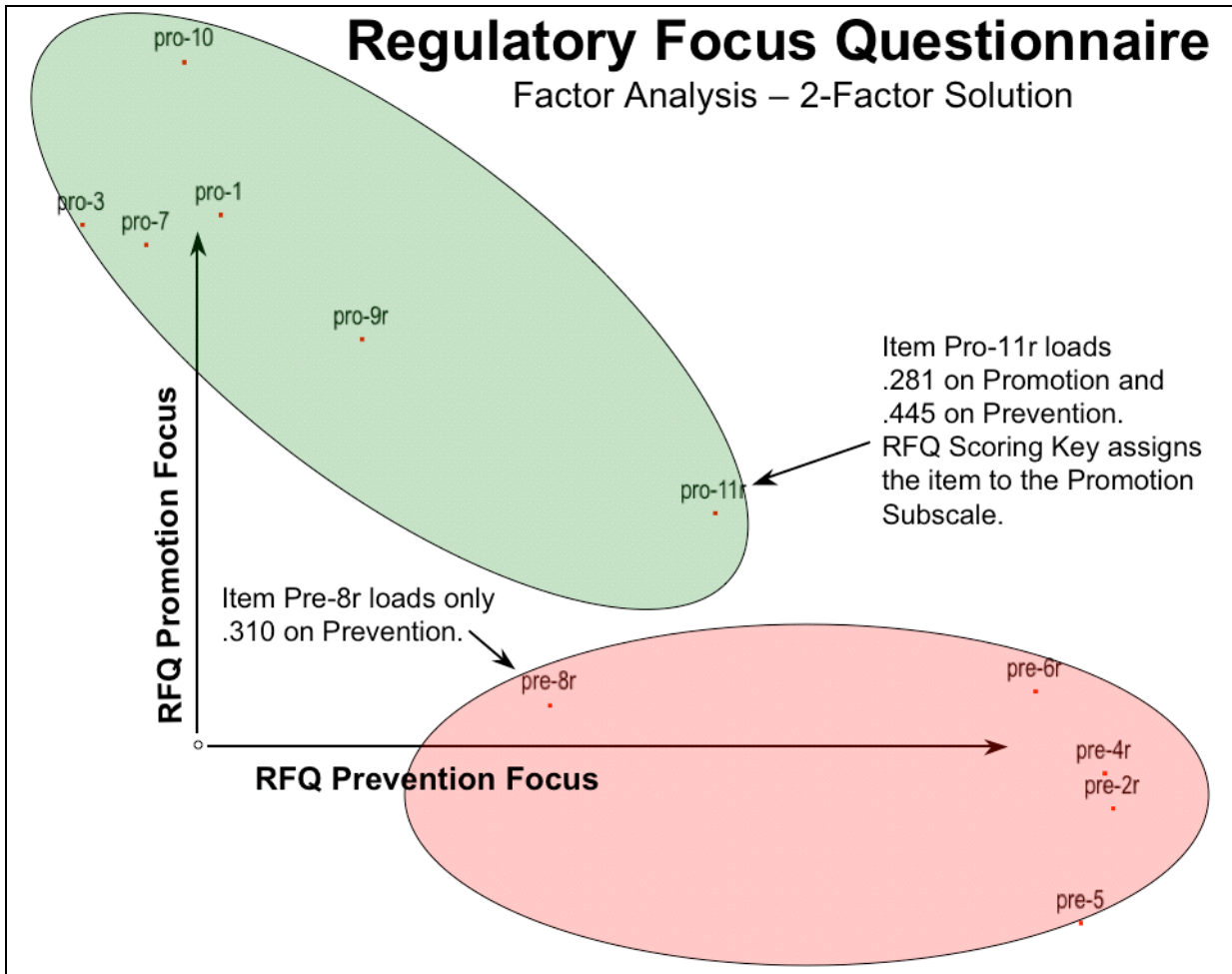
Figure 40:    Plot of Factor Analysis Solution for MTQ (2-Factor Solution)

In Figure 40, I have shaded separate areas encompassing the items specified by Higgins (2001) for the Promotion and Prevention scales of the RFQ. In the plot of the factor solution, item 11 is closer to item 8 (in Prevention) than it is to item 9 (in Promotion). The significant (undesirable) cross loading of item 11 is apparent in Figure 40.

**MDS Analysis of Regulatory Focus Questionnaire**

In addition to factor analysis, I also used multi-dimensional scaling to evaluate the items in the RFQ. The two-dimensional solution is shown below. Stress is .11 and R-squared is .93; I have shaded regions containing items from the promotion and prevention subscales. No items are misplaced in the two-dimensional MDS solution in Figure 41. As before, I have used item labels that identify the scale to which the item is assigned in the scoring key. The presence of an "r" at the end indicates that the item has been reverse-scored, per the scoring key for the RFQ.
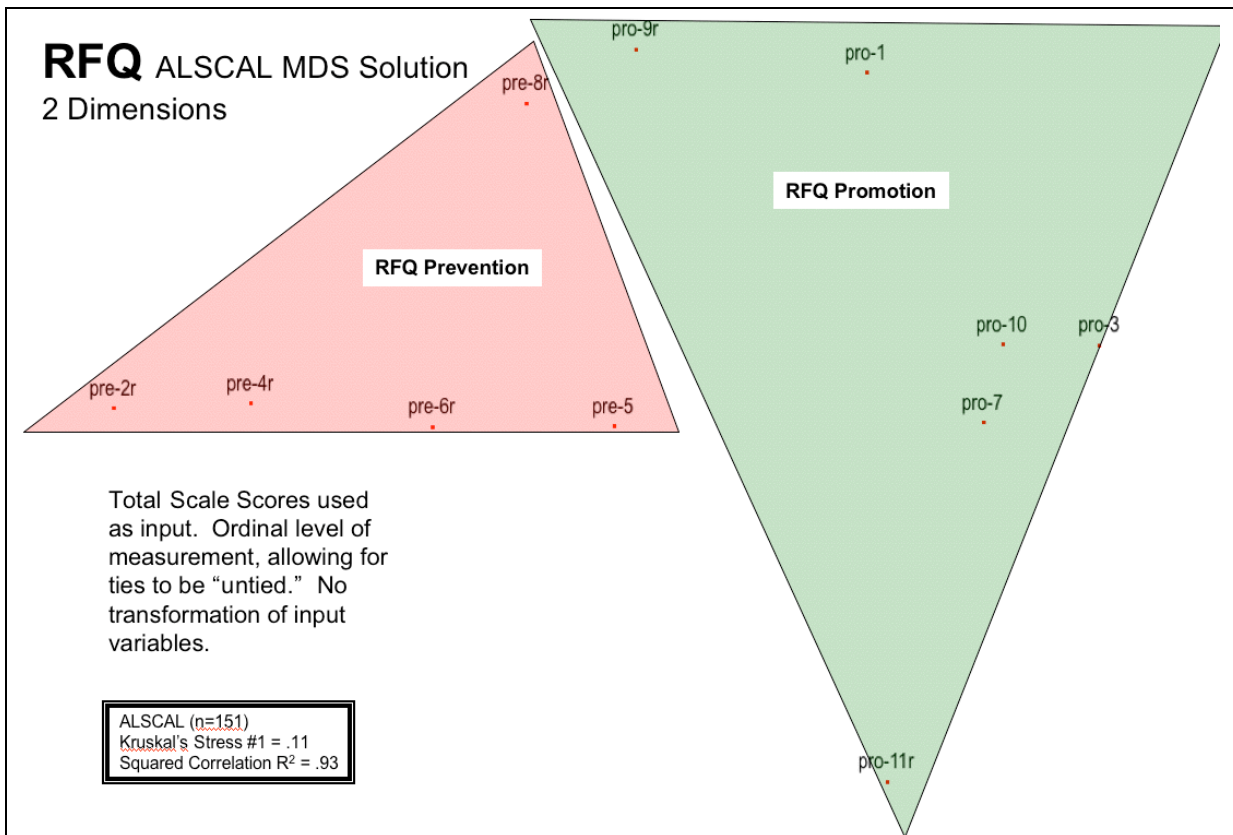


Figure 41:    MDS Solution of 11 RFQ Raw Items (2-Dimensions)
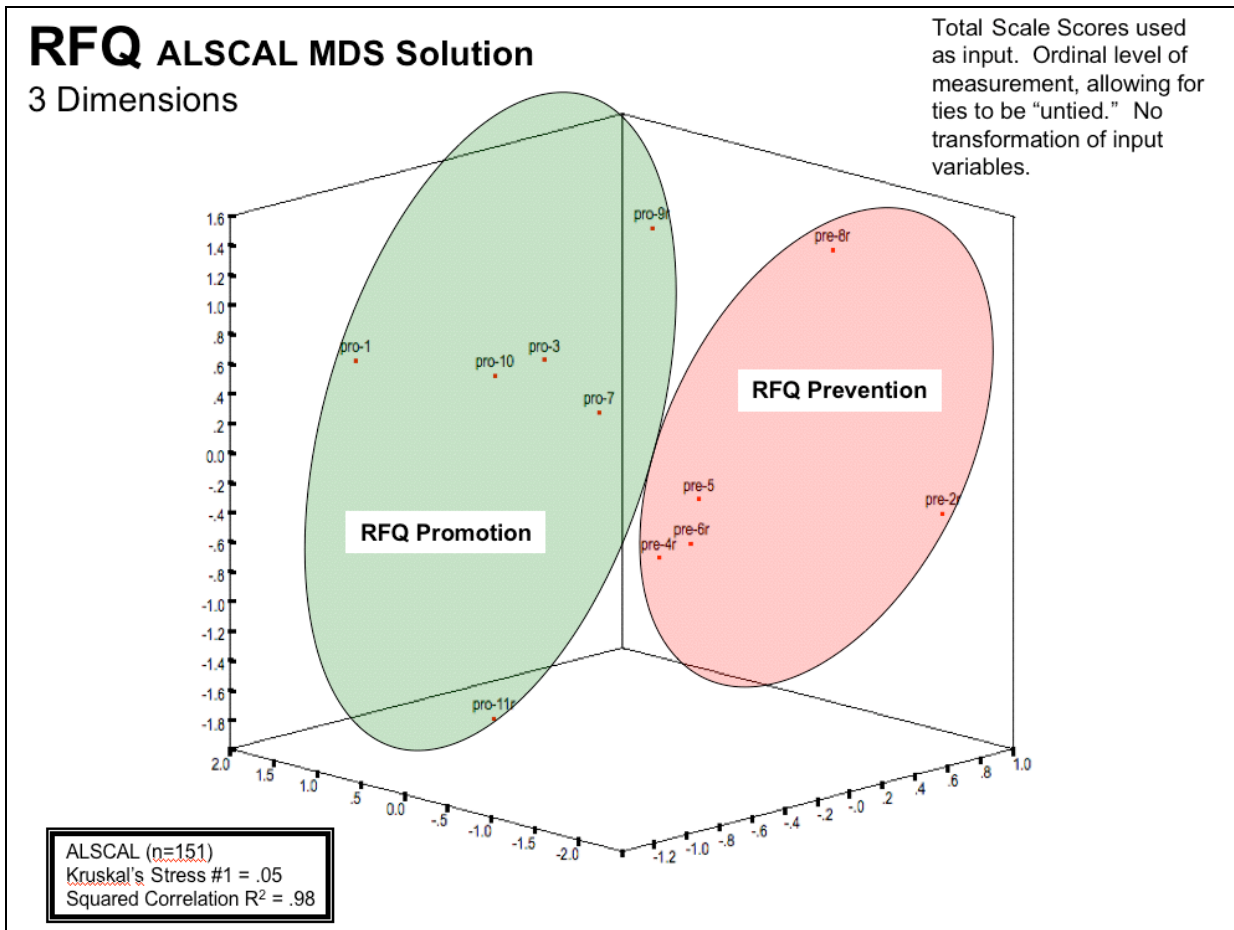
Figure 42:    MDS Solution of 11 RFQ Raw Items (3-Dimensions)

Figure 42 shows the three-dimensional solution for the RFQ. As with the two-dimensional solution, all items are located in the appropriate region, based on the RFQ scoring key. While the stress and R-squared values are improved from the two-dimensional solution (as expected), Figure 43 (on the next page) reveals that a two-dimensional solution is adequate. Note the bend or elbow at two-dimensions in Figure 43.

**Fit Indices of MDS Solution for RFQ**
Based on Raw Score Input, Ordinal, (ties untied), No transformation of variables
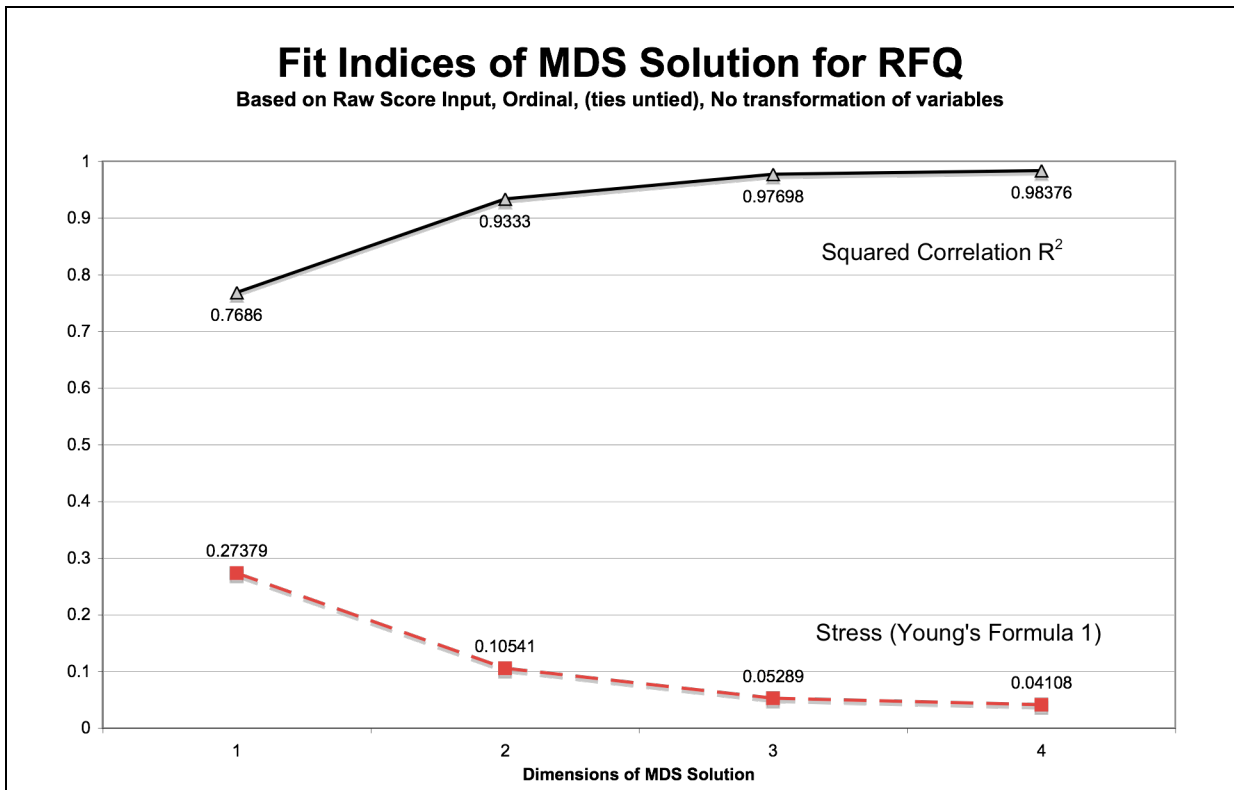
Figure 43:    MDS Fit Indices for 1 to 4 Dimensional Solutions to 11 RFQ Items

**Subscale Internal Reliabilities**

Internal reliability cited by Higgins and associates were: promotion $\alpha = .73$; prevention $\alpha = .80$.    With my sample internal reliabilities were substantially lower: promotion $\alpha = .63$ and prevention $\alpha = .74$.

**Conclusions about RFQ with Working Adult Sample**

Like the MTQ, the RFQ appears to do an acceptable job with my sample of working adults.  The measure clearly identifies separate constructs, as evidenced by the correlation of only .208.  My evaluation of the RFQ supports its viable use in my study, as a measure of subjective history of success using a promotion or prevention regulatory focus.

# Chapter 5: Discussion

## OVERVIEW OF CHAPTER ORGANIZATION

I have four purposes in this chapter. First, briefly summarize the most important findings; second, discuss why the results may have occurred, third, mention assumptions and limitations of the research, and fourth, offer some suggestions to guide related future research. In Chapter 4, I presented 58 pages of charts, tables, and figures. In the most recent 29 pages I discussed the *measurement characteristics* of the Schwartz Value Survey, the Motivational Trait Questionnaire, and the Regulatory Focus Questionnaire, when extended from the university laboratory to a sample of working adults. In other words, I have not mentioned the actual study results (the heart of the dissertation) for the last 30 pages; a brief review and summary is therefore appropriate. To use an analogy, it's time to come out of the forest and see where we are and what we may have learned through this study.

In the introduction to this dissertation, I spoke of the need to integrate research from three distinct constructs and research traditions. I mentioned that the three constructs I chose for my study have *independent relevance* for work behavior and achievement. I mentioned also (see page 3) that each of the three constructs shares a *persistent accessibility* resulting from repetition: personal values serve as guides *across situations*; motivational traits reflect *habitual responses* in achievement-related settings; subjective history of success using a promotion or prevention focus reflects a *preferred means or strategy* for achievement. In discussing values, traits, and regulatory focus as abstract psychological constructs, it is easy to lose sight of the fact that each of these constructs is valuable, largely because each has implications for the aspirations and fears of real people with real jobs, real families, real work-pressures, and real emotional responses. The three constructs are *not* sterile abstract psychological notions divorced from the daily life experiences of real human beings.

137

Psychological research is conducted primarily by specialists and fragmentation in the field is common (Kubiszyn, 2000). Consequently, we have a large number of constructs, many with their own privileged variables and favorite measures. As I mentioned at the beginning of Chapter 2, fields of science advance through a continuing interplay of specialization and subsequent integration. My research is intended as an initial step towards integrating specialized research on personal value priorities, motivational traits, and regulatory focus. No prior study has incorporated all three constructs simultaneously.

In the first section of Chapter 5, I present the results from different perspectives or views. My goal is to offer a (re)view of the major results using a number of different *lenses* in order to make the findings clear and compelling. The second section (why the results occurred) involves speculation. Did my study measure the same underlying construct in three different ways, or are the three constructs actually distinct? Is there an overall theory or framework that explains all three constructs and the way that they are related? And finally, are there theoretical or practical implications of my findings? If so, what are they? Where do we go from here?

## SECTION 1: SUMMARY OF STUDY FINDINGS

I found support for moderate correlations between specific personal value priorities, specific motivational traits, and the tendency to approach new tasks with a particular regulatory focus. The strength (effect size) of the statistically significant correlations was in the range of .25 to .45. As a point of comparison, consider the correlations plotted in Figure 44 (next page). In a sample of 200 men, age 23-70, the correlation between height and weight was approximately .41. The correlation between age and systolic blood pressure was .44, between age and diastolic blood pressure, .39, and between age and cholesterol level, .41 (Glass & Hopkins, 1996). None of these correlations is extraordinarily high, but the

relationships between height and weight, age and blood pressure, and age and cholesterol level are of considerable practical as well as theoretical importance.[40] Additionally, the relationships between the variables are considered common knowledge in modern American society. In general, the taller people are, the more they weigh. In general, older people tend to have higher blood pressure and cholesterol levels than younger people.
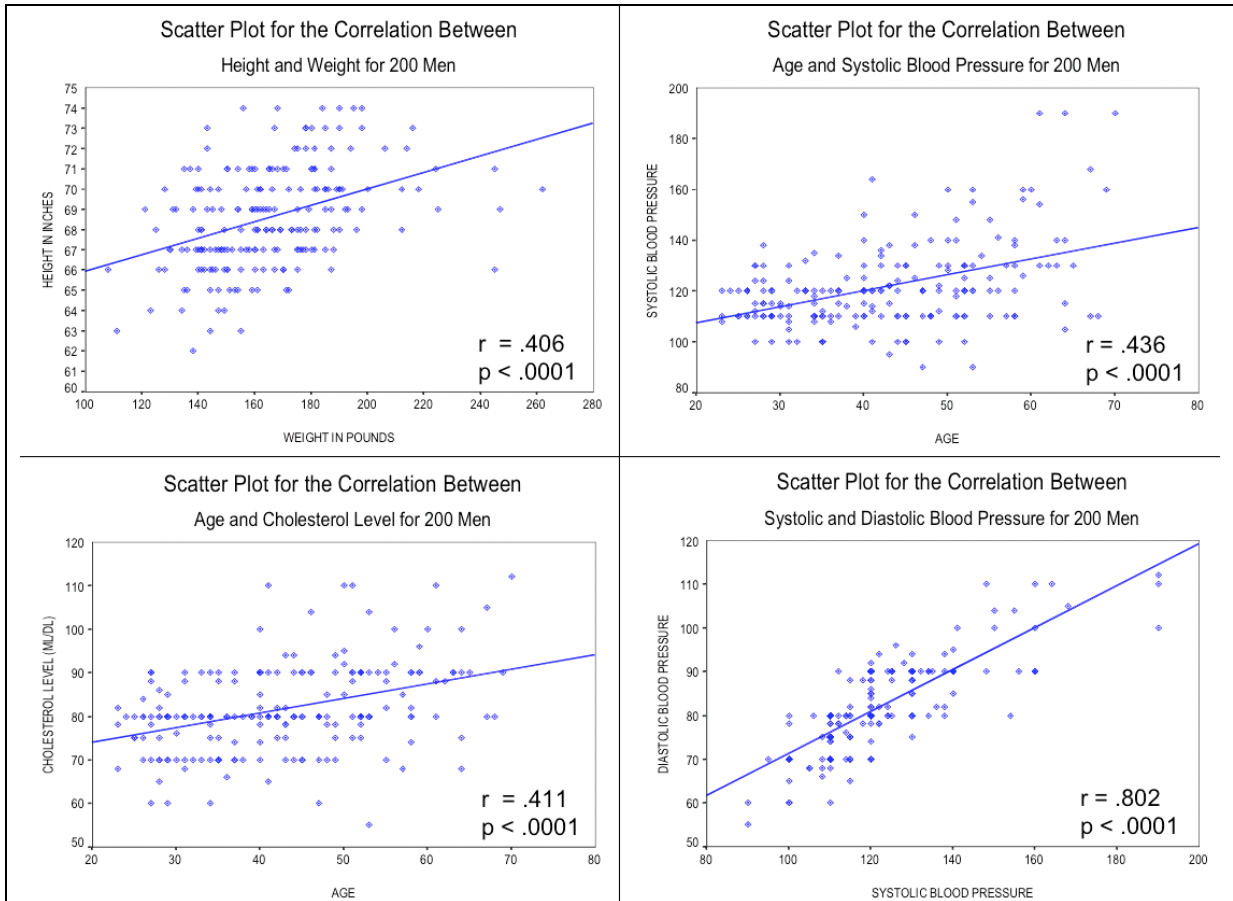


Figure 44: Comparison Correlations with Magnitude Similar to Study Findings [41]

---

[40] In psychological research, correlations of .60 or greater are judged to be quite high. Correlations from .20 to .60 are of practical and theoretical value and useful in making predictions. Correlations between 0 and .20 should be judged with caution and are considered only minimally useful in making predictions. (Atkinson, Atkinson, Smith, & Bem, 1990, p. 20.)

[41] Data source for these correlations is the Chapman dataset on the computer diskette accompanying "Statistical Methods in Education and Psychology" by Gene V. Glass and Kenneth D. Hopkins (Third Edition), Published

In the study of 200 men, there was not a statistically significant relationship between age and weight. [42] Making the parallel to the variables in my study, people who value power tend to be more competitive, and are more likely to compare their possessions with peers than those who do not place a high priority on social power. People who are worried or concerned about having their performance judged tend to value stability and security more than people who are completely unconcerned with the judgments of others. People who place a high value on self-direction tend to set goals and measure their progress, and possess a strong desire to learn. Actions taken in support of environmental protection and social justice tend to involve vigilance (in particular, to prevent exploitation), more than they involve enthusiasm. Indeed, the motivational definitions of universalism and benevolence (see Table 2 on page 35) include the words "protection" and "preservation," that clearly denote caution and vigilance.

The relationships shown in Figure 44, and the relationships in my study hold "in general," but are not absolute. Some short people are very heavy and some tall people are very slender and light. Some people who value ambition are unusually worried and anxious. (See, for example, Figure 1 on page 16 and Figure 2 on page 17). A focus on achievement can be motivated by a need to succeed, or by a fear of failure, as I discussed in Chapter 2 and as is suggested by McClelland, Higgins, Dweck, Elliot, Maslow, and other motivation researchers.

In Table 31, I have summarized the major relationships suggested by the results of my study. These relationships are suggested both by correlations, and by multi-dimensional

[42] However, in the decade since the Chapman study was published, the weight level, relative to height, has continued to climb in American population at large. Coincidently, profits in the fast-food industry are also up, but correlation does not imply causation. As an example, there is a .95 correlation between the population of Oldenburg, Germany at the end of each year (1930 – 1936) and the number of storks observed in that year. This fact forms the basis for the popular notion that babies arrive via storks. (Box, Hunter, and Hunter, 1978)

scaling solutions. I have organized the table in terms of the two sets of oppositions that constitute the "higher order" value types in the Schwartz theory. The first two columns (opportunity, stability) represent one axis in the Schwartz model, and the last two columns (individual, social) represent the other axis. The value theory asserts that these oppositions reflect inherent conflicts with which all people must deal, and that the values aligned with each pair of oppositions stem from conflicting motivational goals (Schwartz, 1992; Schwartz & Bilsky, 1987). An individual could pursue opposing goals, but not simultaneously.

Table 31:     Summary of Conceptual Similarities among Study Variables

| Opportunity | Stability | Individual | Social |
|---|---|---|---|
| Self-Direction (v) | Tradition (v) | Achievement (v) | Universalism (v) |
| Achievement (v) | Security (v) | Hedonism (v) | Benevolence (v) |
| Stimulation (v) | Emotionality (t) | Power (v) | Prevention Focus |
| Promotion Focus | Worry (t) | Competition Seeking (t) | |
| Desire to Learn (t) | Prevention Focus | Other Referenced Goals (t) | |
| Mastery Goals (t) | | Prevention Focus | |

Note: In Table 31, (v) indicates that the item is a value, (t) indicates that the item is a motivational trait.

As shown in Table 31, one finding of my study is that, like values, motivational traits and regulatory focus variables also consist of opposing pairs. This finding is not surprising; nature is filled with pairs of opposites. In his well-known essay on "Compensation," Ralph Waldo Emerson observed:

> POLARITY, or action and reaction, we meet in every part of nature; in darkness and light; in heat and cold; in the ebb and flow of waters; in male and female; in the inspiration and expiration of plants and animals; in the equation of quantity and quality in the fluids of the animal body; in the systole and diastole of the heart; in the undulations of fluids, and of sound; in the centrifugal and centripetal gravity; in electricity, galvanism, and chemical affinity. Superinduce magnetism at one end of a needle; the opposite magnetism takes place at the other end. If the south attracts, the north repels. To empty here, you must condense there. An inevitable dualism bisects nature, so that each thing is a half, and suggests another thing to make it whole; as, spirit, matter; man, woman; odd, even; subjective, objective; in, out; upper, under; motion, rest; yea, nay.   (Emerson, 1841, p. 87)

The oppositions within the Schwartz value theory have been discussed in a number of research articles since Schwartz & Bilsky's seminal article in 1987. One contribution of my

141

research is relating motivational traits and a subjective history of success using promotion or prevention to an established circumplex structure of widely recognized values.

Rohan (2000) titled her very thorough review article "A rose by any name? The values construct." Though a major purpose of the article was to clarify distinctions among various terms appearing in the values literature, the title also hints at the circular arrangement of values and, for my purposes, serves as an analogy for a *compass* rose. Figure 45 summarizes the relationships I found in this study, using the analogy of a compass. Suppose the white background with the four-point star is viewed as the compass face that contains values, arranged in a circumplex, with their known structure of opposing relations, as specified in the Schwartz theory. The shaded arrows represent motivational traits or regulatory focus that can rotate or pivot (as compass needles) fixed at the center of the circle. Generally, a compass needle points in the direction of magnetic north, but at times, influenced by more proximal magnetic forces, or because the compass is not "level," the needle's direction may deviate somewhat from magnetic north. Some fluctuation of the needle is considered "normal." Likewise with regulatory focus and motivational traits; while there is a relationship between these other constructs and value priorities, the relationships are fluid and dynamic, rather than rigid and inflexible.

Figure 45 (next page) is based on the calculated MDS solution for RFQ promotion and prevention subscales, the three motivational traits measured by the MTQ, and the six personal value indices I used in my hypotheses, defined in Table 4 on page 49. The point (tip) of each needle (arrow) is close to the construct's location in the multidimensional space. As shown in the figure, the stress is less than .1 and the squared correlation approaches .95. The alignment in Figure 45 holds "in general" but deviations may occur from time to time or from person to person. Though Personal Mastery and Motivation Anxiety appear to be opposite each other in all of the MDS plots in this dissertation (see Figures 23, 26, 34, 35), I

142

have shown these two motivational traits on separate (half-length) "needles" (rather than a single needle) to indicate their conceptual independence. In other words, a person could have high anxiety and low mastery, low anxiety and high mastery, low anxiety and low mastery, high anxiety, high mastery, etc., but some of these combinations are much less common.
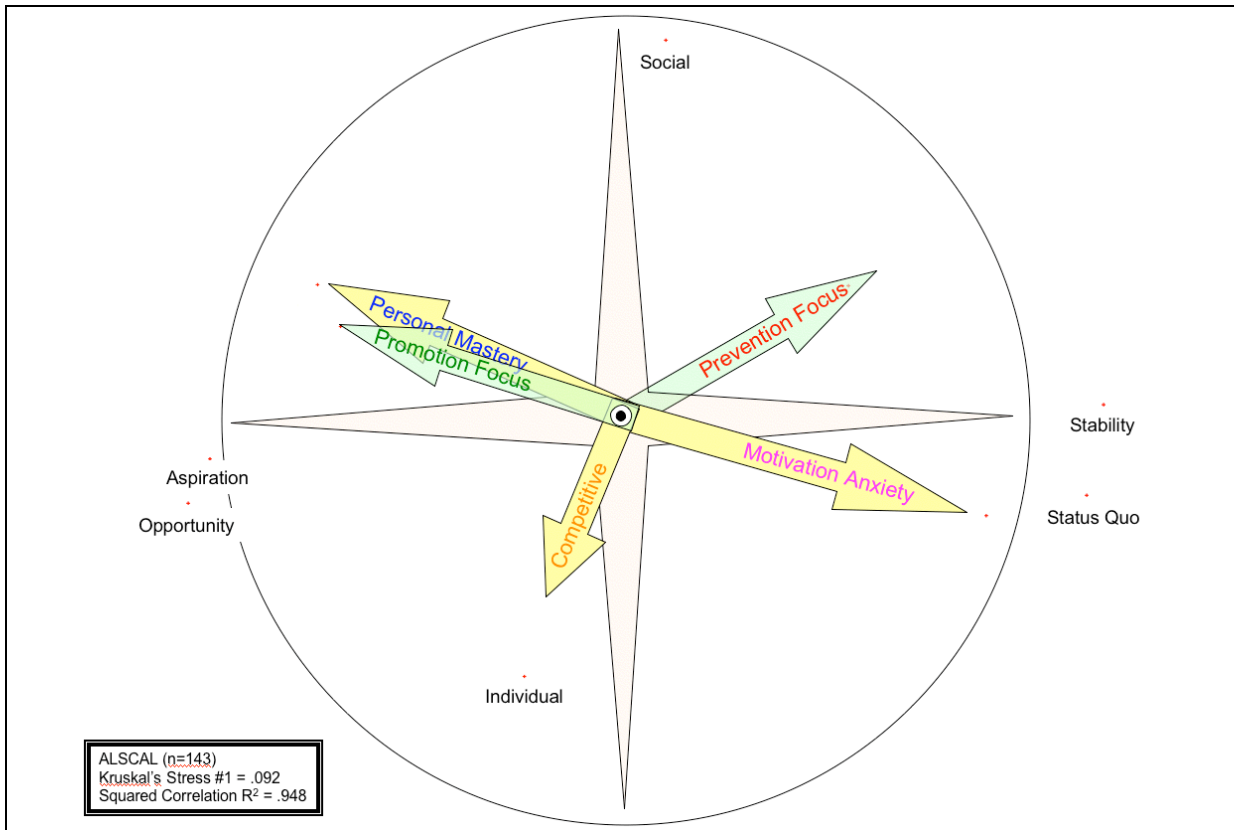


Figure 45:     Arrangement of Values, Traits and Regulatory Focus (ALSCAL)

In addition to the MDS solution presented in Figure 45, I also evaluated the correlations between *individual* SVS value items (shown in Appendix L on page 241) and the other two constructs. Figure 46 shows the individual SVS value items. Color codes (see legend in top left corner of figure) indicate positive or negative relationships between an SVS value item and a subscale of the MTQ or RFQ.

143

Total score RFQ promotion was positively correlated with Capable, and total score RFQ prevention was negatively correlated with Curious.  Net Promotion (the difference between promotion and prevention total scores) was positively correlated with Curious and negatively correlated with Politeness and Moderate.

The first subscale of Trait Personal Mastery (Desire to Learn) was positively correlated with (in this order [43]) Curious, Wisdom, A Varied Life, Creativity, Choosing Own Goals, and Intelligent.  The second subscale (Mastery Goals) was positively correlated with Wisdom, Capable, Successful, and Self-Discipline and negatively correlated with Moderate. Competition Seeking was positively correlated with Daring and Authority.  Other Referenced Goals was positively correlated with Social Power, Reciprocation of Favors, and Pleasure, and negatively correlated with Devout.  Worry was positively correlated with Respect for Tradition, Preserving My Public Image, Sense of Belonging, National Security, Honoring of Parents and Elders, Wealth, Mature Love, and A World at Peace and negatively correlated with Privacy and Curious.  Emotionality was positively correlated with National Security, Honoring of Parents and Elders, Respect for Tradition, Preserving My Public Image, Accepting My Portion in Life, A World at Peace, Wealth, and Devout.

All correlations I have listed on this page and present in Figure 46 are significant at p<.01.  Figure 46 shows all 57 of the individual value items used in the Schwartz Value Survey.  I have used color coding to indicate correlations between these values and (1) one of the six subscales in the MTQ (**Desire to Learn**, Mastery Goals, **Competition Seeking**, Other Referenced Goals, **Worry**, Emotionality) or (2) one of the scales on the RFQ (RFQ Promotion, RFQ Prevention).  The first subscale of each MTQ trait is in bold. If the correlation of the SVS value item and the MTQ or RFQ scale is negative, I have indicated this relationship using a box or rectangle around the SVS item, in addition to the color code.

---

[43] Correlations listed in this paragraph are, for each subscale, in order of decreasing magnitude (strongest first).
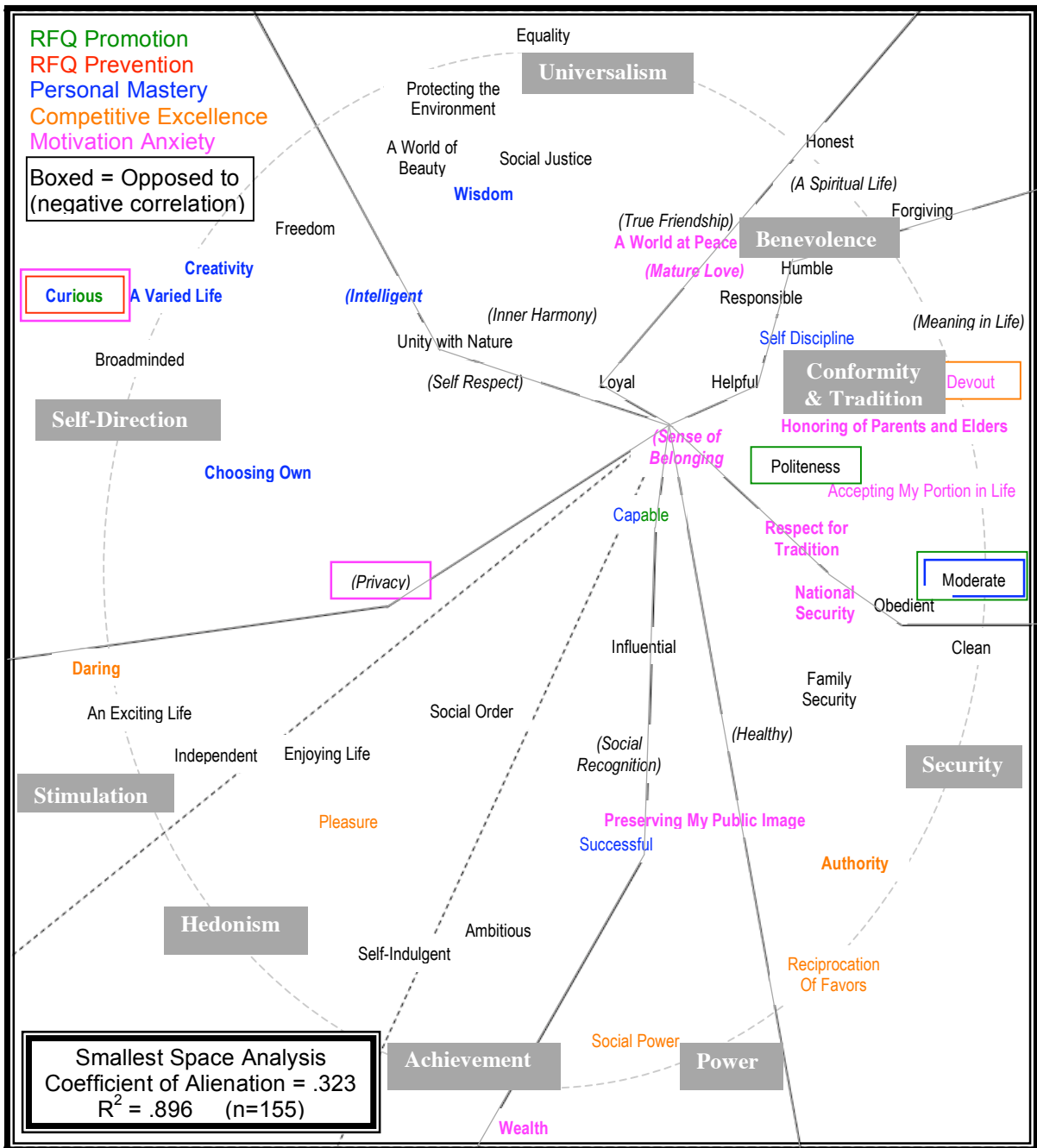
Figure 46:    Strongest Correlations of SVS Items with MTQ and RFQ Scales [44]

---

[44] Color coding represents correlations between RFQ or MTQ **subscale scores** that are significant at $p < .01$, two-tailed.  Bold items are from the first of the two subscales for each trait (Desire to Learn, Competition Seeking, Worry, respectfully).  Appendix L shows the magnitude of all correlations used in Figure 46.

Like Figure 45 (the compass), Figure 46 depicts the opposing relationship between Personal Mastery and Motivation Anxiety, both of which have an orthogonal relationship with Competitive Excellence. Whereas the subscales used in Figure 45 "collapse" or "consolidate" several items into one index (and ultimately *one point* in MDS space), Figure 46 shows the MDS location of the individual items that contribute to the single-point index used in Figure 45. The SVS value items Capable and Curious were positively correlated with both Trait Personal Mastery and RFQ Promotion, so I have shown these words half green and half blue (see the legend in the top left corner). Similarly, the value Moderate was negatively correlated with Trait Personal Mastery and RFQ Promotion; I have indicated these relationships by the presence of both blue and green rectangles around the word Moderate.

Intuitively, one might suppose that the magnitude of the correlations between select *individual* SVS items and motivational traits or RFQ promotion or prevention would exceed the magnitude of the correlation with the broader value indices consisting of the average of three to eight individual value items. In essence, one might expect that averaging individual values (to create an index) would compromise, diffuse, or reduce the intensity of the correlation with appropriate MTQ or RFQ subscales; averaging *moderates* extremes.

In the numbers of research articles I read referencing the Schwartz value theory, I do not recall individual value items being used in analyses; the value indices, based on an average of individual items are generally considered the variables of interest. When I decided to examine the correlation between individual SVS value items and the MTQ or RFQ subscales, my goal was to "find *which value* is most responsible for the strong correlations I observed." I expected to find one or two individual values that were responsible for the strong correlation I observed. In fact, I found the opposite; rather than the correlation being based on (or attributed to) a single "strong" relationship, the correlation was

146

strongest when multiple conceptually similar value items contributed to a broad value index.[45]

Recall from Chapter 4, (Figure 22, page 97), the correlation between Trait Personal Mastery and "Personal Aspiration" (which consists of value indices that are not even adjacent in the Schwartz theory: Self-Direction and Achievement) was .445. Recall also that in Table 16 (on page 96) I listed a number of correlations with magnitude greater than .25. For example, the correlation between Desire to Learn (trait subscale) and Self-Direction (averaged value index) was .390. The correlation between Worry (trait subscale) and Self-Direction was -.379. By contrast, the highest correlation between *any one* Self-Direction value and Desire to Learn was .345, and the highest correlation between *any individual* Self-Direction value and Worry was -.260. The trend is that broader indexes correlate higher.

In summary, the correlation between Trait Personal Mastery and the <u>one</u> highest individual SVS item (curious) was .345. The correlation between the average of <u>five</u> individual SVS values that *define* Self-Direction (see Table 2 on page 35) was .390. The correlation between the average of <u>nine</u> values that comprise Personal Aspiration (see Table 4 on page 49) was .445. This finding may first appear counterintuitive, but in fact parallels a number of other findings in which "the whole is greater than the sum of the parts." If one value is viewed as a single strand, grouping several (conceptually similar) values together makes a rope. The tensile strength of a rope is greater than the sum of the strength of the individual strands; in essence, the strands "help each other." This concept is known as

---

[45] I am not claiming that this finding holds indiscriminately. An index based on a random assortment of individual SVS items will tend to have very low correlations with an outside variable. The specific SVS values that comprise the 10 value indices in the theory have been selected based on analyses of hundreds of data samples. The values contributing to each index are conceptually similar, in that they express the same motivational goal (see Figure 13, p. 45). The number of items in each index is related to the conceptual breadth of the specific index. For example, Hedonism and Stimulation are based on three SVS items. Universalism is based on eight SVS items. The averaged value indices would have (as I found) a higher correlation with MTQ or RFQ variables if the individual values are viewed as containing random error variance that is reduced when averaged in the index. Observed score [measured by SVS] = True scores [the actual value] + Error variance (random). See Schwartz & Bilsky 1987 and Schwartz 1992 for a more extensive discussion.

"synergy," and appears to apply also to the influence of value priorities on other personality factors such as motivational traits or regulatory focus.

The evolution from individual value items to an *index* of items was one of the valuable (no pun intended) contributions of the Schwartz value theory. Prior values measures (for example, the Rokeach Value Survey) used single (individual) value items. The SVS uses indexes consisting of three to eight individual items. Whereas placing a high priority or importance on a narrow individual value may somewhat influence a person's overall personality, the influence is much greater if several conceptually similar values are *all* considered very important as guiding life principles. Relating Trait Personal Mastery to Schwartz values, the relationship is statistically significant for Curious. The relationship is moderately strong for Self-Direction, stronger for Opportunity (contiguous values), and even stronger for Personal Aspiration values (my derived index consisting of Self Direction and Achievement indices that are conceptually similar but not adjacent in the Schwartz model).

Thus far in this review of the major relationships I found in my study, I have shown the relationships between values, motivational traits, and regulatory focus using both MDS (the compass analogy) in Figure 45 and bivariate correlations between motivational trait or regulatory focus subscales and individual SVS items in Figure 46. Prior to concluding this first review section, I present one additional view of the study results. In Figure 47 (next page), all 57 SVS items are plotted in a single conceptual space with the individual items from the MTQ and the RFQ. [46] As I demonstrated previously (see Figure 34 and Figure 35

---

[46] ALSCAL is only able to handle 100 distinct input variables. My study uses 57 individual value items, 48 MTQ items, and 11 RFQ items, for a total of 116. I used all 57 SVS items, all 11 RFQ items, and 32 of the 48 MTQ items. My decision of which MTQ items to omit was based on the proximity of items in MDS solution space. I first generated an MDS solution with all 48 MTQ items and 52 of the 57 SVS items (total 100). As with my Figure 47, the MTQ items cluster in three distinct regions, corresponding to the three motivational traits. A number of the MTQ items were literally on top of each other. I eliminated items that were, on this basis, conceptually duplicative. MDS algorithms work with the rank order of the Euclidian distances between input items, so my approach should roughly minimize the impact on the configuration of points in the MDS solution. As would be expected with 100 items from a sample of only 143, the stress is relatively high.

on pages 123-124), the subscale items assigned to each of the three MTQ subscales are partitioned in separate regions.  Likewise, the subscale items for the RFQ can be partitioned in separate regions of MDS space.  I have marked the RFQ promotion items with bright green circles and the RFQ prevention items with red octagons.  Note that the six promotion subscale items are closely spaced and appear in the same region as Self-Direction values, and completely within the region containing the MTQ Trait Personal Mastery items (light large green oval).  This result is consistent with my prior Figures 23,26, 45, and 46.
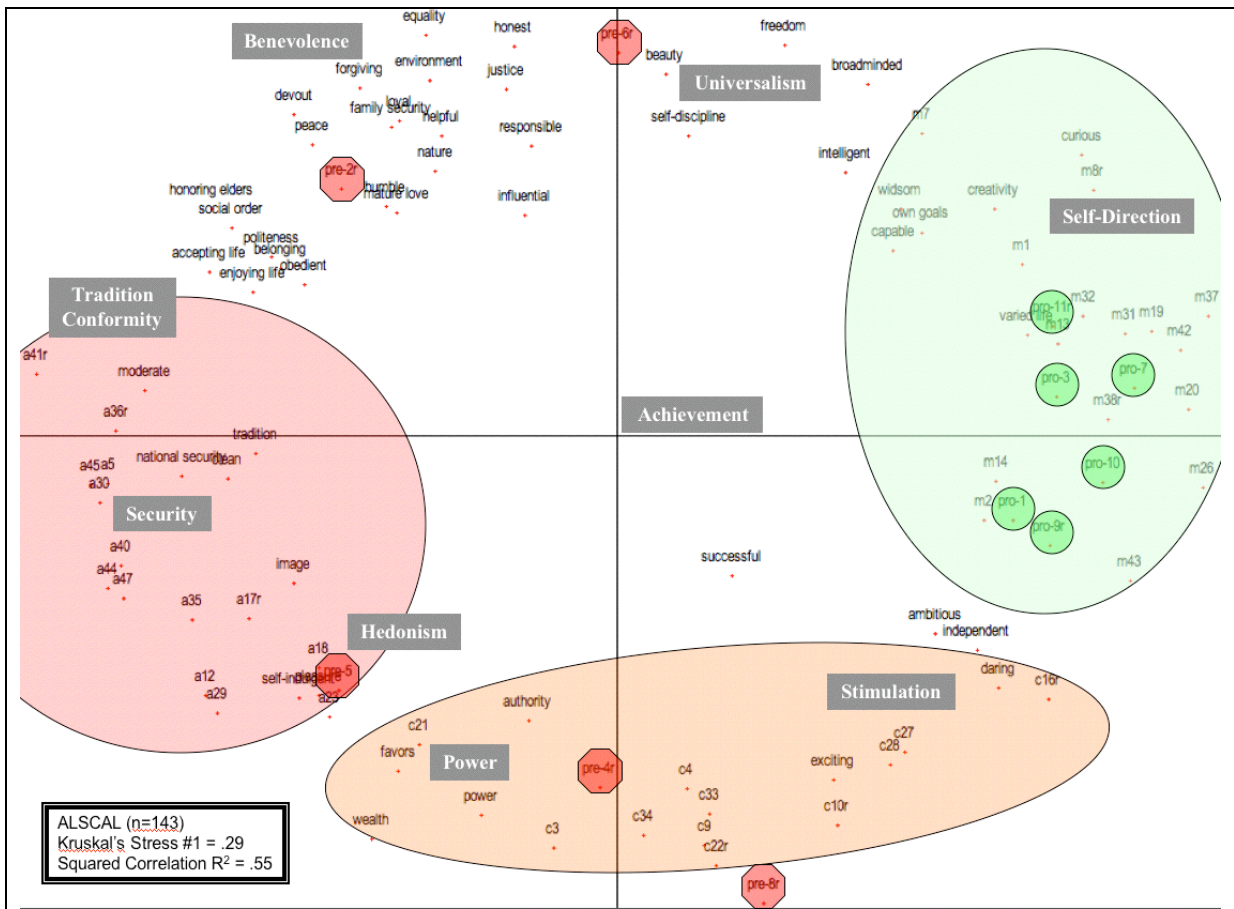


Figure 47:    ALSCAL Solution of Individual Items in SVS, MTQ, and RFQ

149

By contrast, the five prevention subscale items are widely dispersed and not proximally concentrated in the solution space. This finding may explain why there were no significant positive correlations between the RFQ prevention subscale and any of the SVS value items. Rather, there was only a negative correlation with the SVS item "curious," that appears above the "Self-Direction" label within the Trait Mastery region. The tight clustering of RFQ promotion items and the broad dispersion of RFQ prevention items may be indicative of the distinct roles played by the two types of regulatory focus. Promotion is related to approaching a desired goal. Prevention is related to stopping *everything that could impede* goal attainment. To be successful with a promotion focus, one need only focus on (again, no pun intended) the desired goal. To be successful with a prevention focus, one must "pay attention to" any number of external factors that might in some way reduce the likelihood of successful goal attainment. Promotion is narrow in focus; prevention is broad or diffuse, and not narrowly concentrated. Table 32 below shows the SVS value items nearest each of the RFQ promotion and prevention scale items.

Table 32:     SVS Value Items Associated with RFQ Questions

| Item | RFQ Statement (How Frequently do or have these events occurred) | Nearest SVS Values in Figure 47 |
|---|---|---|
| PRO1 | Compared to most people, are you typically unable to get what you want out of life? | Successful, ambitious, independent |
| PRE2R | Growing up, would you ever "cross the line" by doing things that your parents would not tolerate? (reverse scored) | Honoring Parents and Elders, Politeness, Obedient |
| PRO3 | How often have you accomplished things that got you "psyched" to work even harder? | A Varied Life |
| PRE4R | Did you get on your parents' nerves often when you were growing up? | Power, An Exciting Life |
| PRE5 | How often did you obey rules and regulations that were established by your parents? | Self-Indulgent, Preserving My Public Image, Reciprocation of Favors |
| PRE6R | Growing up, did you ever act in ways that your parents thought were objectionable? | Honest, Responsible, Self-Discipline |
| PRO7 | Do you often do well at different things that you try? | A Varied Life |
| PRE8R | Not being careful has gotten me into trouble at times. | An Exciting Life |
| PRO9R | When it comes to achieving the things that are important to me, I find that I don't perform as well as I ideally would like to do. | Ambitious, Independent |
| PRO10 | I feel like I have made progress toward being successful in my life. | Ambitious, Independent |
| PRO11R | I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them. | A Varied Life, Creativity, Capable, Curious, Choosing Own Goals |

150

Eight different SVS value items are associated with RFQ promotion (3 from achievement, 4 from self-direction, and 1 from stimulation) and eleven are associated with RFQ prevention (4 from conformity, 2 from power, 2 from benevolence, 1 from hedonism, 1 from stimulation, and 1 from security). There is no overlap of individual SVS items associated with RFQ promotion or prevention subscales, but the SVS indexed value Stimulation is related to both subscales. For RFQ promotion, the related SVS item is "A Varied Life" and for RFQ Prevention, the SVS item is "An Exciting Life." The latter value is conceptually (and proximally in Figure 47) related to "Daring," implying risk or danger. By contrast, A Varied Life is proximally and conceptually similar to Creativity and Curious.

Throughout this dissertation, I have used bivariate correlations and multi-dimensional scaling as different ways of investigating the strength and structure of relationships among variables. Because the fit, as measured by $R^2$ in Figure 47 is only .55, I also evaluated the correlations between individual RFQ promotion and prevention items and Schwartz value items and indices. The results of the correlations generally support the MDS results shown in Figure 47 but suggest some further refinements in the relationships among Schwartz values and the RFQ promotion and prevention scales.

I found positive correlations (significant at $p<.01$) between at least two RFQ promotion items and the Schwartz value indices for Self-Direction and Achievement. Self-Direction correlated with Item pro-7 at .221 and pro-10 at .211. Achievement correlated with Item pro-3 at .208 and pro-10 at .222. No other RFQ promotion items correlated with any Schwartz value index at $p<.01$. It is interesting to note that the California Personality Inventory (CPI) distinguishes Achievement *via Independence* and Achievement *via Conformance*. These CPI scales are conceptually very similar to the Schwartz Self-Direction and Achievement values respectively. The content of the CPI subscales is discussed in the CPI administration and scoring manuals (Gough, 1996; Gough & McAllister, 1995).

151

Achievement via Independence is conceptually most related to the McClelland need for Achievement, Schwartz Self-Direction, and MTQ Personal Mastery.  My derived Personal Aspiration index (Table 4, page 49) combined Achievement and Self Direction (which are not contiguous in the Schwartz model).  Table 18 (p. 98) lists the correlation between RFQ Net Promotion and Aspiration as .380, the highest correlation in the table.  No RFQ promotion items correlated positively with Stimulation or Hedonism, and RFQ Item pro-7 correlated negatively with Schwartz Hedonism (r=-.230, p<.01).  I view both Schwartz Self-Direction and Achievement as accomplishment oriented, while Stimulation and Hedonism emphasize self-focused experiences, but not *accomplishments*.  Recall from Figure 10, Hedonism is defined as "pleasure and sensuous gratification for oneself" and Stimulation is defined as "excitement, novelty and challenge in life."  Both of these values tend to emphasize experiences more than accomplishments.

In general, the correlations of SVS value indices and RFQ prevention items also supported the relationships shown in Figure 47.  In Figure 47, RFQ item "pre-8r" is shown at the bottom close to stimulation.  This RFQ item had a correlation with SVS Stimulation of .199, p<.01.  I did not find support for a relationship between RFQ item "pre-6r" and universalism or benevolence as indicated in Figure 47.  The correlation of item "pre-2r" with benevolence was .216, p<.01.  This is consistent with the placement of the item in Figure 47. Overall, the RFQ item correlations with SVS indices suggest positive relationships between RFQ prevention and SVS indices for Benevolence, Tradition, Conformity, and Security, and negative relationships between RFQ prevention and SVS indices for Hedonism and Self-Direction.

Schwartz Stimulation was negatively correlated with RFQ item pre-2r (-.203) and, as previously mentioned, also positively related with RFQ item pre-8r.  Recall from Figure 40 (p. 133), the exploratory factor analysis solution for the RFQ, that Item pre-8r only loaded on

152

the prevention subscale at .310. In summary, the factor-analytic solution, Figure 47 (MDS) and the correlations all suggest that RFQ item pre-8r should be evaluated.

Summarizing the major relationships of variables in my study, Opportunity and Personal Aspiration values are most associated with trait Personal Mastery and RFQ Promotion. Status Quo and Stability values are most associated with trait Motivation Anxiety, and are conceptually opposed to Opportunity, Personal Aspiration, trait Personal Mastery, and RFQ Promotion. Orthogonal to this pair of oppositions in the Schwartz framework, Individual value priorities are associated with trait Competitive Excellence and Prevention, while Social value priorities are opposed to trait Competitive Excellence. RFQ Prevention is related *both* to Individual and Social value priorities, but in service of different (and opposing) outcomes. In the Social region, RFQ Prevention is related to SVS value items Honest, Responsible, Self-Discipline, all of which are Benevolence values and reflect social or communal obligations. In contrast, RFQ Prevention in the Individual region is related to SVS items Power and An Exciting Life. These values reflect pursuit of personal *advancement* in comparison to or in competition with others, or the pursuit of personal *pleasure*, without consideration of or regard to others. In the Social area, prevention serves to prevent disadvantage or harm to others, reflecting an *interdependent self*. In the Individual area, prevention serves to prevent others from restricting or impinging upon personal freedom, reflecting an *independent self*. These findings are consistent with other research indicating relationships between independence, personal achievement, and a promotion focus on one hand and interdependence, a prevention focus, and security orientation on the other (Aaker & Lee, 2001; Gardner, Gabriel, & Lee, 1999).

153

**SECTION 2: WHAT DOES IT ALL MEAN?**

**Theoretical Implications**

Theories involve explanation or analogy.  As I discussed in Chapter 2, the existing literatures concerning the theory of (1) universals in human values, (2) achievement motivation, and (3) regulatory focus specify antecedents and consequences of specific patterns of value priorities, motivational tendencies, or the propensity to emphasize one type of regulatory focus over another.   Referring to these separate literatures, we can begin to build broader theories that might account for or explain the relationships observed in my study.  I mentioned a number of such theories in Chapter 2 that might contribute:  Weiner's *Attribution Theory*, Elliot's *Hierarchical Model of Approach and Avoidance Achievement Motivation*, Heggestad and Kanfer's *Motivational Trait Theory*, Maslow's *Motivation Hierarchy*, Adler's *Individual Psychology*, and Higgins' *Regulatory Focus Theory*.  In this section, I speculate about theoretical reasons for the results I obtained with my study first, in light of formal theory.  I then provide some additional comments based on my own theorizing, which represents an eclectic blend of formal theory, and my own observations and experiences.

*Contributions of Some Existing Formal Theories*

A number of researchers have discussed the relationship between security and anxiety.  One formal theory I believe well suited to explain a portion of my observed results is *attachment theory*.  Researchers (for example, Harlow, Bowlby, and Ainsworth) have provided experimental evidence that known, predictable, and familiar surroundings that are likely to address comfort and security needs often help mitigate the anxiety accompanying strange or new situations.  It appears that feelings of security are a necessary prerequisite for

154

sustained exploration; young children are only willing to explore if they feel safe and secure. If the foundation of safety is threatened, people tend to cling to the known, the predictable, and the stable. Researchers have also found relationships between the pattern of early attachments and the way individuals cope with new experiences. This varied research is discussed in Atkinson, Atkinson, Smith, & Bem, 1990, p. 86-93. In light of these findings, it is plausible that individuals who exhibit higher levels of trait motivation anxiety (worry and emotionality) would also tend to place a higher priority on values related to stability and security. Also, to the extent that curiosity is a basic motive (p. 394), those individuals who place a high value on curiosity would also tend to be low in motivation anxiety, and higher in promotion than prevention focus as I found in my study.

In order to develop the characteristics associated with trait personal mastery, it is likely that individuals would need to establish a track record of pleasant experiences exercising curiosity and other self-direction values. Traits are stable patterns of thinking or acting, in essence, habits of thought or action. Like other habits, they originate and are reinforced by repetition (Myers, 1999). Based on theorizing by Higgins et al., (see Figure 5 on page 23), individuals high in trait personal mastery also would seem more likely to utilize a promotion focus than a prevention focus. Recall, as I mentioned on page 2, that Feather (1995) has experimentally established a positive relationship between what people like and what they value. To the extent that exercising curiosity provides pleasure, it would tend to become more highly valued. This line of theorizing is consistent with my findings that self-direction values, trait personal mastery, and promotion regulatory focus tend to co-occur.

The results of my study also seem to be consistent with Maslow's well-known "hierarchy of needs." Maslow's theory claims that needs toward the bottom of the hierarchy, for example, safety (security value) and belongingness (benevolence value) are "prepotent," meaning that they are typically more urgent when unmet, than needs higher in the hierarchy,

like cognitive needs "to know, understand, and explore" (Atkinson, Atkinson, Smith, & Bem, 1990, p. 525). To the extent that safety and security needs are not yet met, we would expect elevated levels of trait motivation anxiety. Thus, only when trait motivation anxiety is low (providing evidence that basic security needs have been met) is an individual likely to place importance on self-direction values. Consistent with this reasoning, in this study, I found significant moderate negative correlations between self-direction values and motivation anxiety.

It is interesting to note that each of the (non-physical) needs in Maslow's hierarchy appears to be expressed within the Schwartz value model. From the base of Maslow's hierarchy and proceeding upward, (1) physiological needs are biological, and not in the domain of values.[47] Maslow's (2) safety needs could be related to Schwartz Security values; (3) belongingness and love needs to Benevolence values; (4) esteem needs to Achievement values; (5) cognitive needs to Self-Direction values, (6) aesthetic and (7) self-actualization needs to Universalism values. Incidentally, in the original version of the theory, Schwartz referred to Universalism as a *maturity* value (Schwartz & Bilsky, 1987, p. 554).

Though Maslow is most known for his hierarchy of needs, his full theory involved a contrast between growth or being motives and deficiency motives (Maslow, 1955, 1968). Deficiency motives are to fulfill a void or "fix" a problem. In contrast to deficiency motives, being motives stem from a sense of innate completeness or wholeness:

> The needs for safety, belongingness, love relations and for respect can be satisfied only by other people, i.e., only from outside the person. This means considerable dependence on the environment. A person in this dependent position cannot really be said to be governing himself, or in control of his own fate. He[48] *must* beholden to the sources of supply of needed gratifications. Their wishes, their whims, their rules and

---

[47] In the values literature, the term *values* usually is reserved for abstract constructs but this view is debated.

[48] Maslow wrote these words prior to 1968, before gender neutrality was considered standard communication practice. Obviously, his comments apply as much to females as to males. There are two places in this long section of quotation marked by "…" I have omitted only reference notations, not any content of the discussion.

laws govern him and must be appeased lest he jeopardize his sources of supply. He *must* be, to an extent, "other-directed," and *must* be sensitive to other people's approval, affection and good will. This is the same as saying that he must adapt and adjust by being flexible and responsive and by changing himself to fit the external situation. *He* is the dependent variable; the environment is the fixed, independent variable.

Because of this, the deficiency-motivated man must be more afraid of the environment, since there is always the possibility that it may fail or disappoint him. We now know that this kind of anxious dependence breeds hostility as well. All of which adds up to a lack of freedom, more or less, depending on the good fortune or bad fortune of the individual.

In contrast, the self-actualizing individual, by definition gratified in his basic needs, is far less dependent, far less beholden, far more autonomous and self-directed. Far from needing other people, growth-motivated people may actually be hampered by them. I have already reported … their special liking for privacy, detachment and for meditativeness…

Such people become far more self-sufficient and self-contained. The determinants which govern them are now primarily inner ones, rather than social or environmental ones. They are the laws of their own inner nature, their potentialities and capacities, their talents, their latent resources, their creative impulses, their needs to know themselves and to become more and more integrated and unified, more and more aware of what they really are, of what they really want, of what their call or vocation or fate is to be.

Since they depend less on other people, they are less ambivalent about them, less anxious and also less hostile, less needful of their praise and their affection. They are less anxious for honors, prestige, and rewards. (Maslow, 1968, p. 39-40, *italics* in original)

On the surface, it may appear that Maslow is advocating a self-centered isolationist lifestyle, rather than a view of *healthy personality*. In the context of his other claims, this critique seems overly harsh. For example, in addition to describing the origins or foundations of growth or being motivation, Maslow also documented clinically observed characteristics of "self-actualizers." These characteristics include (in addition to autonomy and privacy needs already discussed): "superior perception of reality, increased acceptance of

self, of others, and of nature, increased spontaneity, … greater freshness of appreciation, and richness of emotional reaction, …, increased identification with the human species, … improved interpersonal relations, more democratic character structure, greatly increased creativeness" (Maslow 1968, p. 32). While Maslow's "self-actualizers" eschew dependency, they do not appear to be anti-social. They relate to other people, but do not view others as a means to their own ends [49]. Combining the two descriptions from Maslow, self-actualizers seem likely to value self-direction and universalism and (to a lesser extent) benevolence values and seem unlikely to value SVS security and tradition. They would also seem to be high in trait personal mastery and low in trait competitive excellence and motivation anxiety.

Adler's conception of healthy human personality was in some ways similar to Maslow's view. Adler characterized human strivings as toward perfection and away from feelings of inferiority (Ansbacher & Ansbacher, 1956; Manaster & Corsini, 1982). Both Maslow and Adler seem to have recognized distinctions that may be similar to trait personal mastery versus motivation anxiety, and to promotion versus prevention. However, in addition to the opportunity / stability contrast, Adler also emphasized the distinction between individual and social pursuits. According to Adler, the most healthy, wholesome strivings were in a direction that aligned personal and societal benefits. In other words, benefiting society while benefiting the self (Manaster & Corsini, 1982).

Elliot's *Hierarchical Model of Approach and Avoidant Achievement Motivation* distinguishes mastery, performance approach, and performance avoidance goals. In prior research (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997) using the Work and Family Orientation Questionnaire (WOFO) (Helmreich & Spence, 1978), which is conceptually similar to the MTQ, Harackiewicz and colleagues found that trait scores predicted goals endorsed by participants. Individuals "high in workmastery were more likely to adopt

---

[49] This idea was expressed by Immanuel Kant in his Categorical Imperative to treat all persons as "ends in themselves" and not as "mere means to our own ends. (cited in Kane, 1994, p. 20).

mastery goals and less likely to adopt work avoidance goals, whereas competitive individuals were more likely to endorse performance and workavoidance goals" (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997, p. 1284). "Workmastery" in the WOFO measure combines "hard work" and "personal mastery" traits as I showed in my Figure 3 on page 18 and discussed on page 21. Recall from Figure 1 on page 16 in this dissertation that in Elliot's model, mastery goals are seen as originating from a need to achieve ($n$Ach), performance avoidance goals from fear of failure (FOF), and performance approach goals are believed to be based on both $n$Ach and FOF. Harackiewicz and colleagues found also that individuals who adopted mastery goals "reported higher levels of interest" than those not adopting mastery goals, and those that "adopted performance goals achieved higher grades" (p. 1289). This finding seems to be consistent with my findings that trait mastery is related to self-direction values and trait competitive excellence is related to achievement and power values. Self-direction values emphasize intrinsic interest, whereas achievement and power values emphasize socially desirable tangible accomplishments.

According to Schwartz, in his value model, self-direction values (rather than achievement values) are conceptually most similar to McClelland's need to achieve ($n$Ach). In the Schwartz model, achievement (as a broad value) reflects "personal success through demonstrating competence according to social standards" (see Table 2 on page 35). So conceptually, Schwartz achievement is more similar to Elliot's performance approach goals than to mastery goals. As a specific example, note that in Figure 46 (p. 145) "Successful" (an individual SVS item within Achievement) is immediately adjacent to "Preserving My Public Image" and quite close to "Authority," both of which are SVS Power values. As shown in Figure 46, as individual SVS items, Successful is most correlated with MTQ subscale mastery goals (.236), Preserving My Public Image with MTQ subscale worry (.294), and Authority with MTQ subscale competition seeking (.225). Correlations are from Appendix L. In this region of Figure 46, mastery, performance, and anxiety all converge.

The findings in the Harackiewicz study and the item correlations in my study both appear to provide support for Elliot's hierarchical model of approach and avoidance achievement motivation. See Figures 1 and 2 on pages 16-17 in Chapter 2.

In evaluating or interpreting correlations of outside variables and the Schwartz achievement values, it is important to keep in mind that achievement motivation, as used by McClelland, Elliot, and others in the achievement motivation literature corresponds to Schwartz Self-Direction values more so than Schwartz Achievement values. In the Schwartz model, the motivational goal underlying achievement values involves a social (external) standard of comparison rather than a personal (internal) standard of comparison. The standard of comparison for "Self-Direction" values, on the other hand is personal and internal.

In addition to self-report respondent measures, the Harackiewicz study also used open-ended (operant) questions to examine participant's choice of goals in light of their motivational trait scores using the WOFO. Additionally, the study "found mastery and performance goal measures to be essentially uncorrelated" (p. 1284). Consistent with this, I found a correlation of .083 between MTQ personal mastery and competitive excellence (see Table 27 on page 124). According to the authors, the Harackiewicz study results "contribute to the burgeoning achievement goals literature by identifying important personality predictors of achievement goals and by documenting the ways in which both mastery and performance goals are associated with motivation and performance" (p. 1292). Although their study used the WOFO instead of the MTQ, the results did indicate a link between enduring motivational traits and goals selected in specific situations. As Harackiewicz and colleagues indicate, "One of the major contributions of goal theory (Ames, 1992; Dweck & Legget, 1988) has been to identify specific patterns of cognition, emotion, and behavior that develop over time as a function of the goals adopted by individuals in achievement

situations, affording a comprehensive account of the motivational processes engendered by goals" (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997, p. 1293).

In my study, the SVS measures present value priorities, as abstract guiding principles. The MTQ measures motivational traits in achievement contexts. The RFQ measures subjective history of success using a promotion or a prevention approach. In light of the quote from p. 1293 of the Harackiewicz study, SVS values can be viewed as an indication of the motivational direction of participant's goals or strivings. The MTQ and RFQ measure "specific patterns of cognition, emotion, and behavior."

*Motives and Values*

Consider the relations among motives and values. Though I have assumed these to be distinct constructs in my study, they are clearly related. The notion of a conscience "what I *should* do" seems to demonstrate that values and motives are indeed distinct. Generally, the only time "conscience" is mentioned is when a discrepancy exists between (1) what the individual "wants" or is internally *motivated* to do and (2) the course of action suggested by "conscience", or the value system.

Recall that values are evaluative standards, or guiding principles. As I discussed in Chapter 2, (pp. 32-33), according to Schwartz and Bilsky (1987), "all individuals must satisfy (a) biological needs, (b) the interpersonal requirements of social interaction and c) demands of social institutions for group welfare and survival." Satisfying each of these three needs often involves resolving conflict; in particular, (1) the conflict between personal concerns and social or societal concerns and (2) the conflict between change and stability. Motivation theorists Deci and Ryan describe *socialization* as the process of internalizing values that initially conflict with natural impulses or motives (Deci & Ryan, 1985, p. 129). They define *internalization* as "the process through which an individual acquires an attitude,

161

belief, or behavioral regulation and progressively transforms it into a personal value, goal, or organization" and "integrates the demands and values of the socializing environment" (p. 130). According to Deci and Ryan, the socialization process proceeds along a continuum from non-regulation to integrated regulation. Integrated self-regulation "is the natural outcome of internalization that is not impeded or thwarted by environmental influences. It represents the true meaning of socialization; one does not simply do what one thinks the social values dictate, one behaves, feels, and thinks in a way that is congruent with the social values, because one has accepted them as one's own" (p. 138).

Deci & Ryan mention that socialization can involve either "acquisitions," acquiring desirable attitudes or behaviors or "abstentions," eliminating undesirable attitudes or behaviors (p. 129). Using the rating scale for the SVS, the process of internalization moves a value from "-1 opposed to my values" to "6 very important." Below, I present a summary of the process of value integration from an external socially endorsed value to an internal personally endorsed value, using Deci and Ryan's categories, as adapted by Emmons (1999).

> Extrinsic – you strive for this because somebody else wants you to or thinks you ought to, or because you'll get something from somebody if you do. Stated differently, you probably wouldn't strive for this if you didn't get some kind of reward, praise, or approval for it.
>
> Introjected – You strive for this mostly because you would feel ashamed, guilty, or anxious if you didn't. Rather than striving because someone else thinks that you ought to, you feel that you "ought" to strive for that something.
>
> Identified – You hold this striving because you really believe that it's an important goal to have. Although this goal may once have been taught to you by others, you now endorse it freely and value it wholeheartedly.
>
> Intrinsic – you strive purely for the fun and enjoyment that the striving provides. While there may be many good reasons for the striving, the primary "reason" is simply your interest in the experience itself.
>
> (Emmons, 1999, p. 187)

*Including Regulatory Focus*

On theoretical grounds, the Schwartz self-direction values seem inherently aligned with intrinsic personal motives. The definition from Table 2, page 35 is "independent thought and action-choosing, creating, exploring." In this dissertation research, I found promotion focus and the absence of prevention focus within the opportunity quadrant of the Schwartz model (self-direction, achievement, and half of hedonism). By contrast, prevention focus, at least at the item level, seemed to be present to some degree within each of the other three quadrants: individual, stability, and social as shown by the red octagons in Figure 47 on page 149. According to Higgins' theorizing, promotion focus represents "I want" and prevention focus represents "I should." See Figure 5 on page 23 and Figure 7 on page 26. Higgins' theorizing and my results imply that promotion focus may predominate when motives and values are aligned or when values have become fully integrated into the personality. In this case, successful attainment of the goal would appear not to *require* vigilance and all attention could be focused on approaching the desired goal.

In contrast, vigilance may be required (a) to monitor one's own (not yet fully internalized responses) or (b) environmental conditions. In these situations, a prevention focus would be (at least partially) *necessary* to ensure success of actions within the individual, stability, or social quadrants of the Schwartz model. In these quadrants, the motivation, rather than being solely "because I want to," would be "to outperform others (individual values), to conform or to honor tradition (stability values), or "to help other people or the environment," (social values). The individual quadrant inherently involves extrinsic motivation; to determine whether or not one is succeeding, one must compare personal results, progress, or status to an <u>external</u> standard: "how well someone else is doing." By definition, tradition and conformity values in the Schwartz model share the same motivational goal of "subordination of self in favor of socially imposed expectations" (see

Figure 13 on page 45).  A distinction or separation between internal motives and socially sanctioned values is clearly implied with conformity and tradition values in the stability region.  In the social region, success sometimes involves a comparison between the actual conditions and an ideal or hypothetical conception of how those conditions should be.  In other words, success in achieving goals in the individual, stability, or social quadrants may require a vigilance orientation as well as an eagerness orientation, and may be for (at least partially) extrinsic reasons.

### *Motivational Traits and Regulatory Focus*

In addition to the relations between values and regulatory focus variables, I also found clear relationships between motivational traits and regulatory focus variables (see Table 17 on page 96).  Specifically, both subscales of personal mastery were positively related to a promotion focus.  The correlation between total score promotion and total score Mastery goals was .508, the highest of any correlation I found in the study.  Both subscales of motivation anxiety were negatively related to a promotion focus (-.342).

While "worry" has a cognitive component, "emotionality" clearly involves a physiological or emotional component.  For example, MTQ items related to emotionality include phrases such as "my heart beats fast before I begin difficult tasks" or "I get an uneasy feeling in my stomach when working toward something I really want to accomplish."  Recall from my Figure 6 (page 25) the emotions accompanying promotion and prevention in the research.  When a person is succeeding using a promotion focus, he or she usually feels happy or elated; when failing, sad or depressed.  On the other hand, when using a prevention focus and succeeding (in preventing things from going wrong), typically one's emotional state is calm and relaxed; when efforts are failing, typical emotions include tension or

nervousness.  In essence, motivational anxiety is the expected emotional state when failing in a prevention-focused mode of action.

In terms of Deci & Ryan's Self Determination Theory (Deci & Ryan, 1985; Deci, Vallerand, Pelletier, & Ryan, 1991) we would expect a positive relationship between (1) values with an external or extrinsic component and (2) motivation anxiety.  We would expect not to find a positive relationship between internally motivated (intrinsic) values and motivation anxiety.  The results of my study are consistent with this reasoning.  Consider for example the universalism value Wisdom.  My Figure 46 (p. 145) and Appendix L (p. 241) show a moderate positive correlation between Wisdom and both subscales of trait personal mastery:  Desire to Learn (.345) and Mastery Goals (.313).  Wisdom has a slight positive correlation with promotion focus (.16, p<.05), and seems more likely to be associated with intrinsic motivation.  Recall from Table 2, page 35 that SVS Wisdom is defined as "a mature understanding of life."  Though it is possible to imagine a person pursuing wisdom with a prevention focus ("If you think education is expensive, try ignorance"), this scenario seems less likely than a promotion focus as suggested by my data.  On the other hand, SVS value A World at Peace (also a universalism value) could be an approach or an avoidance value.  With my sample, Figure 46 and Appendix L show a positive relationship between A World at Peace and both subscales of motivation anxiety: worry (.219) and emotionality (.233).  Based on these correlations it is reasonable to assume that the value is important (to the people in my sample) in order to avoid a disadvantage (anxiety) more so than to gain an advantage.

In summarizing, my speculation about possible theoretical relationships among motivational traits, personal value priorities, and regulatory focus, supported by my study results includes the following:  (1) Wholly approach-related values, motives, and promotion co-occur in the opportunity portion of the Schwartz value model.  (2) Conceptually, and proximately farthest from opportunity, stability values correlate with (for the adults in my

165

sample) primarily avoidance values and motives.  For people with highest value priorities in this region, prevention focus and higher levels of motivation anxiety are likely to predominate.  Moving from stability to opportunity – in either direction around the circumplex – motives are likely to become increasingly intrinsic, and regulatory focus, increasingly promotion-focused.  In the Individual quadrant, I am suggesting an extrinsic focus related to comparing other to self.  In the Social quadrant, an extrinsic focus related to comparing other to an ideal or normative standard.  The relative balance of intrinsic / extrinsic, promotion / prevention, anxiety / mastery might shift gradually between extremes of Self Direction on one side of the Schwartz circumplex model and Conformity / Tradition on the opposite side of the circumplex.

### *Personal Maturity – The Appropriate Balance of Inherent Conflict*

In addition to the "location" within the Schwartz circumplex model, whether a specific value is intrinsic / promotion related or extrinsic / prevention related may also be related to a person's ego development, maturity level, or "subject / object level" (recall my discussion of Kegan's epistemological stage theory on page 10-11).  A number of theorists and philosophers have described healthy human development as the successful balancing or integration of competing interests.  Generally, this is seen as taking place through a number of developmental challenges, each consisting of, first, differentiation and then, integration (Kegan, 1980, 1982; Newman & Newman, 1975; Shaffer, 2000).

As an example, first, an infant separates the self psychologically from the mother (usually the primary care-giver in infancy).  This produces anxiety initially, but the individual gradually learns to "stand on his or her own" and becomes quasi independent.  Between childhood and adulthood, parents, teachers, pastors, etc. attempt to impart social values.  In the teen years, the individualistic approach usually transitions to an emphasis on

social relationships. If a young person remains *a self-centered loner*, the socialization process is considered a failure. In extreme cases, a person may be diagnosed with an *anti-social personality disorder*, the lack of apparent *normal* empathy towards the wellbeing of others. Generally, the adolescent years are marked by an internal struggle to reconcile the (seemingly innate) desire for unfettered independence and the (seemingly burdensome) expectations of other groups, and society at large. After *appropriate* social values have become fully integrated into the self-concept, conflict among value priorities is greatly diminished.

In Kegan's theoretical framework (recall the discussion early in Chapter 2), personal growth involves an alternating emphasis on "self" and "other." What makes the process *developmental* is that *self* is redefined, at each sequential developmental level to incorporate what was *other* in the previous developmental level. In other words, *self* expands over time to include prior *others*. Recall Maslow's description of self-actualizers as identifying with the human species, having a superior perception of reality and an increased acceptance of self and others (see page 157). Poet and philosopher John Donne expressed this expanded notion of the *self*:

> No man is an island, entire of itself; Every man is a piece of the continent, a part of the main. If a clod be washed away by the sea, Europe is the less, as well as if promontory were, as well as if a manor of thy friend's or thine own were. Any man's death diminishes me, because I am involved in mankind; and therefore never send to know for whom the bell tolls; it tolls for thee.          (Donne, 1624)


If we take seriously (1) the claim of the Schwartz value theory that actions taken in support of values on one side of the circumplex inherently conflict with actions supporting a value on the opposite side of the circumplex, and (2) that each of the ten values indeed reflects something inherently valuable, then successful personal development might involve, over time, integrating the opposing values into a coherent, balanced system of value

167

priorities.  This notion seems to fit with a lay understanding of maturity and appears to be consistent with both Maslow's and Adler's notions of development.

### *Personal Speculations*

As guiding principles, value priorities serve as guides for determining value or *worth*. A person's value priorities are a reflection of what that individual deems *worthy* of pursuit. In essence, value priorities reflect for each person, *the good life*.  The well-being literature is largely split among two competing positions (Ryan & Deci, 2001).  One view asserts that wellbeing is maximized by the pursuit of happiness; by pursuing pleasure and avoiding pain. This viewpoint is called *Hedonic Wellbeing*.  In contrast to this view, the other position asserts that an allegiance to *correct principles* rather than personal pleasure maximizes wellbeing.  The second position is called *Eudaimonic Wellbeing*.  The hedonic and eudaimonic wellbeing viewpoints seem to derive from differing value priorities.  In my own view, the hedonic considers the short-term view, and the eudaimonic considers the long-term view.  As an example, strenuous physical exercise is often not pleasurable in the short run. However, in the long run (pun not intended), it results in arguably greater personal wellbeing than pursuing a lifestyle of minimal physical exertion, which may seem much more pleasant at the time.  Speaking from the perspective of the eudaimonic view, German philosopher Immanuel Kant (1724-1804) believed that we should not strive to *be* happy, but to be *worthy* of happiness (Mandt, 1990).

In my own theorizing about the relationships among personal value priorities, motivational traits, and regulatory focus, I view values as providing a vector direction for pursuit of accomplishments or experiences.  Motivational traits and regulatory focus are related to qualities of the individual's journey in the value direction(s). As I have discussed, successful development may involve, over time, balancing inherently conflicting value

168

priorities.   Each individual's life course reflects the results of decisions about how best to balance competing interests.   New experiences or accomplishments and existing value priorities combine with decisions about which values to pursue and set in motion a life course.

Values that seem completely unimportant when fulfilled, may become supremely important when unmet.  For example, a person may claim to place little importance on health as a *guiding principle*.   A heart attack may quickly refocus the importance of health, and other previously important values become de-emphasized.   In this way, over time, individuals continually move (along a unique trajectory) toward wholeness or, using Adler's term, *perfection*.   Some researchers of personal wellbeing believe that personal choices demonstrate an innate drive toward improvement reflected in an *organismic valuing process* (Sheldon, Arndt, & Houser-Marco, 2003).

Using an analogy, consider the Schwartz value circumplex to represent a "wheel." Differing value priorities can be viewed as reflecting different types of motivational goals, located in different parts of the "wheel."   The Schwartz model reflects a motivational continuum and theoretically is capable of accommodating all types of goals or strivings.  To simplify my example, assume that an individual's goals or strivings can be classified into one of six categories [50]:   (1) spiritual and ethical, (2) mental and educational, (3) social and cultural, (4) physical and health, (5) financial and career, and (6) family goals.   An individual's satisfaction with the current status or progress in each of the six areas corresponds to the length of the "spoke" in that portion of the wheel.  If the length of the spokes (corresponding to the level of satisfaction with motivational goals) in one part of the wheel differs significantly from the length in other parts, the wheel is incapable of providing

---

[50] In this example, I am using categories from a goal-setting program authored by Paul J. Meyer, founder of Success Motivation Institute (SMI), Waco, Texas.  The "wheel of life" analogy is used in SMI programs as an analogy for a balanced life.

a smooth ride through life. In this case, attention is needed to address the perception of imbalance.

Returning to the hedonic versus eudaimonic distinction, wellbeing researcher Emmons advises that empirically, meaning and happiness are:

> relatively independent components of well-being that are often associated with different predictors… A meaningful life is one that is characterized by a deep sense of purpose, an sense of inner conviction, and an assurance that in spite of one's current plight, life has significance.  Whereas it is possible for a life to be imbued with significance, yet devoid of happiness, it is impossible for long-term happiness to occur in a life devoid of meaning" (Emmons, 1999, p. 138).

> The good life is not one that is achieved through momentary pleasures or defensive illusions, but through meeting suffering head on and transforming it into opportunities for meaning, wisdom, and growth, with the ultimate objective being the development of the person into a fully functioning mature human being.  On this formula for happiness, age-old wisdom and modern science are in agreement. (p. 156)

Development or personal growth as envisioned by Maslow, Adler, and more recently, Emmons seems likely to require high levels of trait personal mastery.  The results of my study suggest that lower levels of trait motivation anxiety usually accompany higher levels of personal mastery and higher relative importance on self-direction and universalism values. To the extent such a person is competitive, he or she is more likely to compete against personal standards of excellence than against other persons.  In words attributed to the late James Michener:

> The master in the art of living makes little distinction between his work and his play, his labor and his leisure, his mind and his body, his information, and his recreation, his love and his religion.  He hardly knows which is which.  He simply pursues his vision of excellence at whatever he does, leaving others to decide whether he is working or playing.  To him, he's always doing both.

**SECTION 3: ASSUMPTIONS AND LIMITATIONS**

Every study is based on assumptions and contains inherent limitations. A good study answers some questions, and poses many others. In this section, I highlight some of the assumptions on which my study depends, some constraints on its applicability. In the final section (section 4), I suggest some areas that appear to be worthy of future study.

**Assumptions**

In this empirical study, I made a number of assumptions. I assumed that each of the three measures I used captures stable, persistent individual differences in addition to momentary or primed short-term effects. While the questionnaire authors claim that their measures capture stable personality characteristics, there is evidence that value priorities (Verplanken & Holland, 2002) and regulatory focus (Crowe & Higgins, 1997; Markman, Maddox, & Baldwin, 2005) are highly sensitive to context. This issue is encompassed within the *state-trait* debate. The conclusions I draw from the results of my study assume some level of intra-person consistency during the time the data is gathered. In other words, any momentary effects carry through each of the measures. I also assume that similarities in self-reported ratings across the three measures reflect *structural relations* among the constructs. Schwartz (2005) presents evidence that the MDS plots of individual values reveal structural relations and not merely semantic similarity.

Because the design of my study is *correlational* rather than *experimental*, I am not assuming or testing for causal relationships among variables. I do, however, make the untested assumption that there are common causes to an individual's decision to select specific response patterns when completing the three measures. For example, Regulatory Focus Theory postulates that certain types of interactions with important caregivers early in life lead to different habitual strategies of pursuing success (Higgins & Silberman, 1998).

171

The Schwartz Values Theory assumes that value priorities reflect an individual's response to combinations of congruent and conflicting needs and specific environmental opportunities.

**Limitations**

There are several methodological limitations in my dissertation. The ten value types specified in the Schwartz theory are derived from forty-six of the fifty-seven value items measured. The eleven items not used are excluded because their meaning is less stable across samples. However, if a respondent places a very high value on several of the eleven value items that are not included in calculation of the indexes, the scores on these values will inflate the item average (**m**ean importance **rat**ing or MRAT) and correspondingly, reduce the apparent importance of the other (measured) values. To test the impact of the "missing" value items, I re-calculated the SVS indices using the ten of the eleven values (in parentheses and italics and light yellow shading in Figure 28 on page 110) that were clearly contained within the expected value regions according to the Schwartz theory. I excluded *Sense of Belonging* because its placement was not clearly associated with any of the value regions. With these revised SVS indices for the 10 values, I obtained slightly lower correlations than those I presented in Chapter 4, but the same relationships were statistically significant. Consequently, I have concluded that the "standard" Schwartz value indices I used (see p. 211) were appropriate. By using the standard indexes in my study, my results can be more easily compared with or used in other published research using the SVS measure.

Prior to completing the SVS, many participants may have spent very little time thinking about specific values as guiding principles in life. People differ greatly in the extent to which they are able to think clearly about their value priorities and there is evidence that subjective well-being is related to clarity of self-concept or clear value priorities (Campbell, 1990; Wilson & Dunn, 2004). To the extent that the SVS was overly challenging, measures

of trait motivation anxiety may have been affected. The counter-balanced order of the measures was intended to mitigate this type of concern, and my evaluation of order effects did not reveal any specific problems that might affect scores on one measure but not others. Some participants did, however, express their uncertainty about answering the questions. Participant discomfort with questionnaire content can pose problems in a self-report study. At the conclusion of the three questionnaires, I provided an opportunity for participant comments (Appendix N, p. 257) and have included comments from three participants:

- I debated for some time on whether or not to mark question 1 a 3 or 5. I am often hesitant and reluctant to answer these types of questions because frankly, I don't much care to be psycho analyzed. Overall, it wasn't that bad.

- Instructions were too wordy and the invitation email was un-necessarily intimidating.

- I'm generally uncomfortable assessing myself. I always second-guess my answers and I often think I am not answering the questions accurately.

To assess values accurately, sometimes a high level of specificity is required. The SVS and the MTQ do not include wording sufficiently specific to distinguish some fine shades of meaning in value priorities. Consequently, the items may be subject to differing interpretations of values. The importance of specific values may vary greatly, depending on their relevance in particular situations. But based on the subscale internal reliabilities I reported in Chapter 4, there is evidence of adequate measurement reliability.

The web-based administration of the study questionnaires, in itself, is unlikely to constitute a major concern; the participants in my study work on computers every day. However, one aspect of the survey administration may possibly have affected survey results, and my design contains no "check" for this possibility. Through branching logic I designed into the survey, participants were able to use the same web-link yet complete the measures in

173

any of the six possible sequences. The net result of this feature of the online survey is that participants had the additional mental burden of properly choosing the order of the surveys. The possible effects of this additional "cognitive demand" on responses to the SVS, MTQ, or RFQ are unknown.

The final limitation of this study that I wish to address is that all data are self-report; my study included no external or behavioral criterion. Consequently, external validity of the results I obtain in my study depends on convergent or divergent validity established in other studies. Fortunately, there are several studies supporting a positive relationship between measured value priorities and observed behavior (Feather, 1990, 1992a, 1992b; Schwartz, 1968, 1996, 1999; Schwartz & Huismans, 1995; Schwartz & Inbar-Saban, 1988; Schwartz, Sagiv, & Boehnke, 2000; Schwartz, Struch, & Bilsky, 1990). I am aware of only one study relating scores on the MTQ with observed behavior (Hinsz & Jundt, 2005). While Higgins and associates have related the concept of regulatory focus to behavioral characteristics, I am not aware of a study that has done so with the RFQ measure.

*Sampling Issues*

Most educational and psychological research is conducted with college students in their low 20s. Note that of 90 possible employees age 25 or under, my sample contains zero. In other words, based on age, there is virtually **no** overlap between the sample used in this study and the sample used in most published educational and psychological research.

Table 9 (also page 58) shows a somewhat similar pattern to that in Table 8. Employees who have been with the company the least amount of time (many of whom are also younger in age) are under-represented in my sample, relative to the population, and workers with more years of service are over-represented in the sample. Nearly one fifth of available males with 10 to 15 years employment at the company are included in my sample.

174

The percentages listed for the highest tenure (more than 30 years of service) should be discounted because of the small total number of employees. For example, in the population, there are 8 total women with 30 or more years of service. My sample included 2 of the 8, or 25%. So while 25% appears very large compared with the overall sample size of 7% of employees, the 25% in Table 9 is based on only two employees. I am including this discussion of the representative-ness of the sample to provide context for any conclusions drawn from the results. To infer trends in the workforce overall, it is important that my sample reflect the company's staff overall. It would also be important that the sample be truly a stratified random sample.

The constraint of anonymity imposed in the IRB (Institutional Review Board for the protection of human subjects) approval process and schedule constraints based on prior commitments of faculty on my committee prevented me from achieving a truly representative sample. For example, clearly there are value differences between people who volunteer and people who do not. To draw valid conclusions about the value priorities in my sample relative to the value priorities of the company's workforce overall, the sampling plan should have been followed closely, and participants who did not respond, replaced (at random) with other employees with the same "profile" in terms of business unit, job type, age, gender, and tenure. As previously mentioned, constraints imposed in the IRB approval process, as well as some concerns within the company about the HR resources required to contact replacements for non-responses, prevented me from pursuing my original data collection plan. Nevertheless, I believe that the characteristics of the overall sample I obtained (working adults with a wide range of age, experience, educational attainment, and pay) enhance the contribution of the study to educational and psychological research. These sample characteristics were an important component of the research plan; they address generalisability.

175

As I have mentioned a number of times, my dissertation was an exploratory study intended to begin integration of three constructs, each of which have received substantial attention in the research literature. Personal value priorities have been studied extensively for more than 50 years. The Schwartz model represents an attempt to integrate value priorities with fundamental human motives. The model provides for a potentially infinite number of motivational goals that are capable of expressing all the different universally recognized types of desirable strivings. The model further suggests that some goals are inherently conflicting with other goals. While an individual could conceivably pursue conflicting goals, he or she cannot pursue conflicting goals *at the same time*. In specific situations, individuals must decide whether collective or individual interests prevail, and whether stability or opportunity concerns predominate. An individual's decisions about how best to resolve these inherent conflicts are reflected in his or her value system, as measured by the Schwartz Value Survey.

**Future Studies**

A number of motivation researchers have attempted to compile a reasonably representative listing of human motives. Wicker and colleagues performed hierarchical cluster analyses with a list of 56 "life goals" (Wicker, Lambert, Richardson, & Kahler, 1984). They found an individual / competitive ("individual striving") versus social / cooperative ("harmony seeking") distinction as the top tier in the hierarchy. Evidence of the opportunity / stability dimensions are less apparent in their hierarchical clusters. More recently, Havercamp and Reiss have proposed a comprehensive assessment of human strivings developed from surveys of what over 2500 people said were their life goals or most important strivings (Havercamp & Reiss, 2003; Reiss & Havercamp, 1998). Havercamp and

176

Reiss used exploratory and confirmatory factor analysis and have proposed a 15-factor model. Many of their named motives correspond to the Schwartz broad value types but eating, physical exercise, and tranquility (as examples), have no clear analog in the Schwartz model. I believe it would be worthwhile to use both Wicker's and Reiss' motive measures in MDS analyses to determine whether the structural relations among variables from these two theorists are consistent with the Schwartz model of orthogonal oppositions between opportunity / stability and individual / social. Schwartz claims that his arrangement reflects a motivational continuum. If so, both Wicker's and Reiss' variables should align within the Schwartz framework in theoretically meaningful ways. If the higher order oppositions from the Schwartz framework are found with Wicker's and Reiss' motivational variables, this finding would further bolster the importance of the Schwartz model as a basis for motivational research.

An evaluation of value priorities based on developmental levels might also prove fruitful. Ego Development, as measured with the Washington University Sentence Completion Test (Hy & Loevinger, 1996; Loevinger, 1998) is likely to be reflected in Schwartz value priorities as well as motivational traits. Though the scoring is more complex, it would also be interesting to examine Schwartz value priorities based on Kegan's subject-object level (Lahey, Souvaine, Kegan, Goodman, & Felix, 1988). Studies of this type would address the potential relevance of growth-oriented theories I cited including those of Maslow and Adler, but involve extensive interviews and perhaps also longitudinal designs.

In addition to values, achievement motives have a long history in the research literature. More recent conceptualizations emphasize approach and avoidance motives based on the need to achieve or the fear of failure. These fundamental approach and avoidance motives have been empirically linked with corresponding approach and avoidance goal orientations as I discussed on pages 158-159. Educational research is replete with

177

recommendations concerning approach and avoidance goal orientation as it relates to classroom learning environments. The WOFO and the more recent MTQ that I used in this study seem suited to assess approach and avoidance motivational traits as suggested by Hinsz and Jundt (2005). Research should explore whether practice recommendations derived from goal orientation studies should also be applied based on trait motives.

My study utilized a little-known self-report regulatory focus measure. It is important to evaluate the relationships I investigated using more common regulatory focus measures such as those based on response speed that I discussed on pages 64-66. In addition, new measures are being developed to assess approach and avoidance propensities using physiological and behavioral responses that may be free from problems that frequently accompany self-report measures. Along the same lines, extending the measure of motivational traits from self-report to observable behaviors would also extend my exploratory research in productive directions.

## Implications for Construct Integration

Based on the findings of my study, value priorities, motivational traits, and regulatory focus are not independent; they are related in predictable ways. The *logical* implication of this finding is that *practical* implications associated with *one* of the constructs cannot be completely independent from the *practical* implications associated with *another* of the constructs. This is because the constructs are related (albeit, imperfectly) and **not** independent. In the following paragraphs, I suggest some implications of my findings for the company whose employees supplied data. I present these implications not as recommendations for the company to act upon, but as *logical consequences* of the relationships I found in the data. These consequences reveal issues that need to be explored in future research studies aimed at further integrating the three constructs.

In the work environment where I collected data, the company has selected five *foundation values*. These are (1) Safety, (2) Customer Service (3) Employee Focus, (4) Diversity, and (5) Environmental Leadership. The company has also identified *cultural values* as exemplifying the way employees should treat each other: respect, honesty, integrity, trust. Employees describe the work environment as a *family culture*, and management emphasizes *teamwork and cooperation* as preferred means of accomplishing business objectives. Based on the Schwartz model, it would seem that the company's preferred values emphasize primarily security (safety) benevolence (customer service, employee focus) and universalism (diversity, environmental leadership). Based on the data I collected, these value priorities are more likely to be associated with a prevention regulatory focus than a promotion regulatory focus. A prevention regulatory focus seems more appropriate than a promotion focus for providing basic utility services in which the reliable provision of service is paramount. Indeed, *preventing interruptions* to electric or water service is an important priority for the company. The alignment of values and regulatory focus, predicted by the relationships I found in the study, seems appropriate for the business' continued success in the utility industry.

Based on the pattern of data I collected, it would also appear the company's preference for teamwork and cooperation (reflecting the benevolence value) is consistent with the resulting negative relationship with trait competitive excellence. Benevolence and competitiveness are opposing, and in the company's preferred value hierarchy, benevolence values should prevail. However, according to my data, security values are usually positively correlated with motivation anxiety and negatively correlated with personal mastery. This conclusion is potentially troubling in light of the company's premium on safety as a foundation value. It would seem based on relationships in the data I collected, that the pattern of motivational traits most compatible with the company's stated value priorities is

low mastery, low competitiveness, and high anxiety.  Based on research I cited on pages 158-159 of this dissertation, we would not expect a high performance work culture to be compatible with the company's stated value priorities.[51]  There is no implied or stated emphasis on either self-direction (mastery goals and desire to learn) or achievement (competitiveness) values (motivational traits).  In fact, according to the relationships I found in the data, these values and traits are not expected to accompany the value priorities endorsed by the company's senior leadership.

With the preceding paragraph, I am not claiming that the company's employees are not personally motivated to produce.  I did not collect data that allows me to address this issue, and answering that question empirically in this dissertation is not my objective.  My point is that if values, motivational traits and regulatory focus are related in the ways indicated by the data I collected and analyzed, then the conclusions I drew in the preceding paragraph are *logically implied*.  To the extent that these findings are consistent with empirical data, my conclusions are supported.  If future empirical evidence conflicts with my theoretical conclusions, then we will have additional data concerning the nature of the relationships between personal value priorities, motivational traits, and regulatory focus.  One of my goals with this study is to call attention to the need to integrate constructs that develop and advance independently.  This type of integration can only occur if a number of future studies augment the data reported in my study.

An additional issue to resolve through future research is the extent to which values, regulatory focus, and motivational traits are stable and enduring (as I have argued) or more transient and situational.  On page 171 in the **Assumptions** section, I mentioned research

---

[51] Technically, individual and cultural values are not identical, and both types of values are believed to affect individual decisions and behaviors.  My argument depends on accepting the idea that for the company to be successful in having a culture with their stated preferred value priorities, a sufficient number of individual employees would also need to endorse those value priorities as *personal value priorities*.  Recall my discussion of the socialization process on pages 161-162.

evidence that regulatory focus and value priorities are sensitive to context. In addition, there is extensive literature dealing with distinctions between temporary and enduring motives. Achievement Motivation pioneer McClelland (1987b) specifies four qualities of good measurement: *sensitivity*, *uniqueness*, *reliability*, and *validity-utility*. According to McClelland, a good measure is (a) sensitive to the extent that it varies or fluctuates systematically with changes in the intended variable, (b) unique if it is affected only by that one variable and not others and, (c) reliable if it is stable over time and across participants. According to McClelland, the validity-utility criterion "is the most important because it is possible to get a measure that is sensitive, unique, and reliable but is quite unimportant in that it does not tell anything else about what the person will do in a variety of situations" (p. 199). Ideally, future studies intended to address the stable versus situational nature of my study's three constructs should incorporate these four criteria for good measurement.

## Implications for Adult Education and for Working Adults

I selected a nontraditional research population for a very practical purpose. Process automation and global competition are changing the work environment, perhaps permanently. While it was not uncommon for people a generation ago to spend their entire career in one company and industry, this scenario may not be a realistic possibility for many entering the workplace in 2006. In 1996, while consulting with the Johnson O'Connor Research Foundation, an aptitude-testing firm, I was told, "Today's average college graduate is projected to have four careers, two of which are in a field that does not yet exist" (Hoffman, 1996). At the time, the comment sounded intriguing, but not directly relevant. In hindsight, the claim is not at all surprising. For example, in the mid 1990's, the computer web-design industry was just beginning. Today, thousands of individuals are employed creating and supporting web-based software.

The pace of change is accelerating. Robotic technology is increasingly replacing human production workers. For workers to flourish, their cognitive contribution needs to keep pace with, and stay ahead of technological competition. This requires the ability to learn quickly, to adapt to fast-changing circumstances, and perhaps, to learn to adopt decision processes and criteria that are new and evolving. Individuals who are uncomfortable with change, self-direction values, or high levels of personal accountability are likely to feel increasingly stretched and stressed.

Past research has shown that values are often highly resistant to change (Baron & Spranca, 1997; Biernat, Vescio, Theno, & Crandall, 1996; Williams, 1979) and that education is more effective than persuasion in facilitating change in value priorities (Conroy, 1979; Rokeach, 1979a). As I mentioned in Chapter 2, values are strongly tied to emotions; they are not cold cognitions. One of the participants in my study commented directly about the tension he or she experienced between personal value priorities and organizationally sanctioned values:

- I have great concerns about management of [the company] placing so much emphasis on diversity and challenging my value system and implying that we are not enlightened or accepting because we do not wish to participate in this or that event. According to many people I talk to – they feel the same way. If [the company] really cares about diversity then MANAGEMENT needs to accept our differences and stop pushing NON issues in the workplace and focus on taking better care of our customers and producing a higher skilled and engaged workforce. Sorry – I just had to vent![52]

Through this quotation, we are able to see an example of the central role that values fill as criteria for judging good and bad. This particular excerpt seems to reflect tension between universalism values endorsed by the company and tradition or conformity values

---

[52] Concurrent with my data collection efforts, a senior company officer sent an invitation to employees to attend a *June Pride* diversity panel discussion sponsored by the company's Gay-Straight-Alliance. This comment may reflect the employee's views concerning the appropriateness or importance of the company-sponsored event.

held by the individual.  The data from my study would suggest that the individual is more likely to experience motivation anxiety or trait competition than mastery, and prefer a prevention focus to a promotion focus.  For this individual, the work environment may be perceived as a threat.

Enabling an aging workforce that favors security and conformity to survive and thrive in an increasingly fluid and flexible environment is a practical challenge requiring pragmatic and effective solutions.  To successfully address the challenge, we need theories that integrate insights from separate research traditions and contribute to a holistic understanding of all aspects of human functioning.  Applied behavioral research that contributes to this goal is worthy of our highest commitment and greatest effort.

**LAST WORDS**

I suspect that many other doctoral students have found the process of envisioning, refining, conducting, and documenting a Ph.D. dissertation research project to be, at times, extraordinarily taxing and stressful. This poem (while clearly not reflecting a "balanced" approach to life) does speak to the spirit of my dogged determination along the path to completion of this project:

*If you want a thing bad enough to go out and fight for it,*
*To work day and night for it,*
*To give up your time, your peace, and your sleep for it.*

*If all that you dream and scheme is about it,*
*And life seems useless and worthless without it.*
*And if you gladly sweat for it and fret for it and plan for it*
*And lose all your terror of the opposition for it.*

*And if you simply go after this thing that you want*
*With all of your capacity, strength, and sagacity,*
*Faith, hope and confidence, and stern pertinacity.*

*If neither cold, poverty, famish, or gall,*
*Sickness, or pain of body and brain*[53]
*Can keep you away from the thing that you want.*
*If dogged and grim, you besiege and beset it,*
*With the help of God, you'll get it.*

- Les Brown

---

[53] I wrote the *easy* parts of this dissertation first: the acknowledgements, section headings, table of contents, appendices, and "last words." (this poem from Les Brown) Exactly six weeks and 3 hours prior to my tentatively scheduled Oral Defense, as I was struggling to overcome rejection of the proposed study design by the IRB, my family attended the burial service for my five-year old niece. She had been diagnosed with an inoperable brainstem tumor four months prior. Additionally, just a few days prior to that same tentative date for my final oral, one of my committee members contacted me to indicate that she would be unable to attend the oral, since she would be out of town for brain surgery to clip an aneurysm. At the time I put this poem in this section of my dissertation, I was not envisioning the meaning this line now holds for me.

# Appendices

May 2, 2006

**Dr. Lisa Leiden, Ph.D.**
Director, Office of Research Support and Compliance
P.O. Box 7426 Campus Mail
Austin, TX 78713
Lisa.leiden@mail.utexas.edu

Dear Dr. Leiden:

The purpose of this letter is to grant Peter Larkam, a graduate student at the University of Texas at Austin permission to conduct research at                                        The project, "Conceptions of Human Agency: Structural Relations Among Motivational Traits, Personal Value Priorities, and Regulatory Focus" entails collecting anonymous responses to three research questionnaires. A stratified random sample of              employees will individually complete the three questionnaires. Each employee will be randomly assigned to one of six groups                    to counter-balance the order of the three questionnaires. Respondents typically require 30 to 35 minutes to complete all three questionnaires, but none of the questionnaires is timed.

The purpose of the research is to evaluate relationships among an individual's level of work-related motivational traits (personal mastery, competitive excellence, and achievement anxiety), his or her relative prioritization of ten broad personal values, (for example, power, achievement, security, tradition, conformity, benevolence, etc.) and tendency to approach tasks with eagerness or with vigilance. The study combines, for the first time, these concepts from three distinct research traditions in a single conceptual space using multi-dimensional scaling analyses.                                was selected as the agency of choice for this study for three reasons. (1) The employee sample is expected to approximate working adults, (2) our organization is presently evaluating the appropriateness of specific value priorities, and (3)

                                                      At the conclusion of the research, results will be shared with employees and management in one or more group sessions.

I,                    do hereby grant permission for Peter Larkam to conduct his dissertation research "Conceptions of Human Agency: Structural Relations Among Motivational Traits, Personal Value Priorities, and Regulatory Focus" at

Sincerely,

# Choosing the Employee Sample

…to represent the Population Overall by Job Grade & Business Unit

| Grade | BSSCO F | BSSCO M | BSSCO Total | COMCO F | COMCO M | COMCO Total | FPPCO F | FPPCO M | FPPCO Total | GENCO F | GENCO M | GENCO Total | TENCO F | TENCO M | TENCO Total | WTRCO F | WTRCO M | WTRCO Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 8 | 9 | 2 | | 2 | | | | | 4 | 4 | | 1 | 1 | 1 | 1 | 2 | 18 |
| 10 | 1 | | 1 | | | | | | | 1 | 2 | 3 | | | | | | | 4 |
| 23 | 1 | 1 | 2 | 4 | 1 | 5 | | | | | | | | | | | | | 7 |
| 24 | 18 | 2 | 20 | 7 | 6 | 13 | 1 | 1 | 2 | 4 | 9 | 13 | 5 | 4 | 9 | 14 | 4 | 18 | 75 |
| 25 | 15 | 3 | 18 | 1 | | 1 | | | | | 2 | 2 | 2 | 2 | 4 | 1 | | 1 | 26 |
| 26 | 16 | 11 | 27 | 7 | 10 | 17 | 2 | 1 | 3 | 10 | 2 | 12 | 15 | 9 | 24 | 17 | 14 | 31 | 114 |
| 27 | 23 | 12 | 35 | | 3 | 3 | 1 | 3 | 4 | 2 | 5 | 7 | 6 | 38 | 44 | 1 | 9 | 10 | 103 |
| 28 | 17 | 34 | 51 | 10 | 11 | 21 | 3 | 7 | 10 | 10 | 8 | 18 | 8 | 13 | 21 | 4 | 20 | 24 | 145 |
| 29 | 11 | 30 | 41 | 6 | 7 | 13 | 1 | 4 | 5 | 3 | 22 | 25 | 6 | 30 | 36 | 3 | 6 | 9 | 129 |
| 30 | 19 | 32 | 51 | 8 | 10 | 18 | | 13 | 13 | 12 | 35 | 47 | 7 | 37 | 44 | 11 | 31 | 42 | 215 |
| 31 | 5 | 12 | 17 | 4 | 3 | 7 | 1 | 5 | 6 | 2 | 7 | 9 | 3 | 32 | 35 | 2 | 15 | 17 | 91 |
| 32 | 11 | 10 | 21 | 1 | 3 | 4 | | | | 1 | 9 | 10 | 1 | 11 | 12 | 2 | 5 | 7 | 54 |
| 33 | 4 | 9 | 13 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 3 | 4 | | 2 | 2 | 1 | 2 | 3 | 28 |
| 34 | 2 | 8 | 10 | | 2 | 2 | 1 | | 1 | | 4 | 4 | | 4 | 4 | 1 | 2 | 3 | 24 |
| 41 | | | | | 1 | 1 | | | | | | | | | | | | | 1 |
| 42 | | | | 1 | 2 | 3 | | | | 1 | | 1 | 1 | | 1 | | | | 5 |
| 43 | | | | | | | | | | | | | | 1 | 1 | | 6 | 6 | 7 |
| 44 | | 7 | 7 | 1 | 31 | 32 | | 1 | 1 | 1 | 4 | 5 | 1 | 12 | 13 | | 4 | 4 | 62 |
| 45 | | | | | | | 2 | 16 | 18 | | 1 | 1 | 1 | 2 | 3 | 2 | 9 | 11 | 33 |
| 46 | 6 | 24 | 30 | 5 | 16 | 21 | | 3 | 3 | | 15 | 15 | 3 | 83 | 86 | 1 | 6 | 7 | 162 |
| 47 | | 4 | 4 | 2 | 9 | 11 | 1 | 7 | 8 | 4 | 6 | 10 | 3 | 26 | 29 | 1 | 15 | 16 | 78 |
| 48 | 2 | 27 | 29 | 2 | 22 | 24 | 5 | 132 | 137 | 2 | 31 | 33 | 5 | 133 | 138 | | 52 | 52 | 413 |
| 49 | 3 | 27 | 30 | | 4 | 4 | 2 | 44 | 46 | 1 | 48 | 49 | 3 | 38 | 41 | 1 | 32 | 33 | 203 |
| 50 | | 4 | 4 | | 5 | 5 | | 13 | 13 | | 19 | 19 | | 46 | 46 | | 8 | 8 | 95 |
| 62 | | 2 | 2 | | | | | | | | | | | | | | | | 2 |
| 63 | 4 | 1 | 5 | | 1 | 1 | | | | | | | | | | | | | 6 |
| 64 | 10 | 4 | 14 | 3 | | 3 | 3 | | 3 | 2 | | 2 | 3 | | 3 | 1 | 1 | 2 | 27 |
| 65 | 22 | | 22 | 10 | 1 | 11 | 7 | | 7 | 12 | 1 | 13 | 19 | | 19 | 20 | | 20 | 92 |
| 66 | 19 | 1 | 20 | 7 | | 7 | | | | | 3 | 3 | 3 | | 3 | 4 | | 4 | 37 |
| 70 | 3 | 3 | 6 | 2 | 1 | 3 | | | | 1 | 2 | 3 | | 3 | 3 | 2 | | 2 | 17 |
| Grand Total | 213 | 276 | 489 | 84 | 151 | 235 | 30 | 254 | 284 | 72 | 240 | 312 | 94 | 527 | 621 | 90 | 242 | 332 | 2273 |

## Here is the overall distribution by age & gender

Count of Sex | Unit | Sex

| Age by 5s | BSSCO F | BSSCO M | BSSCO Total | COMCO F | COMCO M | COMCO Total | FPPCO F | FPPCO M | FPPCO Total | GENCO F | GENCO M | GENCO Total | TENCO F | TENCO M | TENCO Total | WTRCO F | WTRCO M | WTRCO Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 or under | 1 | | 1 | 1 | | 1 | | | | 2 | | 2 | | 1 | 1 | 1 | | 1 | 6 |
| 21 - 25 | 8 | 7 | 15 | 1 | 4 | 5 | 2 | 7 | 9 | 3 | 12 | 15 | 3 | 29 | 32 | 3 | 5 | 8 | 84 |
| 26 - 30 | 15 | 25 | 40 | 9 | 27 | 36 | | 11 | 11 | 8 | 24 | 32 | 11 | 82 | 93 | 10 | 17 | 27 | 239 |
| 31 - 35 | 29 | 31 | 60 | 15 | 26 | 41 | | 6 | 6 | 11 | 15 | 26 | 14 | 69 | 83 | 12 | 28 | 40 | 256 |
| 36 - 40 | 35 | 40 | 75 | 13 | 19 | 32 | | 7 | 7 | 8 | 16 | 24 | 16 | 58 | 74 | 15 | 34 | 49 | 262 |
| 41 - 45 | 38 | 39 | 77 | 10 | 16 | 26 | 8 | 53 | 61 | 11 | 41 | 52 | 13 | 87 | 100 | 19 | 38 | 57 | 373 |
| 46 - 50 | 39 | 59 | 98 | 6 | 21 | 27 | 7 | 71 | 78 | 10 | 61 | 71 | 16 | 96 | 112 | 18 | 53 | 71 | 457 |
| 51 - 55 | 24 | 41 | 65 | 15 | 24 | 39 | 9 | 55 | 64 | 14 | 41 | 55 | 10 | 57 | 67 | 11 | 36 | 47 | 337 |
| 56 - 60 | 19 | 22 | 41 | 12 | 12 | 24 | 1 | 36 | 37 | 4 | 22 | 26 | 5 | 35 | 40 | 2 | 24 | 26 | 194 |
| 61 - 65 | 4 | 11 | 15 | 2 | 2 | 4 | 1 | 6 | 7 | 3 | 6 | 9 | 4 | 10 | 14 | | 6 | 6 | 55 |
| 66 - 70 | 1 | 1 | 2 | | | | | | | | 2 | 2 | 2 | 2 | 4 | | | | 8 |
| over 70 | | | | | | | | 1 | 1 | | | | | 1 | 1 | | | | 2 |
| Grand Total | 213 | 276 | 489 | 84 | 151 | 235 | 30 | 254 | 284 | 72 | 240 | 312 | 94 | 527 | 621 | 90 | 242 | 332 | 2273 |

## … and by tenure & gender

Count of Sex | Unit | Sex

| Tenure | BSSCO F | BSSCO M | BSSCO Total | COMCO F | COMCO M | COMCO Total | FPPCO F | FPPCO M | FPPCO Total | GENCO F | GENCO M | GENCO Total | TENCO F | TENCO M | TENCO Total | WTRCO F | WTRCO M | WTRCO Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 to 1 | 26 | 21 | 47 | 14 | 23 | 37 | 2 | 23 | 25 | 8 | 30 | 38 | 5 | 44 | 49 | 9 | 22 | 31 | 227 |
| 1 to 3 | 34 | 25 | 59 | 11 | 26 | 37 | 1 | 3 | 4 | 8 | 26 | 34 | 11 | 59 | 70 | 14 | 21 | 35 | 239 |
| 3 to 5 | 40 | 44 | 84 | 19 | 31 | 50 | | 20 | 20 | 16 | 24 | 40 | 27 | 109 | 136 | 22 | 42 | 64 | 394 |
| 5 to 10 | 47 | 81 | 128 | 22 | 39 | 61 | | 3 | 3 | 11 | 17 | 28 | 25 | 146 | 171 | 25 | 73 | 98 | 489 |
| 10 to 15 | 17 | 30 | 47 | 9 | 13 | 22 | | 3 | 3 | 4 | 9 | 13 | 5 | 21 | 26 | 7 | 17 | 24 | 135 |
| 15 to 20 | 22 | 27 | 49 | 2 | 6 | 8 | 9 | 55 | 64 | 15 | 32 | 47 | 7 | 21 | 28 | 8 | 18 | 26 | 222 |
| 20 to 25 | 16 | 22 | 38 | 2 | 8 | 10 | 11 | 80 | 91 | 4 | 52 | 56 | 11 | 70 | 81 | 5 | 32 | 37 | 313 |
| 25 to 30 | 4 | 13 | 17 | 5 | 3 | 8 | 7 | 64 | 71 | 6 | 39 | 45 | 2 | 34 | 36 | 9 | | 9 | 186 |
| over 30 | 7 | 13 | 20 | | 2 | 2 | | 3 | 3 | | 11 | 11 | 1 | 23 | 24 | | 8 | 8 | 68 |
| Grand Total | 213 | 276 | 489 | 84 | 151 | 235 | 30 | 254 | 284 | 72 | 240 | 312 | 94 | 527 | 621 | 90 | 242 | 332 | 2273 |

# Sample size = 148 / 2273 = 6.6%
## (~ 1 in 15 employees)

### First, select by job grade, Business Unit, & gender

| SEED 163 | Unit | Sex | BSSCO | | BSSCO TOTAL | COMCO | | COMCO TOTAL | FPPCO | | FPPCO TOTAL | GENCO | | GENCO TOTAL | TENCO | | TENCO TOTAL | WTRCO | | WTRCO TOTAL | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Job Grade | F | M | F | M | | F | M | | F | M | | F | M | | F | M | | F | M | | |
| 0 | 0.0 | 1.0 | | 1.0 | 0.0 | | 0.0 | | | | | | | | | 0.0 | | 0.0 | 0.0 | | 0.0 | 1.0 |
| 10 | 0.0 | | | 0.0 | | | | | | | | 0.0 | 0.0 | 0.0 | | | | | | | | 0.0 |
| 23 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | | | | | | | | | | | | | | 0.0 |
| 24 | 1.0 | 0.0 | | 1.0 | 1.0 | 0.0 | | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | | 4.0 |
| 25 | 1.0 | 0.0 | | 1.0 | 0.0 | | 0.0 | | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 1.0 |
| 26 | 1.0 | 1.0 | | 2.0 | 1.0 | 1.0 | | 2.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 2.0 | | 9.0 |
| 27 | 2.0 | 1.0 | | 3.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 1.0 | 1.0 | | 7.0 |
| 28 | 1.0 | 2.0 | | 3.0 | 1.0 | 1.0 | | 2.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 2.0 | 0.0 | 1.0 | 1.0 | | 11.0 |
| 29 | 1.0 | 2.0 | | 3.0 | 0.0 | 1.0 | | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | | 8.0 |
| 30 | 1.0 | 2.0 | | 3.0 | 1.0 | 1.0 | | 2.0 | | 1.0 | 1.0 | 1.0 | 3.0 | 4.0 | 1.0 | 3.0 | 4.0 | 1.0 | 2.0 | 3.0 | | 17.0 |
| 31 | 0.0 | 1.0 | | 1.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 2.0 | 2.0 | 0.0 | 1.0 | 1.0 | | 5.0 |
| 32 | 1.0 | 1.0 | | 2.0 | 0.0 | 0.0 | | 0.0 | | | | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | | 4.0 |
| 33 | 0.0 | 1.0 | | 1.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 1.0 |
| 34 | 0.0 | 1.0 | | 1.0 | | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 1.0 |
| 41 | | | | | | 0.0 | | 0.0 | | | | | | | | | | | | | | 0.0 |
| 42 | | | | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | | | | | | | 0.0 |
| 43 | | | | | | | | | | | | | | | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 |
| 44 | | 1.0 | | 1.0 | 0.0 | 2.0 | | 2.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | | 0.0 | 0.0 | | 4.0 |
| 45 | | | | | | | | | 0.0 | 1.0 | 1.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | | 2.0 |
| 46 | 0.0 | 2.0 | | 2.0 | 0.0 | 1.0 | | 1.0 | | 0.0 | 0.0 | | 1.0 | 1.0 | 0.0 | 6.0 | 6.0 | 0.0 | 0.0 | 0.0 | | 10.0 |
| 47 | | 0.0 | | 0.0 | 0.0 | 1.0 | | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 1.0 | 1.0 | | 5.0 |
| 48 | 0.0 | 2.0 | | 2.0 | 0.0 | 2.0 | | 2.0 | 0.0 | 9.0 | 9.0 | 0.0 | 2.0 | 2.0 | 0.0 | 10.0 | 10.0 | | 4.0 | 4.0 | | 29.0 |
| 49 | 0.0 | 2.0 | | 2.0 | | 0.0 | | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 2.0 | 2.0 | | 13.0 |
| 50 | | 0.0 | | 0.0 | | 0.0 | | 0.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 3.0 | 3.0 | | 1.0 | 1.0 | | 6.0 |
| 62 | | 0.0 | | 0.0 | | | | | | | | | | | | | | | | | | 0.0 |
| 63 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | | | | | | | | | | | | 0.0 |
| 64 | 1.0 | 0.0 | | 1.0 | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | | 1.0 |
| 65 | 2.0 | | | 2.0 | 1.0 | 0.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | | 1.0 | 0.0 | | 1.0 | | 7.0 |
| 66 | 1.0 | 0.0 | | 1.0 | 1.0 | | | 1.0 | | | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 2.0 |
| 70 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 |
| Grand Total | 13.0 | 20.0 | | 33.0 | 6.0 | 10.0 | | 16.0 | 1.0 | 17.0 | 18.0 | 4.0 | 16.0 | 20.0 | 4.0 | 38.0 | 42.0 | 4.0 | 15.0 | 19.0 | | 148.0 |
| | 6.1% | 7.2% | | 6.7% | 7.1% | 6.6% | | 6.8% | 3.3% | 6.7% | | 6.3% | 5.6% | 6.7% | | 6.4% | 4.3% | 7.2% | | 6.8% | 4.4% | 6.2% | 5.7% | 6.5% |

### … then, select according to age

| SEED 148 | Unit | Sex | BSSCO | | BSSCO Total | COMCO | | COMCO Total | FPPCO | | FPPCO Total | GENCO | | GENCO Total | TENCO | | TENCO Total | WTRCO | | WTRCO Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Worker Age | F | M | F | M | | F | M | | F | M | | F | M | | F | M | | F | M | | |
| 20 or under | 0 | | | 0 | 0 | | | 0 | 0 | 0 | | 0 | | | | 0 | | 0 | | | 0 | 0 |
| 21 - 25 | 1 | 0 | | 1 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 4 |
| 26 - 30 | 1 | 2 | | 3 | 1 | 2 | | 3 | | 1 | 1 | 1 | 2 | 3 | 1 | 5 | 6 | 1 | 1 | 2 | 18 |
| 31 - 35 | 2 | 2 | | 4 | 1 | 2 | | 3 | | 0 | 0 | 1 | 1 | 2 | 1 | 4 | 5 | 1 | 2 | 3 | 17 |
| 36 - 40 | 2 | 3 | | 5 | 1 | 1 | | 2 | 0 | 0 | 0 | | 2 | 2 | 1 | 4 | 5 | 1 | 2 | 3 | 17 |
| 41 - 45 | 2 | 3 | | 5 | 1 | 1 | | 2 | 1 | 3 | 4 | 1 | 3 | 4 | 1 | 6 | 7 | 1 | 2 | 3 | 25 |
| 46 - 50 | 3 | 4 | | 7 | 0 | 1 | | 1 | 0 | 5 | 5 | 1 | 4 | 5 | 1 | 6 | 7 | 1 | 3 | 4 | 29 |
| 51 - 55 | 2 | 3 | | 5 | 1 | 2 | | 3 | 1 | 4 | 5 | 1 | 3 | 4 | 1 | 4 | 5 | 1 | 2 | 3 | 25 |
| 56 - 60 | 1 | 1 | | 2 | 1 | 1 | | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 2 | 2 | 11 |
| 61 - 65 | 0 | 1 | | 1 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | | 0 | 2 |
| 66 - 70 | 0 | 0 | | 0 | | | | | | | | | 0 | 0 | 0 | 0 | 0 | | | | 0 |
| over 70 | | | | | | | | | | 0 | 0 | | | | 0 | 0 | 0 | | | | 0 |
| Grand Total | 14 | 19 | | 33 | 6 | 10 | | 16 | 2 | 15 | 17 | 6 | 16 | 22 | 6 | 34 | 40 | 6 | 14 | 20 | 148 |
| | | | | | | | | | | | | | | | | | | | | | Sample Size |

### … and finally, by years employment

| SEED 148 | Unit | Sex | BSSCO | | BSSCO Total | COMCO | | COMCO Total | FPPCO | | FPPCO Total | GENCO | | GENCO Total | TENCO | | TENCO Total | WTRCO | | WTRCO Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tenure | F | M | F | M | | F | M | | F | M | | F | M | | F | M | | F | M | | |
| 0 to 1 | 2 | 1 | | 3 | 1 | 1 | | 2 | 0 | 1 | 1 | 1 | 2 | 3 | 0 | 3 | 3 | 1 | 1 | 2 | 14 |
| 1 to 3 | 2 | 2 | | 4 | 1 | 2 | | 3 | 0 | 0 | 0 | 1 | 2 | 3 | 1 | 4 | 5 | 1 | 1 | 2 | 17 |
| 3 to 5 | 3 | 3 | | 6 | 1 | 2 | | 3 | | 1 | 1 | 1 | 2 | 3 | 2 | 7 | 9 | 1 | 3 | 4 | 26 |
| 5 to 10 | 3 | 5 | | 8 | 1 | 3 | | 4 | | 0 | 0 | 1 | 1 | 2 | 2 | 10 | 12 | 2 | 5 | 7 | 33 |
| 10 to 15 | 1 | 2 | | 3 | 1 | 1 | | 2 | | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 8 |
| 15 to 20 | 1 | 2 | | 3 | 0 | 0 | | 0 | 1 | 4 | 5 | 1 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | 2 | 14 |
| 20 to 25 | 1 | 1 | | 2 | 0 | 1 | | 1 | 1 | 5 | 6 | 0 | 3 | 3 | 1 | 5 | 6 | 0 | 2 | 2 | 20 |
| 25 to 30 | 0 | 1 | | 1 | 0 | 0 | | 0 | 0 | 4 | 4 | 0 | 3 | 3 | 0 | 2 | 2 | 1 | 1 | 1 | 11 |
| over 30 | 0 | 1 | | 1 | 0 | 0 | | 0 | | 0 | 0 | | 1 | 1 | 0 | 1 | 1 | | 1 | 1 | 4 |
| Grand Total | 13 | 18 | | 31 | 5 | 10 | | 15 | 2 | 15 | 17 | 5 | 17 | 22 | 6 | 34 | 40 | 6 | 16 | 22 | 147 |

**Title:** *Conceptions of Human Agency: Structural Relations Among Motivational Traits, Personal Value Priorities, and Regulatory Focus*

IRB PROTOCOL # 2006-04-0064

Conducted By:  Peter Larkam, Doctoral Candidate (*Educational Psychology*)
Telephone:       (h) 476-0533
Email:             (h) plarkam@earthlink.net

# You are being asked to participate in a research study. This form provides you

with information about the study.  Your participation is entirely voluntary.  You can refuse to participate without penalty or loss of benefits to which you are otherwise entitled.  You can stop your participation at any time and your refusal will not impact your current or future relationships with the University of Texas at Austin or the [Company].  *Approximately 150 (1 in 15) employees are being asked to participate in this study*.  The sample of employees was selected at random to reflect characteristics of company as a whole.

**The purposes of this study** are to (1) extend the use of two research questionnaires from the academic laboratory to a sample of working adults and (2) to evaluate relationships among personal value priorities, work-related motivational traits, and the tendency to approach tasks with enthusiasm or with caution.   The data collected for the study will be used in Peter Larkam's doctoral dissertation. Group averages will be made available to employees.

**Company is allowing this study to be conducted using employees**. Human Resources has determined that the study can benefit the company and have given their consent for the study to be conducted with employees.

**If you agree to be in this study, we will ask you to do the following things:**
Click on the link at the bottom of this email message and answer questions in three questionnaires. Ideally, you should complete the questionnaires on your own time, but the company allows incidental use of company time and computers for the study.

**Total estimated time to participate in the study is 20 to 35 minutes.  BECAUSE THE STUDY IS BEING CONDUCTED ON A VERY TIGHT SCHEDULE, IF POSSIBLE, PLEASE RESPOND TO THE THREE QUESTIONNAIRES TODAY.  FOR YOUR RESPONSES TO BE INCLUDED IN THE STUDY, YOU MUST RESPOND BEFORE 9 PM ON FRIDAY, JUNE 9, 2006.**

**Risks** of being in the study
   • This study may involve risks that are currently unforeseeable.  The University of Texas at Austin has concluded that it can be conducted under a category of "minimal risk." If you wish to discuss the information above or any other risks you may experience, you may contact the Principal Investigator (Peter Larkam) or one of the faculty sponsors of the research (the co-chairs on Peter Larkam's dissertation committee).  Contact information is presented near the bottom of this email.

**Benefits** of being in the study
- There are several benefits of participating in this study. First, you will be contributing to generalized scientific knowledge. Most research of this type is conducted using college psychology students at select or elite research institutions. Since this may not describe your own background, you will be contributing to science by providing a different perspective -- one that is more typical of working adults in general. The study was designed specifically to include working adults with a wide range of educational backgrounds, and a wide range of pay levels.

**Compensation:**
- There is no financial compensation associated with your participation in this study.

**Confidentiality and Privacy Protections:**
- The data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within this consent form. In these cases, the data will contain no identifying information that could associate you with it, or with your participation in any study.
- **NONE** of the questions directly refer to the company, and your responses will be completely anonymous. It is not possible for the company to identify the responses of any individual employee. The only information the company will receive is in the form of averages related to the group as a whole.
- It is important that you NOT feel pressured to participate and that if you choose to participate, you do so freely and "because you want to." Neither the company nor the University of Texas will keep the list of possible study participants (approximately 1 in every 15 employees).
- The **data collected for this study** will be stored securely on Peter Larkam's home computer and kept confidential. Authorized persons from The University of Texas at Austin and members of the Institutional Review Board, have the legal right to review your research records and will protect the **confidentiality** of those records to the extent permitted by law. All publications will exclude any information that will make it possible to identify you as a subject.

**Contacts and Questions:**
If you have any questions about the study please ask now. If you have questions later, want additional information, or wish to withdraw your participation, you may do so at any time prior to submitting your survey responses.

If you have questions about your participation or the study, you may contact any of the following:

- Peter Larkam (principal investigator)
  Telephone:    (h) 476-0533
  Email:       (h) plarkam@earthlink.net

- The Faculty sponsors of the research (co-chairs for Peter Larkam's dissertation committee)
  Frank W. Wicker, Ph.D. – co-chair (fwicker@mail.utexas.edu)
  Bill Koch, Ph.D. – co-chair (b.koch@mail.utexas.edu)
  UT Department of Educational Psychology (512) 471-4155

If you have questions about your rights as a research participant, complaints, concerns, or questions about the research please contact Lisa Leiden, Ph.D., Chair of The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, (512) 471-8871 or email: orsc@uts.cc.utexas.edu

**YOU SHOULD COMPLETE THE SURVEYS IN THE ORDER LISTED:**
*Make a note of this order. You will need this information when you complete the surveys.*
First          SVS
Second          MTQ
Last          RFQ

**TO BEGIN THE THREE SURVEYS CLICK THE LINK BELOW:**

https://www.surveymonkey.com/s.asp?u=372752175049

Note: Many of the grey buttons and all of the blue half-circles appearing in Appendix D are not visible during actual administration. These screen shots reflect the survey in the "design" (or editing) mode. Company name is removed.

**APPENDIX D: WEB-BASED SURVEY**

SurveyMonkey.com
because knowledge is everything

| Home | New Survey | My Surveys | List Management | My Account | | Help Center |

Thursday, June 08, 2006

## Design Survey   Show All Pages and Questions    << Back   Preview

To change the **look** of your survey, select a choice below. Click 'Add' to create your own custom theme.

**Theme:** Blue Ice ↕ Add

Dissertation Study of Peter Larkam    Edit Title   Edit Numbering   Edit Logo

Add Page

◀ **1. Introduction**   Edit Page   Delete Page   Copy/Move   Add Logic ▶

Your decision to participate in this study will in no way affect your present or future relationship with the University of Texas at Austin
        Your responses will be encrypted and completely anonymous. NO PERSON IS ABLE TO LINK YOUR RESPONSES TO YOU AS AN INDIVIDUAL.

It is VERY IMPORTANT that you answer each item honestly. DO NOT answer any question as you think SOMEONE ELSE wants you to respond.        expects that the results of this study may help with (1) cultural and foundation values, and (2) employee engagement and satisfaction, and (3) productive career development for employees.
        will ONLY receive group averages of ALL respondents.        will receive NO INFORMATION reflecting any one individual's response to any question or questionnaire.

Click "Next" to get started with the survey.

***DO NOT USE THE BACKWARD / FORWARD BUTTONS ASSOCIATED WITH YOUR BROWSER.***

Add Question   Add Page

◀ **2. VERY IMPORTANT NOTES**   Edit Page   Delete Page   Copy/Move   Add Logic ▶

There are 3 separate questionnaires to be answered.
These are called "SVS", "MTQ", and "RFQ".

*** IF YOU DO NOT ANSWER ALL 3, I CANNOT USE YOUR DATA IN THE STUDY.***

Most people take from 20 - 35 minutes to complete all 3 questionnaires. No questionnaires are timed and speed is NOT important. If you're not sure about a question, just make your best guess and go on. The survey will not let you skip questions once you start the section.

Once you begin the survey, YOU SHOULD TRY TO FINISH BEFORE CLOSING YOUR WEB BROWSER. If you quit before finishing and return later, the survey will take you back to the beginning. If you MUST quit early and come back later, use the COMMENT box at the very end of the survey to TELL ME that you answered in two sessions. Your data will then appear on two rows, and I might be able to match your answers from the two different sessions. IT IS BEST IF YOU CAN ANSWER ALL THREE QUESTIONNAIRES IN ONE SESSION.

You will need to answer the 3 questionnaires IN A SPECIFIC ORDER.

This order is important to the design of the study. The Consent Form you received (as an email attachment) has this order listed near the bottom. If you do not know the specific order assigned for you, leave your web browser open and find this information in the email, then return to the survey.

When you know the order assigned for you and have 20-30 minutes of time available to complete the questionnaires, click NEXT to begin.

If you have any questions, feel free to call me (Peter Larkam) at

[Add Question] [Add Page]

## 3. Background Information (6 items) [Edit Page] [Delete Page] [Copy/Move] [Add Logic]

The following background information is REQUIRED for the study.

[Add Question] [Add Page]

[Edit] [Delete] [Copy/Move] [Add Logic]
\* 1. What is your sex?
◯ Male
◯ Female

[Add Question] [Add Page]

[Edit] [Delete] [Copy/Move] [Add Logic]
\* 2. What was your age on your last birthday?
[▢ ▾]

[Add Question] [Add Page]

[Edit] [Delete] [Copy/Move] [Add Logic]
\* 3. As of May 1, 2006, how long have you worked at
[▢ ▾]

[Add Question] [Add Page]

[Edit] [Delete] [Copy/Move] [Add Logic]
\* 4. As of May 1, 2006, what was your pay grade?

193

[ ▼ ]

[Add Question] [Add Page]

---

[Edit] [Delete] [Copy/Move] [Add Logic]

**\* 5. Which answer best describes your usual work location?**

[ ▼ ]

[Add Question] [Add Page]

---

[Edit] [Delete] [Copy/Move] [Add Logic]

**6. Have you participated in the year-long "Leadership          program?**

◯ I have not participated in Leadership      and have not applied

◯ I have not participated in Leadership      but HAVE applied

◯ I am a member of the current Leadership      class

◯ I am an alumnus of the Leadership    program

[Add Question] [Add Page]

---

◀ **4. Choose the Proper Survey to Answer Next** [Edit Page] [Delete Page] [Copy/Move] [Add Logic] ▶

[Add Question] [Add Page]

---

[Edit] [Delete] [Copy/Move] [Add Logic]

**\* 1. In the email you received, you were assigned a specific order or sequence for answering the three independent surveys. The surveys are:**

**SVS - Schwartz Value Survey (57 value words in 2 lists)**
**MTQ - Self-Description Questionnaire (48 questions)**
**RFQ - Event Reaction Questionnaire (11 questions)**

**You will answer all three questionnaires, but to cancel out the possible influence of one questionnaire on another questionnaire, a specific sequence (order) has been assigned to each participant in the study.**

**Which sequence was assigned to you?**

[ ▼ ]

[Add Question] [Add Page]

---

[Edit] [Delete] [Copy/Move] [Edit Logic]

**\* 2. Based on the sequence (order) of surveys listed in the email, which questionnaire do you need to answer next?**

[ ▼ ]

Schwartz Value Survey
begins here…

[Add Question] [Add Page]

---

◀ **5. SVS - Schwartz Value Survey (57 items)** [Edit Page] [Delete Page] [Copy/Move] [Add Logic] ▶

194

In this questionnaire you are to ask yourself: "What values are important to ME as guiding principles in MY life, and what values are less important to me?"

There are TWO SEPARATE lists of values in this questionnaire. List I contains 30 values that are "end results" that people desire. List II contains 27 values that are "ways of acting or being." In the parentheses following each value is an explanation that may help you to understand its meaning.

Your task is to rate how important each value is for you as a guiding principle in your life. Use the rating scale below:

0--means the value is not at all important, it is not relevant as a guiding principle for you.
3--means the value is important.
6--means the value is very important.

The higher the number (0, 1, 2, 3, 4, 5, 6), the more important the value is as a guiding principle in YOUR life.

-1 is for rating any values opposed to the principles that guide you.
7 is for rating a value of supreme importance as a guiding principle in your life; ORDINARILY THERE ARE NO MORE THAN TWO SUCH VALUES.

Using the menu choices below each value, select the number ( -1,0,1,2,3,4,5,6,7) that indicates the importance of that value for you, personally. Try to distinguish as much as possible between the values by using all the numbers. You will, of course, need to use numbers more than once.

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ]
**Value List I: (30 items)**

**IMPORTANT: Before you begin, read ALL the values in List I (#1 - #30). YOU WILL NEED TO SCROLL DOWN TO READ ALL THE VALUES. Then choose the one that is most important to you and rate its importance. Next, choose the value that is most opposed to your values and rate it -1. If there is no such value, choose the value least important to you and rate it 0 of 1, according to its importance. Then rate the rest of the values in List I.**

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
**\* 1. EQUALITY (equal opportunity for all)**

[                                          ‡ ]

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
**\* 2. INNER HARMONY (at peace with myself)**

[ ⬍ ]

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 3. SOCIAL POWER (control over others, dominance)

[ ⬍ ]

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 4. PLEASURE (gratification of desires)

[ ⬍ ]

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 5. FREEDOM (freedom of action and thought)

[ ⬍ ]

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 6. A SPIRITUAL LIFE (emphasis on spiritual not material matters)

[ ⬍ ]

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 7. SENSE OF BELONGING (feeling that others care about me)

[ ⬍ ]

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 8. SOCIAL ORDER (stability of society)

[ ⬍ ]

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 9. AN EXCITING LIFE (stimulating experiences)

[ ⬍ ]

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 10. MEANING IN LIFE (a purpose in life)

[ ⬍ ]

Edit | Delete | Copy/Move | Add Logic
* 11. POLITENESS (courtesy, good manners)

[ ▼ ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 12. WEALTH (material possessions, money)

[ ▼ ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 13. NATIONAL SECURITY (protection of my nation from enemies)

[ ▼ ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 14. SELF RESPECT (belief in one's own worth)

[ ▼ ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 15. RECIPROCATION OF FAVORS (avoidance of indebtedness)

[ ▼ ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 16. CREATIVITY (uniqueness, imagination)

[ ▼ ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 17. A WORLD AT PEACE (free of war and conflict)

[ ▼ ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 18. RESPECT FOR TRADITION (preservation of time-honored customs)

[ ▼ ]

Edit | Delete | Copy/Move | Add Logic
**\* 19. MATURE LOVE (deep emotional & spiritual intimacy)**

[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
**\* 20. SELF-DISCIPLINE (self-restraint, resistance to temptation)**

[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
**\* 21. PRIVACY (the right to have a private sphere)**

[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
**\* 22. FAMILY SECURITY (safety for loved ones)**

[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
**\* 23. SOCIAL RECOGNITION (respect, approval by others)**

[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
**\* 24. UNITY WITH NATURE (fitting into nature)**

[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
**\* 25. A VARIED LIFE (filled with challenge, novelty and change)**

[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
**\* 26. WISDOM (a mature understanding of life)**

[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
**\* 27. AUTHORITY (the right to lead or command)**

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 28. TRUE FRIENDSHIP (close, supportive friends)

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 29. A WORLD OF BEAUTY (beauty of nature and the arts)

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 30. SOCIAL JUSTICE (correcting injustice, care for the weak)

[ Add Question ] [ Add Page ]

6. Values List II (27 items) [ Edit Page ] [ Delete Page ] [ Copy/Move ] [ Add Logic ]

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ]
DON'T STOP YET!! You're more than half-way through the values questionnaire...

VALUES LIST II:

Now rate how important each of the following values is for you as a guiding principle in YOUR life. These values are phrased as ways of acting that may be more or less important for you. Once again, try to distinguish as much as possible between the values by using all the numbers.

IMPORTANT: Before you begin, read the values in List II (#1 - #27). YOU WILL NEED TO SCROLL DOWN TO READ ALL THE VALUES. Then choose the one that is most important to you and rate its importance. Next, choose the value least important to you, and rate it -1, 0, or 1, according to its importance. Then rate the rest of the values in List II.

[ Add Question ] [ Add Page ]

[ Edit ] [ Delete ] [ Copy/Move ] [ Add Logic ]
* 1. INDEPENDENT (self-reliant, self-sufficient)

[ Add Question ] [ Add Page ]

199

Edit | Delete | Copy/Move | Add Logic
**\* 2. MODERATE (avoiding extremes of feeling & action)**

[dropdown] ▲▼

Add Question | Add Page

---

Edit | Delete | Copy/Move | Add Logic
**\* 3. LOYAL (faithful to my friends, group)**

[dropdown] ▲▼

Add Question | Add Page

---

Edit | Delete | Copy/Move | Add Logic
**\* 4. AMBITIOUS (hard-working, aspiring)**

[dropdown] ▲▼

Add Question | Add Page

---

Edit | Delete | Copy/Move | Add Logic
**\* 5. BROADMINDED (tolerant of different ideas and beliefs)**

[dropdown] ▲▼

Add Question | Add Page

---

Edit | Delete | Copy/Move | Add Logic
**\* 6. HUMBLE (modest, self-effacing)**

[dropdown] ▲▼

Add Question | Add Page

---

Edit | Delete | Copy/Move | Add Logic
**\* 7. DARING (seeking adventure, risk)**

[dropdown] ▲▼

Add Question | Add Page

---

Edit | Delete | Copy/Move | Add Logic
**\* 8. PROTECTING THE ENVIRONMENT (preserving nature)**

[dropdown] ▲▼

Add Question | Add Page

---

Edit | Delete | Copy/Move | Add Logic
**\* 9. INFLUENTIAL (having an impact on people and events)**

[dropdown] ▲▼

Add Question | Add Page

---

Edit | Delete | Copy/Move | Add Logic
**\* 10. HONORING OF PARENTS AND ELDERS (showing respect)**

[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 11. CHOOSING OWN GOALS (selecting own purposes)
[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 12. HEALTHY (not being sick physically or mentally)
[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 13. CAPABLE (competent, effective, efficient)
[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 14. ACCEPTING MY PORTION IN LIFE (submitting to life's circumstances)
[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 15. HONEST (genuine, sincere)
[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 16. PRESERVING MY PUBLIC IMAGE (protecting my "face")
[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 17. OBEDIENT (dutiful, meeting obligations)
[ dropdown ]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 18. INTELLIGENT (logical, thinking)
[ dropdown ]

Edit | Delete | Copy/Move | Add Logic
* 19. HELPFUL (working for the welfare of others)

[                                        ▲▼]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 20. ENJOYING LIFE (enjoying food, sex, leisure, etc.)

[                                        ▲▼]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 21. DEVOUT (holding to religious faith & belief)

[                                        ▲▼]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 22. RESPONSIBLE (dependable, reliable)

[                                        ▲▼]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 23. CURIOUS (interested in everything, exploring)

[                                        ▲▼]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 24. FORGIVING (willing to pardon others)

[                                        ▲▼]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 25. SUCCESSFUL (achieving goals)

[                                        ▲▼]

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic
* 26. CLEAN (neat, tidy)

[                                        ▲▼]

**\* 27. SELF-INDULGENT (doing pleasant things)**

**7. Choose the Proper Survey to Answer Next**

**\* 1. Based on the sequence (order) of surveys listed in the email, which questionnaire do you need to answer next?**

Motivational Trait Questionnaire begins here

**8. MTQ - Self-Description Questionnaire (48 items)**

INSTRUCTIONS:

This questionnaire asks you to respond to statements about your attitudes, opinions, and behaviors. Read each statement carefully, and decide whether or not the statement describes you. Using the scale provided, indicate the degree to which the ENTIRE statement is true of you. Give only one answer for each statement.

Some of the statements may refer to experiences you may not have had. Respond to these statements in terms of how true you think it WOULD BE of you.

Look at the sample statement below.

SAMPLE STATEMENT: I like to go to parties.

1 Very UNTRUE of Me
2 UNTRUE of Me
3 Somewhat UNTRUE of Me
4 Somewhat TRUE of Me
5 TRUE of Me
6 Very TRUE of Me

MARK
1 if you really dislike parties and you try to avoid them.
2 if you generally dislike parties and only go when you have to.
3 if you think parties are okay but generally prefer not to go.
4 if you think parties are okay and generally prefer to go.
5 if you generally like parties and go to most of the time.
6 if you really like parties and only miss one if you absolutely have to.

PLEASE NOTE:

• There are no right or wrong answers. Simply describe yourself honestly and state your opinions accurately.

• In deciding on your answer, consider your life in general and not only the last few weeks or months.

• Deciding on an answer may be difficult for some of the statements. If you have a hard time deciding, choose the answer that is MOST true of you.

• Some of the items will seem repetitive. These are not meant to be trick questions. Do not look back at your previous answers, simply answer each question honestly

Add Question    Add Page

The items in the Motivational Trait Questionnaire are copyrighted and access to the items and scoring key is restricted at the request of Ruth Kanfer. A copy of the MTQ and scoring key may be obtained from the authors for research purposes.

Contact information for Ruth Kanfer and Eric Heggestad appears in Appendix M2 (p. 241) in their emails granting me permission to use their measure in this dissertation.

| Edit | Delete | Copy/Move | Add Logic |

*

[dropdown]

Add Question   Add Page

| Edit | Delete | Copy/Move | Add Logic |

*

[dropdown]

Add Question   Add Page

## 9. Choose the Proper Survey to Answer Next   Edit Page   Delete Page   Copy/Move   Add Logic

Add Question   Add Page

| Edit | Delete | Copy/Move | Edit Logic |

**\* 1. Based on the sequence (order) of surveys listed in the email, which questionnaire do you need to answer next?**

[dropdown]

Regulatory Focus Questionnaire begins here

Add Question   Add Page

## 10. RFQ - Event Reaction Questionnaire (11 items)   Edit Page   Delete Page   Copy/Move   Add Logic

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life. Please indicate your answer to each question by selecting the best choice.

Add Question   Add Page

| Edit | Delete | Copy/Move | Add Logic |

**\* 1. Compared to most people, are you typically unable to get what you want out of life?**

| 1 never or seldom | 2 | 3 sometimes | 4 | 5 very often |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

Add Question   Add Page

| Edit | Delete | Copy/Move | Add Logic |

**\* 2. Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?**

| 1 never or seldom | 2 | 3 sometimes | 4 | 5 very often |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**\* 3. How often have you accomplished things that got you "psyched" to work even harder?**

| 1 never or seldom | 2 | 3 a few times | 4 | 5 many times |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

[Add Question] [Add Page]

[Edit] [Delete] [Copy/Move] [Add Logic]

**\* 4. Did you get on your parents' nerves often when you were growing up?**

| 1 never or seldom | 2 | 3 sometimes | 4 | 5 very often |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

[Add Question] [Add Page]

[Edit] [Delete] [Copy/Move] [Add Logic]

**\* 5. How often did you obey rules and regulations that were established by your parents?**

| 1 never or seldom | 2 | 3 sometimes | 4 | 5 always |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

[Add Question] [Add Page]

[Edit] [Delete] [Copy/Move] [Add Logic]

**\* 6. Growing up, did you ever act in ways that your parents thought were objectionable?**

| 1 never or seldom | 2 | 3 sometimes | 4 | 5 very often |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

[Add Question] [Add Page]

[Edit] [Delete] [Copy/Move] [Add Logic]

**\* 7. Do you often do well at different things you try?**

| 1 never or seldom | 2 | 3 sometimes | 4 | 5 very often |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

[Add Question] [Add Page]

[Edit] [Delete] [Copy/Move] [Add Logic]

**\* 8. Not being careful enough has gotten me into trouble at times.**

| 1 never or seldom | 2 | 3 sometimes | 4 | 5 very often |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

Edit | Delete | Copy/Move | Add Logic

**\* 9. When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.**

| 1 never true | 2 | 3 sometimes true | 4 | 5 very often true |
|:---:|:---:|:---:|:---:|:---:|
| ◡ | ◡ | ◡ | ◡ | ◡ |

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic

**\* 10. I feel like I have made progress toward being successful in my life.**

| 1 certainly false | 2 | 3 | 4 | 5 certainly true |
|:---:|:---:|:---:|:---:|:---:|
| ◡ | ◡ | ◡ | ◡ | ◡ |

Add Question | Add Page

Edit | Delete | Copy/Move | Add Logic

**\* 11. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.**

| 1 certainly false | 2 | 3 | 4 | 5 certainly true |
|:---:|:---:|:---:|:---:|:---:|
| ◡ | ◡ | ◡ | ◡ | ◡ |

Add Question | Add Page

◀ **11. Choose the Proper Survey to Answer Next**  Edit Page | Delete Page | Copy/Move | Add Logic  ▶

Add Question | Add Page

Edit | Delete | Copy/Move | Edit Logic

**\* 1. Based on the sequence (order) of surveys listed in the email, which questionnaire do you need to answer next?**

[                                        ▲▼]

Add Question | Add Page

◀ **12. Thank you for Participating**  Edit Page | Delete Page | Copy/Move | Add Logic  ▶

Thank you for participating in my doctoral dissertation. Please remember that your participation is completely ANONYMOUS and that neither I nor anyone else can link your responses to YOU.

Your willingness to answer these questions honestly means a great deal to me. THANK YOU again, for participating.

Peter H. Larkam
Doctoral Candidate,

> Question 11 is duplicated before and after each of the three study questionnaires. "Skip logic" in the survey design enables participants to answer the questionnaires in the sequence specified in their informed consent email.

Educational Psychology, The University of Texas at Austin

REMEMBER - IF YOU DID NOT ANSWER ALL 3 QUESTIONNAIRES, I AM NOT ABLE
TO USE YOUR DATA. IF THIS IS THE CASE, PLEASE SELECT #8 IN THE BOX
BELOW AND THEN RETURN LATER TO COMPLETE THE UNANSWERED
QUESTIONNAIRE(S). THANK YOU!!

[Add Question] [Add Page]

[Edit] [Delete] [Copy/Move] [Add Logic]
**\* 1. I am interested in how you felt about answering these questions. Please select the choice that best reflects your experience.**

⚪ 1 This was a very unpleasant experience for me.
⚪ 2
⚪ 3
⚪ 4 Neutral
⚪ 5
⚪ 6
⚪ 7 This was a very pleasant experience for me.
⚪ 8 I'm not finished - I'll come back later...

[Add Question] [Add Page]

[Edit] [Delete] [Copy/Move]
**2. If you have any comments you would like to add, feel free to write them in the box below. Again, thanks for participating.**

# APPENDIX E: COMPANY PAYS SCALES

## Administrative

| Grade | Minimum Hourly | Minimum Annual | Maximum Hourly | Maximum Annual | Mid-Scale Hourly | Mid-Scale Annual |
|---|---|---|---|---|---|---|
| 62 | 9.65 | 20,072 | 13.5 | 28,080 | 11.58 | 24,076 |
| 63 | 11.05 | 22,984 | 15.45 | 32,136 | 13.25 | 27,560 |
| 64 | 12.60 | 26,208 | 17.65 | 36,712 | 15.13 | 31,460 |
| 65 | 14.40 | 29,952 | 20.15 | 41,912 | 17.28 | 35,932 |
| 66 | 16.40 | 34,112 | 23.05 | 47,944 | 19.73 | 41,028 |

## Craft & Technical

| Grade | Minimum Hourly | Minimum Annual | Maximum Hourly | Maximum Annual | Mid-Scale Hourly | Mid-Scale Annual |
|---|---|---|---|---|---|---|
| 41 | 8.05 | 16,744 | 11.25 | 23,400 | 9.65 | 20,072 |
| 42 | 9.10 | 18,928 | 12.8 | 26,624 | 10.95 | 22,776 |
| 43 | 10.40 | 21,632 | 14.5 | 30,160 | 12.45 | 25,896 |
| 44 | 11.85 | 24,648 | 16.45 | 34,216 | 14.15 | 29,432 |
| 45 | 13.45 | 27,976 | 18.85 | 39,208 | 16.15 | 33,592 |
| 46 | 14.60 | 30,368 | 21.95 | 45,656 | 18.28 | 38,012 |
| 47 | 16.60 | 34,528 | 24.95 | 51,896 | 20.78 | 43,212 |
| 48 | 18.95 | 39,416 | 28.4 | 59,072 | 23.68 | 49,244 |
| 49 | 21.55 | 44,824 | 32.25 | 67,080 | 26.90 | 55,952 |
| 50 | 24.50 | 50,960 | 36.75 | 76,440 | 30.63 | 63,700 |

## Professional & Managerial

| Grade | Minimum Monthly | Minimum Annual | Maximum Monthly | Maximum Annual | Mid-Scale Monthly | Mid-Scale Annual |
|---|---|---|---|---|---|---|
| 23 | 2,520 | 30,240 | 3,780 | 45,360 | 3,150 | 37,800 |
| 24 | 2,810 | 33,720 | 4,220 | 50,640 | 3,515 | 42,180 |
| 25 | 3,140 | 37,680 | 4,710 | 56,520 | 3,925 | 47,100 |
| 26 | 3,510 | 42,120 | 5,260 | 63,120 | 4,385 | 52,620 |
| 27 | 3,920 | 47,040 | 5,880 | 70,560 | 4,900 | 58,800 |
| 28 | 4,370 | 52,440 | 6,560 | 78,720 | 5,465 | 65,580 |
| 29 | 4,880 | 58,560 | 7,320 | 87,840 | 6,100 | 73,200 |
| 30 | 5,450 | 65,400 | 8,170 | 98,040 | 6,810 | 81,720 |
| 31 | 6,080 | 72,960 | 9,120 | 109,440 | 7,600 | 91,200 |
| 32 | 6,790 | 81,480 | 10,180 | 122,160 | 8,485 | 101,820 |
| 33 | 7,580 | 90,960 | 11,360 | 136,320 | 9,470 | 113,640 |
| 34 | 8,450 | 101,400 | 12,680 | 152,160 | 10,565 | 126,780 |

209

## APPENDIX F: REGULATORY FOCUS QUESTIONNAIRE

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life.  Please indicate your answer to each question by circling the number below it.

**1.** Compared to most people, are you typically unable to get what you want out of life?  **[PRO-R]**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| never or seldom | | sometimes | | very often |

**[-0.65]**

2. Growing up, would you ever "cross the line" by doing things that your parents would not tolerate? **[PRE-R]**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| never or seldom | | sometimes | | very often |

**[-0.80]**

3. How often have you accomplished things that got you "psyched" to work even harder?  **[PRO]**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| never or seldom | | a few times | | many times |

**[0.37]**

**4.** Did you get on your parents' nerves often when you were growing up?  **[PRE-R]**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| never or seldom | | sometimes | | very often |

**[-0.65]**

5. How often did you obey rules and regulations that were established by your parents?  **[PRE]**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| never or seldom | | sometimes | | always |

**[0.56]**

**6.** Growing up, did you ever act in ways that your parents thought were objectionable?  **[PRE-R]**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| never or seldom | | sometimes | | very often |

**[-0.84]**

**7.** Do you often do well at different things that you try?  **[PRO]**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| never or seldom | | sometimes | | very often |

**[0.54]**

8. Not being careful enough has gotten me into trouble at times.  **[PRE-R]**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| never or seldom | | sometimes | | very often |

**[-0.55]**

9. When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.  **[PRO-R]**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| never true | | sometimes true | | very often true |

**[-0.51]**

10. I feel like I have made progress toward being successful in my life.  **[RPO]**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| certainly false | | | | certainly true |

**[0.81]**

11. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.  **[PRO-R]**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| certainly false | | | | certainly true |

**[-0.53]**

<u>**SCORING**</u>:  **PRO = PROMOTION**, **PRE = PREVENTION**, **R = REVERSE SCORED**, **[factor loading]**

**APPENDIX G: KEYING OF SVS TEN INDIVIDUAL LEVEL VALUE SCALES**

| Value | SVS items |
|-------|-----------|
| Conformity | 11,20,40,47 |
| Tradition | 18,32,36,44,51, |
| Benevolence | 33,45,49,52,54 |
| Universalism | 1,17,24,26,29,30,35,38 |
| Self-Direction | 5,16,31,41,53 |
| Stimulation | 9,25,37 |
| Hedonism | 4,50,57 |
| Achievement | 34,39,43,55 |
| Power | 3,12,27,46 |
| Security | 8,13,15,22,56 |

The score for each value is the mean of the ratings given to the items listed above for that value. Note, however, that for most purposes it is necessary to make a correction for individual differences in use of the response scale. The next page provides instructions for making the correction. **Failure to make the necessary scale use correction typically leads to mistaken conclusions!**

## Scale Use Correction for the 56 or 57 item SVS

Individuals and cultural groups differ in their use of the response scale.[1] When treating value priorities either as independent or as dependent variables, it is necessary to correct for scale use. In such analyses, scale use differences often distort findings and lead to incorrect conclusions.[2] Follow the appropriate instructions below to correct for scale use.

1. For correlation analyses:
   - A. Compute each individual's total score on <u>all</u> value items and divide by the total number of items (56 or 57). I call this the MRAT.[3]
   - B1. Center scores of each of the items for an individual around that individual's MRAT. Then compute scores for the 10 values by taking the means of the centered items. Use these centered value scores in correlations.
   - B2. Alternatively, use the raw scores for the 10 values, but use partial correlation to correlate them with other variables, partialing out their relations to MRAT (i.e., use MRAT as a covariate).

   *The two alternative methods yield virtually identical results.*

2. For group mean comparisons, analysis of variance or of covariance (t- tests, ANOVA, MANOVA, ANCOVA, MANCOVA):
   - A. Compute MRAT as in 1A above
   - B1. Center scores for each item and compute 10 value scores as in 1B1. Then use these centered scores in the analyses.
   - B2. Alternatively, use raw scores and include MRAT as a covariate (i.e., a control at the individual level) in all analyses.

   *The two alternative methods yield virtually identical results.*

3. For regression:
   - A. Compute MRAT as in 1A above.
   - B. Center scores of all items and compute 10 value scores as in 1B1.
   - C. Enter **up to 8** centered values as predictors in the regression.
     1. If all 10 values are included, the regression weights for the values will be inaccurate and uninterpretable.
     2. Choose the values to exclude as predictors *a priori* on theoretical grounds because they are irrelevant to the topic.
   - D. Alternatively, use raw value scores as predictors, but be sure to include **at least 3** values and **no more than 8** as predictors [*Do not use MRAT in this case*]
   - E. If you are interested **only** in the total variance accounted for by values, you may include all 10 as predictors in either method (do not interpret the coefficients obtained this way!).
   - F. If the value is your dependent variable, use the centered value score.

212

G.  In publications, I strongly advise providing a table with the correlations between the values and the dependent variables in addition to any regression. Use correlations following 1B1 or 1B2, above. These correlations will aid in understanding results and reduce confusion due either to multicolinearity or to intercorrelations among the values.

4.  <u>For multidimensional scaling, canonical, discriminant, or confirmatory factor analyses</u>:
     Use raw value scores for the items or 10 value means.

5.  <u>Exploratory factor analysis </u>is not recommended to search for factors underlying the value items. EFA is not suitable for discovering a set of relations among variables that form a circumplex, as the values data do. The first unrotated factor represents scale use or acquiescence. It is not a substantive common factor. You can obtain a crude representation of the circular structure of values using EFA by plotting the locations of the value items on factors 2 x 3 of the unrotated solution.

Footnotes

1. Schwartz, et al., (1997) examine meanings of such scale use as an individual difference variable. Smith (2004) discusses correlates of scale use differences at the level of cultures.

2. Individual differences in the mean of the 57 values are largely a scale use bias. This assertion is grounded both in theory and empirically.
       A first theoretical ground is the assumption that, across the full range of value contents, everyone views values as approximately equally important. Some attribute more importance to one value, others to another. But, on average, values as a whole are of equal importance. This assumption is dependent on the further assumption that the value instrument covers all of the major types of values to which people attribute importance. Empirical evidence to support this assumption appears in Schwartz 1992, 2004. To the extent that individuals' attribute the same average importance to the full set of values, their mean score (MRAT) should be the same. Differences in individual MRATs therefore reflect scale use and not value substance. Of course, differences in MRAT may reflect some substance, but the empirical analyses suggest that substance is a much smaller component of MRAT than scale use bias is (Schwartz, et al., 1997).
       A second theoretical ground is that values are of interest because they form a system of priorities that guide, influence, and are influenced by thought, feeling and action. Values do not function in isolation from one another but as systems. For example, a decision to vote for one or another party is influenced by the perceived consequences of that vote for the attainment or frustration of **multiple** values--promoting equality or freedom of expression versus social power or tradition. It is the trade-off among the relevant values that affects the vote. Consequently, what is really of interest are the **priorities** among the values that form an individual's value system. Correcting for scale use with MRAT converts absolute value scores into scores that indicate the relative importance of each value in the value system, i.e., the individual's value priorities.
       The empirical basis for viewing differences in MRAT as bias is the findings of many analyses (50 or so, at least) that related value priorities to other variables--attitudes, behavior, background. The associations obtained (mean differences, correlations) when using scores corrected for MRAT are consistently more supportive of hypotheses based on theorizing about how values should relate to these other variables than the associations with raw scores. Indeed, with raw scores associations sometimes reverse. In no case have raw score associations made better sense than those corrected for MRAT.

3. A more refined way to measure MRAT is possible. Separate MRATs may be calculated for each of the ten values. For this purpose, the average response on all items <u>other than those that index a value</u> is computed as the MRAT for each value. Scores on the items that index each of the 10 values are then centered around their own

MRAT. Alternatively, the particular MRAT for each value is used as the covariate when correlating that value with other variables. Studies indicate that using this more refined method with the SVS makes virtually no difference.

References [available as electronic files]

Schwartz, S. H. (1992). Universals in the content and structure of values: Theory and empirical tests in 20 countries.  In M. Zanna (Ed.), *Advances in experimental social psychology (Vol. 25)* (pp. 1-65). New York: Academic Press.

Schwartz, S.H. (1996). Value priorities and behavior: Applying a theory of integrated value systems. In C. Seligman, J.M. Olson, & M.P. Zanna (Eds.), *The Psychology of Values: The Ontario Symposium, Vol. 8* (pp.1-24). Hillsdale, NJ: Erlbaum.

Schwartz, S.H., Verkasalo, M., Antonovsky, A., & Sagiv, L. (1997). Value priorities and social desirability: Much substance, some style. *British Journal of Social Psychology, 36,* 3-18.

Schwartz, S. H. (2004). Basic human values: Their content and structure across countries. In A. Tamayo & J Porto (Eds.), *Valores e trabalho* [Values and work]. Brasilia: Editora Universidade de Brasilia.

Smith, P. B. (2004). Acquiescent response bias as an aspect of cultural comminications style. *Journal of Cross-Cultural Psychology, 35,* 50-61.

## Appendix H1:  Demographics of the Six Groups

| Both Groups | Sample | Sex | | 1 | 2 | | 2 | Grand |
|---|---|---|---|---|---|---|---|---|
| Sequence | F | M | | 1 | F | M | 2 | Grand |
| MTQ-RFQ-SVS | 3 | 4 | | 7 | 3 | 12 | 15 | 22 |
| MTQ-SVS-RFQ | 2 | 6 | | 8 | 1 | 12 | 13 | 21 |
| RFQ-MTQ-SVS | 4 | 8 | | 12 | 4 | 14 | 18 | 30 |
| RFQ-SVS-MTQ | 2 | 9 | | 11 | 8 | 9 | 17 | 28 |
| SVS-MTQ-RFQ | 3 | 12 | | 15 | 9 | 14 | 23 | 38 |
| SVS-RFQ-MTQ | 4 | 2 | | 6 | 6 | 9 | 15 | 21 |
| Grand | 18 | 41 | | 59 | 31 | 70 | 101 | 160 |

| Both Groups | Sequence | | | | | | |
|---|---|---|---|---|---|---|---|
| Age | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ | Grand |
| 26 - 30 | 2 | 5 | 1 | 2 | | 1 | 11 |
| 31 - 35 | 4 | 1 | 3 | 3 | 4 | | 15 |
| 36 - 40 | 3 | 2 | 6 | 5 | 4 | 1 | 21 |
| 41 - 45 | 3 | 4 | 8 | 1 | 5 | 3 | 24 |
| 46 - 50 | 3 | 5 | 5 | 10 | 12 | 2 | 37 |
| 51 - 55 | 1 | 1 | 3 | 4 | 7 | 10 | 26 |
| 56 - 60 | 5 | 1 | 1 | 1 | 5 | 2 | 15 |
| 61 - 65 | 1 | 2 | 3 | 2 | 1 | 2 | 11 |
| Grand | 22 | 21 | 30 | 28 | 38 | 21 | 160 |

| Group 1 | Sequence | | | | | | |
|---|---|---|---|---|---|---|---|
| Age | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ | Grand |
| 26 - 30 | 2 | 4 | 1 | 2 | | | 9 |
| 31 - 35 | 2 | 1 | 1 | 1 | | | 5 |
| 36 - 40 | 2 | 1 | 3 | 3 | 2 | | 11 |
| 41 - 45 | | 2 | 3 | | 1 | 1 | 7 |
| 46 - 50 | 1 | | 1 | 3 | 7 | | 12 |
| 51 - 55 | | | 2 | 1 | 4 | 4 | 11 |
| 56 - 60 | | | | 1 | | 1 | 2 |
| 61 - 65 | | | 1 | | 1 | | 2 |
| Grand | 7 | 8 | 12 | 11 | 15 | 6 | 59 |

| Group 2 | Sequence | | | | | | |
|---|---|---|---|---|---|---|---|
| Age | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ | Grand |
| 26 - 30 | | 1 | | | | 1 | 2 |
| 31 - 35 | 2 | | 2 | 2 | 4 | | 10 |
| 36 - 40 | 1 | 1 | 3 | 2 | 2 | 1 | 10 |
| 41 - 45 | 3 | 2 | 5 | 1 | 4 | 2 | 17 |
| 46 - 50 | 2 | 5 | 4 | 7 | 5 | 2 | 25 |
| 51 - 55 | 1 | 1 | 1 | 3 | 3 | 6 | 15 |
| 56 - 60 | 5 | 1 | 1 | | 5 | 1 | 13 |
| 61 - 65 | 1 | 2 | 2 | 2 | | 2 | 9 |
| Grand | 15 | 13 | 18 | 17 | 23 | 15 | 101 |

| Both Groups | Sequence | | | | | | |
|---|---|---|---|---|---|---|---|
| Tenure | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ | Grand |
| < 1 year | 6 | | | | | 1 | 7 |
| 1-3 | 2 | 1 | 2 | 1 | 2 | 2 | 10 |
| 3-5 | 5 | 6 | 5 | 1 | 5 | 1 | 23 |
| 5-10 | 2 | 4 | 12 | 12 | 4 | 4 | 38 |
| 10-15 | 1 | 3 | 5 | 7 | 4 | 2 | 22 |
| 15-20 | 3 | 3 | 2 | | 3 | 6 | 17 |
| 20-25 | 3 | 2 | 2 | 4 | 6 | 4 | 21 |
| 25-30 | | 2 | 1 | 2 | 7 | 1 | 13 |
| > 30 years | | | 1 | 1 | 7 | | 9 |
| Grand | 22 | 21 | 30 | 28 | 38 | 21 | 160 |

| Group 1 | Sequence | | | | | | |
|---|---|---|---|---|---|---|---|
| Tenure | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ | Grand |
| < 1 year | 5 | | | | | | 5 |
| > 30 years | | | | | 4 | | 4 |
| 10-15 | | | 1 | 5 | 1 | 1 | 8 |
| 1-3 | 2 | 1 | | | | | 3 |
| 15-20 | | | 1 | | 1 | 3 | 5 |
| 20-25 | | | | | 2 | 2 | 4 |
| 25-30 | | | | | 6 | | 6 |
| 3-5 | | 6 | 3 | | 1 | | 10 |
| 5-10 | | 1 | 7 | 6 | | | 14 |
| Grand | 7 | 8 | 12 | 11 | 15 | 6 | 59 |

| Group 2 | Sequence | | | | | | |
|---|---|---|---|---|---|---|---|
| Tenure | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ | Grand |
| < 1 year | 1 | | | | | 1 | 2 |
| 1-3 | | | 2 | 1 | 2 | 2 | 7 |
| 3-5 | 5 | | 2 | 1 | 4 | 1 | 13 |
| 5-10 | 2 | 3 | 5 | 6 | 4 | 4 | 24 |
| 10-15 | 1 | 3 | 4 | 2 | 3 | 1 | 14 |
| 15-20 | 3 | 3 | 1 | | 2 | 3 | 12 |
| 20-25 | 3 | 2 | 2 | 4 | 4 | 2 | 17 |
| 25-30 | | 2 | 1 | 2 | 1 | 1 | 7 |
| > 30 years | | | 1 | 1 | 3 | | 5 |
| Grand | 15 | 13 | 18 | 17 | 23 | 15 | 101 |

| Both Groups | Sequence | | | | | | |
|---|---|---|---|---|---|---|---|
| Leadership | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ | Grand |
| Current Class | | | 3 | 1 | | | 4 |
| Graduate | 3 | 4 | 4 | 2 | 5 | 2 | 20 |
| Only Applied | 4 | 3 | 4 | 4 | 3 | 3 | 21 |
| Never Applied | 15 | 14 | 19 | 21 | 30 | 16 | 115 |
| Grand | 22 | 21 | 30 | 28 | 38 | 21 | 160 |

| Group 1 | Sequence | | | | | | |
|---|---|---|---|---|---|---|---|
| Leadership | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ | Grand |
| Current Class | | | 1 | | | | 1 |
| Graduate | | 1 | 2 | | | 1 | 4 |
| Never Applied | 6 | 5 | 8 | 8 | 15 | 5 | 47 |
| Only Applied | 1 | 2 | 1 | 3 | | | 7 |
| Grand | 7 | 8 | 12 | 11 | 15 | 6 | 59 |

| Group 2 | Sequence | | | | | | |
|---|---|---|---|---|---|---|---|
| Leadership | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ | Grand |
| Current Class | | | 2 | 1 | | | 3 |
| Graduate | 3 | 3 | 2 | 2 | 5 | 1 | 16 |
| Never Applied | 9 | 9 | 11 | 13 | 15 | 11 | 68 |
| Only Applied | 3 | 1 | 3 | 1 | 3 | 3 | 14 |
| Grand | 15 | 13 | 18 | 17 | 23 | 15 | 101 |

**Appendix H2: Score Differences Between the Six Groups**

| Sex | Number of Respondents by Age | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Age (year 1 of 5-year group) | 26 | 31 | 36 | 41 | 46 | 51 | 56 | 61 | Total |
| Female | 5 | 7 | 8 | 5 | 7 | 10 | 1 | 2 | 45 |
| Male | 6 | 8 | 10 | 19 | 28 | 15 | 14 | 8 | 108 |
| Both Genders | 11 | 15 | 18 | 24 | 35 | 25 | 15 | 10 | 153 |

| Sex | Data | Average Scores by Age | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 26 | 31 | 36 | 41 | 46 | 51 | 56 | 61 | Total |
| Female | Aspiration Values | 5.01 | 4.42 | 4.67 | 4.07 | 4.03 | 4.82 | 5.03 | 4.08 | 4.52 |
| | Opportunity Values | 3.43 | 2.97 | 3.57 | 3.14 | 2.92 | 3.14 | 2.99 | 2.96 | 3.18 |
| | Stability Values | 4.10 | 3.51 | 3.64 | 4.28 | 3.29 | 4.28 | 5.30 | 4.10 | 3.90 |
| | Net RFQ Promotion | 4.60 | 6.17 | 6.14 | 4.80 | 6.75 | 6.55 | 5.00 | 7.33 | 6.09 |
| | Personal Mastery | 73.80 | 73.43 | 74.63 | 68.00 | 75.86 | 75.80 | 64.00 | 70.50 | 73.64 |
| | Competitive Excellence | 41.60 | 41.00 | 40.38 | 40.80 | 44.14 | 40.40 | 42.00 | 46.50 | 41.56 |
| | Motivation Anxiety | 69.80 | 65.14 | 61.25 | 67.80 | 51.86 | 65.90 | 94.00 | 71.50 | 64.29 |
| Male | Aspiration Values | 4.85 | 4.72 | 4.40 | 4.36 | 4.52 | 4.37 | 4.50 | 4.58 | 4.49 |
| | Opportunity Values | 3.45 | 3.75 | 3.39 | 3.09 | 3.29 | 3.18 | 3.31 | 3.21 | 3.29 |
| | Stability Values | 3.77 | 2.80 | 3.90 | 3.07 | 3.78 | 3.87 | 3.66 | 3.80 | 3.60 |
| | Net RFQ Promotion | 10.83 | 11.38 | 4.73 | 7.22 | 6.38 | 4.21 | 7.14 | 6.25 | 6.79 |
| | Personal Mastery | 79.83 | 83.75 | 73.40 | 78.26 | 73.25 | 67.73 | 75.07 | 71.50 | 74.63 |
| | Competitive Excellence | 48.83 | 41.63 | 49.00 | 43.47 | 47.71 | 38.93 | 44.64 | 49.75 | 45.23 |
| | Motivation Anxiety | 62.00 | 50.38 | 54.30 | 54.16 | 60.25 | 60.07 | 55.86 | 60.00 | 57.38 |

| Data | Obtained Averages | | | | | |
|---|---|---|---|---|---|---|
| | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ |
| UN | 0.093 | 0.022 | 0.049 | -0.267 | 0.074 | -0.244 |
| BE | 0.865 | 0.764 | 0.749 | 1.046 | 1.007 | 0.770 |
| TR | -1.163 | -1.056 | -1.169 | -0.638 | -0.907 | -0.459 |
| CO | 0.474 | 0.254 | 0.144 | 0.531 | 0.507 | 0.529 |
| SE | -0.235 | 0.274 | 0.066 | 0.262 | 0.131 | 0.103 |
| PO | -2.208 | -2.259 | -1.822 | -2.277 | -2.142 | -2.244 |
| AC | 0.326 | 0.466 | 0.144 | 0.521 | 0.290 | 0.184 |
| HE | -0.451 | -0.530 | -0.233 | -0.507 | -0.588 | -0.697 |
| ST | -0.496 | -0.713 | -0.325 | -0.802 | -0.921 | -0.982 |
| SD | 0.574 | 0.854 | 0.604 | 0.208 | 0.336 | 0.618 |

| Data | Global Average | | | | | |
|---|---|---|---|---|---|---|
| | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ |
| UN | -0.035 | -0.035 | -0.035 | -0.035 | -0.035 | -0.035 |
| BE | 0.881 | 0.881 | 0.881 | 0.881 | 0.881 | 0.881 |
| TR | -0.906 | -0.906 | -0.906 | -0.906 | -0.906 | -0.906 |
| CO | 0.409 | 0.409 | 0.409 | 0.409 | 0.409 | 0.409 |
| SE | 0.103 | 0.103 | 0.103 | 0.103 | 0.103 | 0.103 |
| PO | -2.143 | -2.143 | -2.143 | -2.143 | -2.143 | -2.143 |
| AC | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 |
| HE | -0.496 | -0.496 | -0.496 | -0.496 | -0.496 | -0.496 |
| ST | -0.711 | -0.711 | -0.711 | -0.711 | -0.711 | -0.711 |
| SD | 0.503 | 0.503 | 0.503 | 0.503 | 0.503 | 0.503 |

| Data | Obtained Average | | | | | |
|---|---|---|---|---|---|---|
| | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ |
| Promotion | 4.030 | 4.123 | 3.961 | 4.006 | 3.912 | 3.851 |
| Prevention | 3.364 | 3.358 | 3.407 | 3.556 | 3.488 | 3.526 |
| Mastery | 4.914 | 4.839 | 4.710 | 4.673 | 4.377 | 4.526 |
| Competitive | 3.200 | 3.306 | 3.621 | 3.625 | 3.264 | 3.239 |
| Anxiety | 2.878 | 3.117 | 3.194 | 2.948 | 3.216 | 3.231 |

| Data | Global Average | | | | | |
|---|---|---|---|---|---|---|
| | MTQ-RFQ-SVS | MTQ-SVS-RFQ | RFQ-MTQ-SVS | RFQ-SVS-MTQ | SVS-MTQ-RFQ | SVS-RFQ-MTQ |
| Promotion | 3.975 | 3.975 | 3.975 | 3.975 | 3.975 | 3.975 |
| Prevention | 3.454 | 3.454 | 3.454 | 3.454 | 3.454 | 3.454 |
| Mastery | 4.646 | 4.646 | 4.646 | 4.646 | 4.646 | 4.646 |
| Competitive | 3.387 | 3.387 | 3.387 | 3.387 | 3.387 | 3.387 |
| Anxiety | 3.110 | 3.110 | 3.110 | 3.110 | 3.110 | 3.110 |

## Appendix H3:  Analysis of Score Confidence Intervals for the Six Groups

| | | | Individual Group | | Total Sample | | | |
|---|---|---|---|---|---|---|---|---|
| | | Mean | Lower Bound | Upper Bound | LOWER | UPPER | Under Lower | Over Higher |
| PROM_AVG | 1 | 3.92 | 3.73 | 4.11 | 3.90 | 4.08 | 0.02 | 0.16 |
| | 2 | 3.87 | 3.61 | 4.14 | 3.90 | 4.08 | -0.03 | 0.21 |
| | 3 | 4.03 | 3.79 | 4.26 | 3.90 | 4.08 | 0.13 | 0.05 |
| | 4 | 3.99 | 3.75 | 4.24 | 3.90 | 4.08 | 0.09 | 0.09 |
| | 5 | 4.00 | 3.76 | 4.24 | 3.90 | 4.08 | 0.10 | 0.08 |
| | 6 | 4.12 | 3.92 | 4.33 | 3.90 | 4.08 | 0.22 | -0.04 |
| | Total | 3.99 | 3.90 | 4.08 | 3.90 | 4.08 | 0.09 | 0.09 |
| PREV_AVG | 1 | 3.49 | 3.28 | 3.71 | 3.34 | 3.57 | 0.16 | 0.08 |
| | 2 | 3.54 | 3.11 | 3.98 | 3.34 | 3.57 | 0.21 | 0.03 |
| | 3 | 3.55 | 3.29 | 3.81 | 3.34 | 3.57 | 0.21 | 0.02 |
| | 4 | 3.41 | 3.11 | 3.72 | 3.34 | 3.57 | 0.08 | 0.15 |
| | 5 | 3.34 | 3.02 | 3.67 | 3.34 | 3.57 | 0.01 | 0.23 |
| | 6 | 3.36 | 3.01 | 3.71 | 3.34 | 3.57 | 0.02 | 0.21 |
| | Total | 3.45 | 3.34 | 3.57 | 3.34 | 3.57 | 0.12 | 0.12 |
| TRAIT_PM | 1 | 4.42 | 4.19 | 4.64 | 4.57 | 4.76 | -0.15 | 0.34 |
| | 2 | 4.50 | 4.25 | 4.74 | 4.57 | 4.76 | -0.07 | 0.27 |
| | 3 | 4.68 | 4.51 | 4.86 | 4.57 | 4.76 | 0.11 | 0.08 |
| | 4 | 4.73 | 4.52 | 4.95 | 4.57 | 4.76 | 0.16 | 0.03 |
| | 5 | 4.91 | 4.62 | 5.21 | 4.57 | 4.76 | 0.34 | -0.15 |
| | 6 | 4.86 | 4.60 | 5.12 | 4.57 | 4.76 | 0.29 | -0.10 |
| | Total | 4.67 | 4.57 | 4.76 | 4.57 | 4.76 | 0.10 | 0.10 |
| TRAIT_CE | 1 | 3.23 | 3.04 | 3.41 | 3.24 | 3.51 | -0.01 | 0.28 |
| | 2 | 3.22 | 2.81 | 3.62 | 3.24 | 3.51 | -0.02 | 0.29 |
| | 3 | 3.63 | 3.27 | 3.99 | 3.24 | 3.51 | 0.39 | -0.12 |
| | 4 | 3.60 | 3.27 | 3.92 | 3.24 | 3.51 | 0.36 | -0.09 |
| | 5 | 3.20 | 2.74 | 3.66 | 3.24 | 3.51 | -0.04 | 0.31 |
| | 6 | 3.29 | 2.90 | 3.68 | 3.24 | 3.51 | 0.05 | 0.22 |
| | Total | 3.37 | 3.24 | 3.51 | 3.24 | 3.51 | 0.13 | 0.13 |
| TRAIT_MA | 1 | 3.19 | 2.89 | 3.48 | 2.95 | 3.21 | 0.23 | 0.03 |
| | 2 | 3.22 | 2.86 | 3.59 | 2.95 | 3.21 | 0.27 | -0.01 |
| | 3 | 2.93 | 2.64 | 3.23 | 2.95 | 3.21 | -0.02 | 0.28 |
| | 4 | 3.17 | 2.85 | 3.50 | 2.95 | 3.21 | 0.22 | 0.04 |
| | 5 | 2.88 | 2.45 | 3.30 | 2.95 | 3.21 | -0.08 | 0.34 |
| | 6 | 3.07 | 2.80 | 3.35 | 2.95 | 3.21 | 0.12 | 0.14 |
| | Total | 3.08 | 2.95 | 3.21 | 2.95 | 3.21 | 0.13 | 0.13 |

| | | | Individual Group | | Total Sample | | | |
|---|---|---|---|---|---|---|---|---|
| | | Mean | Lower Bound | Upper Bound | LOWER | UPPER | Under Lower | Over Higher |
| SVS_UN | 1 | 4.16 | 3.83 | 4.49 | 3.92 | 4.23 | 0.24 | 0.06 |
| | 2 | 3.80 | 3.38 | 4.22 | 3.92 | 4.23 | -0.12 | 0.42 |
| | 3 | 3.88 | 3.51 | 4.25 | 3.92 | 4.23 | -0.04 | 0.34 |
| | 4 | 4.16 | 3.76 | 4.55 | 3.92 | 4.23 | 0.24 | 0.07 |
| | 5 | 4.29 | 3.89 | 4.68 | 3.92 | 4.23 | 0.37 | -0.06 |
| | 6 | 4.04 | 3.58 | 4.50 | 3.92 | 4.23 | 0.12 | 0.19 |
| | Total | 4.07 | 3.92 | 4.23 | 3.92 | 4.23 | 0.15 | 0.15 |
| SVS_BE | 1 | 5.01 | 4.74 | 5.29 | 4.82 | 5.08 | 0.19 | 0.07 |
| | 2 | 4.96 | 4.63 | 5.30 | 4.82 | 5.08 | 0.14 | 0.12 |
| | 3 | 5.07 | 4.72 | 5.43 | 4.82 | 5.08 | 0.25 | 0.01 |
| | 4 | 4.86 | 4.57 | 5.14 | 4.82 | 5.08 | 0.04 | 0.22 |
| | 5 | 5.03 | 4.62 | 5.43 | 4.82 | 5.08 | 0.21 | 0.05 |
| | 6 | 4.75 | 4.40 | 5.09 | 4.82 | 5.08 | -0.07 | 0.33 |
| | Total | 4.95 | 4.82 | 5.08 | 4.82 | 5.08 | 0.13 | 0.13 |
| SVS_TR | 1 | 3.16 | 2.76 | 3.56 | 2.95 | 3.36 | 0.21 | 0.20 |
| | 2 | 3.87 | 3.26 | 4.48 | 2.95 | 3.36 | 0.92 | -0.51 |
| | 3 | 3.31 | 2.86 | 3.75 | 2.95 | 3.36 | 0.36 | 0.05 |
| | 4 | 2.94 | 2.39 | 3.48 | 2.95 | 3.36 | -0.01 | 0.42 |
| | 5 | 2.93 | 2.35 | 3.52 | 2.95 | 3.36 | -0.02 | 0.42 |
| | 6 | 2.88 | 2.36 | 3.41 | 2.95 | 3.36 | -0.07 | 0.47 |
| | Total | 3.15 | 2.95 | 3.36 | 2.95 | 3.36 | 0.20 | 0.20 |
| SVS_CO | 1 | 4.48 | 4.15 | 4.82 | 4.27 | 4.61 | 0.21 | 0.13 |
| | 2 | 4.72 | 4.22 | 5.22 | 4.27 | 4.61 | 0.45 | -0.11 |
| | 3 | 4.51 | 4.06 | 4.96 | 4.27 | 4.61 | 0.24 | 0.10 |
| | 4 | 4.25 | 3.83 | 4.67 | 4.27 | 4.61 | -0.02 | 0.36 |
| | 5 | 4.56 | 4.15 | 4.97 | 4.27 | 4.61 | 0.29 | 0.05 |
| | 6 | 4.20 | 3.61 | 4.79 | 4.27 | 4.61 | -0.07 | 0.42 |
| | Total | 4.44 | 4.27 | 4.61 | 4.27 | 4.61 | 0.17 | 0.17 |
| SVS_SE | 1 | 4.20 | 3.95 | 4.45 | 4.04 | 4.32 | 0.16 | 0.12 |
| | 2 | 4.29 | 4.02 | 4.57 | 4.04 | 4.32 | 0.25 | 0.02 |
| | 3 | 4.30 | 3.95 | 4.65 | 4.04 | 4.32 | 0.26 | 0.02 |
| | 4 | 4.17 | 3.78 | 4.56 | 4.04 | 4.32 | 0.13 | 0.14 |
| | 5 | 3.88 | 3.51 | 4.24 | 4.04 | 4.32 | -0.17 | 0.44 |
| | 6 | 4.23 | 3.81 | 4.66 | 4.04 | 4.32 | 0.19 | 0.08 |
| | Total | 4.18 | 4.04 | 4.32 | 4.04 | 4.32 | 0.14 | 0.14 |
| SVS_PO | 1 | 1.91 | 1.51 | 2.31 | 1.77 | 2.13 | 0.14 | 0.22 |
| | 2 | 2.07 | 1.53 | 2.62 | 1.77 | 2.13 | 0.31 | 0.06 |
| | 3 | 1.82 | 1.42 | 2.23 | 1.77 | 2.13 | 0.06 | 0.31 |
| | 4 | 2.28 | 1.82 | 2.75 | 1.77 | 2.13 | 0.52 | -0.15 |
| | 5 | 1.87 | 1.29 | 2.45 | 1.77 | 2.13 | 0.10 | 0.26 |
| | 6 | 1.64 | 1.18 | 2.11 | 1.77 | 2.13 | -0.12 | 0.49 |
| | Total | 1.95 | 1.77 | 2.13 | 1.77 | 2.13 | 0.18 | 0.18 |
| SVS_AC | 1 | 4.25 | 3.98 | 4.52 | 4.24 | 4.54 | 0.01 | 0.29 |
| | 2 | 4.46 | 4.04 | 4.87 | 4.24 | 4.54 | 0.21 | 0.08 |
| | 3 | 4.58 | 4.27 | 4.89 | 4.24 | 4.54 | 0.34 | -0.05 |
| | 4 | 4.25 | 3.88 | 4.62 | 4.24 | 4.54 | 0.01 | 0.29 |
| | 5 | 4.45 | 4.04 | 4.86 | 4.24 | 4.54 | 0.21 | 0.08 |
| | 6 | 4.47 | 3.92 | 5.02 | 4.24 | 4.54 | 0.23 | 0.06 |
| | Total | 4.39 | 4.24 | 4.54 | 4.24 | 4.54 | 0.15 | 0.15 |
| SVS_HE | 1 | 3.37 | 2.93 | 3.81 | 3.39 | 3.81 | -0.01 | 0.43 |
| | 2 | 3.55 | 2.79 | 4.31 | 3.39 | 3.81 | 0.16 | 0.26 |
| | 3 | 3.71 | 3.21 | 4.20 | 3.39 | 3.81 | 0.32 | 0.10 |
| | 4 | 3.87 | 3.38 | 4.36 | 3.39 | 3.81 | 0.49 | -0.07 |
| | 5 | 3.65 | 3.09 | 4.21 | 3.39 | 3.81 | 0.26 | 0.15 |
| | 6 | 3.40 | 2.80 | 4.00 | 3.39 | 3.81 | 0.02 | 0.40 |
| | Total | 3.60 | 3.39 | 3.81 | 3.39 | 3.81 | 0.21 | 0.21 |
| SVS_ST | 1 | 3.08 | 2.74 | 3.42 | 3.21 | 3.60 | -0.13 | 0.52 |
| | 2 | 3.24 | 2.67 | 3.80 | 3.21 | 3.60 | 0.03 | 0.36 |
| | 3 | 3.39 | 2.83 | 3.95 | 3.21 | 3.60 | 0.18 | 0.21 |
| | 4 | 3.78 | 3.29 | 4.27 | 3.21 | 3.60 | 0.57 | -0.18 |
| | 5 | 3.65 | 3.12 | 4.18 | 3.21 | 3.60 | 0.44 | -0.05 |
| | 6 | 3.28 | 2.69 | 3.88 | 3.21 | 3.60 | 0.07 | 0.32 |
| | Total | 3.40 | 3.21 | 3.60 | 3.21 | 3.60 | 0.20 | 0.20 |
| SVS_SD | 1 | 4.39 | 4.11 | 4.67 | 4.43 | 4.71 | -0.04 | 0.32 |
| | 2 | 4.69 | 4.12 | 5.27 | 4.43 | 4.71 | 0.27 | 0.01 |
| | 3 | 4.22 | 3.80 | 4.63 | 4.43 | 4.71 | -0.21 | 0.49 |
| | 4 | 4.71 | 4.39 | 5.03 | 4.43 | 4.71 | 0.28 | 0.00 |
| | 5 | 4.70 | 4.41 | 4.98 | 4.43 | 4.71 | 0.27 | 0.01 |
| | 6 | 4.85 | 4.56 | 5.14 | 4.43 | 4.71 | 0.43 | -0.14 |
| | Total | 4.57 | 4.43 | 4.71 | 4.43 | 4.71 | 0.14 | 0.14 |

219

| | | | Individual Group | | Total Sample | | | |
|---|---|---|---|---|---|---|---|---|
| | | Mean | Lower Bound | Upper Bound | LOWER | UPPER | Under Lower | Over Higher |
| RANK_UN | 1 | 6.00 | 5.17 | 6.83 | 5.20 | 5.97 | 0.80 | -0.03 |
| | 2 | 4.53 | 3.64 | 5.42 | 5.20 | 5.97 | -0.67 | 1.44 |
| | 3 | 4.92 | 4.05 | 5.78 | 5.20 | 5.97 | -0.28 | 1.05 |
| | 4 | 5.97 | 5.04 | 6.89 | 5.20 | 5.97 | 0.77 | 0.00 |
| | 5 | 5.71 | 4.57 | 6.86 | 5.20 | 5.97 | 0.51 | 0.26 |
| | 6 | 5.89 | 4.67 | 7.12 | 5.20 | 5.97 | 0.69 | 0.08 |
| | Total | 5.58 | 5.20 | 5.97 | 5.20 | 5.97 | 0.38 | 0.39 |
| RANK_BE | 1 | 8.45 | 7.77 | 9.14 | 7.93 | 8.53 | 0.52 | 0.08 |
| | 2 | 8.00 | 6.97 | 9.03 | 7.93 | 8.53 | 0.07 | 0.53 |
| | 3 | 8.67 | 8.04 | 9.30 | 7.93 | 8.53 | 0.74 | -0.14 |
| | 4 | 8.03 | 7.36 | 8.71 | 7.93 | 8.53 | 0.10 | 0.50 |
| | 5 | 8.38 | 7.56 | 9.20 | 7.93 | 8.53 | 0.45 | 0.15 |
| | 6 | 7.63 | 6.69 | 8.57 | 7.93 | 8.53 | -0.30 | 0.90 |
| | Total | 8.23 | 7.93 | 8.53 | 7.93 | 8.53 | 0.30 | 0.30 |
| RANK_TR | 1 | 3.42 | 2.69 | 4.16 | 3.13 | 3.75 | 0.29 | 0.33 |
| | 2 | 4.88 | 3.82 | 5.94 | 3.13 | 3.75 | 1.75 | -1.13 |
| | 3 | 3.63 | 2.85 | 4.40 | 3.13 | 3.75 | 0.50 | 0.12 |
| | 4 | 2.90 | 2.36 | 3.43 | 3.13 | 3.75 | -0.23 | 0.85 |
| | 5 | 3.19 | 2.33 | 4.05 | 3.13 | 3.75 | 0.06 | 0.56 |
| | 6 | 3.05 | 2.27 | 3.83 | 3.13 | 3.75 | -0.08 | 0.70 |
| | Total | 3.44 | 3.13 | 3.75 | 3.13 | 3.75 | 0.31 | 0.31 |
| RANK_CO | 1 | 7.21 | 6.46 | 7.96 | 6.39 | 7.12 | 0.82 | -0.09 |
| | 2 | 7.41 | 6.28 | 8.55 | 6.39 | 7.12 | 1.02 | -0.29 |
| | 3 | 6.67 | 5.84 | 7.49 | 6.39 | 7.12 | 0.28 | 0.45 |
| | 4 | 6.07 | 5.28 | 6.86 | 6.39 | 7.12 | -0.32 | 1.05 |
| | 5 | 7.05 | 5.92 | 8.18 | 6.39 | 7.12 | 0.66 | 0.07 |
| | 6 | 6.21 | 5.00 | 7.42 | 6.39 | 7.12 | -0.18 | 0.91 |
| | Total | 6.76 | 6.39 | 7.12 | 6.39 | 7.12 | 0.37 | 0.36 |
| RANK_SE | 1 | 6.30 | 5.69 | 6.91 | 5.69 | 6.39 | 0.61 | 0.09 |
| | 2 | 6.41 | 5.40 | 7.42 | 5.69 | 6.39 | 0.72 | -0.02 |
| | 3 | 6.42 | 5.41 | 7.42 | 5.69 | 6.39 | 0.73 | -0.03 |
| | 4 | 5.76 | 4.91 | 6.61 | 5.69 | 6.39 | 0.07 | 0.63 |
| | 5 | 5.00 | 4.01 | 5.99 | 5.69 | 6.39 | -0.69 | 1.39 |
| | 6 | 6.37 | 5.35 | 7.39 | 5.69 | 6.39 | 0.68 | 0.02 |
| | Total | 6.04 | 5.69 | 6.39 | 5.69 | 6.39 | 0.35 | 0.35 |
| RANK_PO | 1 | 1.73 | 1.21 | 2.25 | 1.43 | 1.86 | 0.30 | 0.13 |
| | 2 | 1.59 | 1.11 | 2.07 | 1.43 | 1.86 | 0.16 | 0.27 |
| | 3 | 1.42 | 1.09 | 1.74 | 1.43 | 1.86 | -0.01 | 0.44 |
| | 4 | 1.83 | 1.14 | 2.52 | 1.43 | 1.86 | 0.40 | 0.03 |
| | 5 | 1.76 | 1.12 | 2.40 | 1.43 | 1.86 | 0.33 | 0.10 |
| | 6 | 1.42 | 1.13 | 1.71 | 1.43 | 1.86 | -0.01 | 0.44 |
| | Total | 1.64 | 1.43 | 1.86 | 1.43 | 1.86 | 0.21 | 0.22 |
| RANK_AC | 1 | 6.18 | 5.52 | 6.85 | 6.13 | 6.84 | 0.05 | 0.66 |
| | 2 | 6.82 | 5.79 | 7.86 | 6.13 | 6.84 | 0.69 | 0.02 |
| | 3 | 6.71 | 5.74 | 7.68 | 6.13 | 6.84 | 0.58 | 0.13 |
| | 4 | 5.83 | 5.08 | 6.58 | 6.13 | 6.84 | -0.30 | 1.01 |
| | 5 | 6.67 | 5.66 | 7.68 | 6.13 | 6.84 | 0.54 | 0.17 |
| | 6 | 7.21 | 5.95 | 8.47 | 6.13 | 6.84 | 1.08 | -0.37 |
| | Total | 6.48 | 6.13 | 6.84 | 6.13 | 6.84 | 0.35 | 0.36 |
| RANK_HE | 1 | 4.58 | 3.56 | 5.59 | 4.19 | 5.09 | 0.39 | 0.51 |
| | 2 | 4.18 | 2.59 | 5.76 | 4.19 | 5.09 | -0.01 | 0.91 |
| | 3 | 4.38 | 3.20 | 5.55 | 4.19 | 5.09 | 0.19 | 0.71 |
| | 4 | 5.31 | 4.16 | 6.46 | 4.19 | 5.09 | 1.12 | -0.22 |
| | 5 | 4.67 | 3.63 | 5.71 | 4.19 | 5.09 | 0.48 | 0.42 |
| | 6 | 4.42 | 3.41 | 5.43 | 4.19 | 5.09 | 0.23 | 0.67 |
| | Total | 4.64 | 4.19 | 5.09 | 4.19 | 5.09 | 0.45 | 0.45 |
| RANK_ST | 1 | 3.36 | 2.62 | 4.10 | 3.61 | 4.45 | -0.25 | 1.09 |
| | 2 | 3.12 | 1.82 | 4.41 | 3.61 | 4.45 | -0.49 | 1.33 |
| | 3 | 4.50 | 3.36 | 5.64 | 3.61 | 4.45 | 0.89 | -0.05 |
| | 4 | 4.90 | 3.77 | 6.03 | 3.61 | 4.45 | 1.29 | -0.45 |
| | 5 | 4.19 | 3.10 | 5.28 | 3.61 | 4.45 | 0.58 | 0.26 |
| | 6 | 3.89 | 2.89 | 4.90 | 3.61 | 4.45 | 0.28 | 0.56 |
| | Total | 4.03 | 3.61 | 4.45 | 3.61 | 4.45 | 0.42 | 0.42 |
| RANK_SD | 1 | 6.79 | 5.98 | 7.60 | 6.70 | 7.45 | 0.09 | 0.66 |
| | 2 | 6.88 | 5.54 | 8.23 | 6.70 | 7.45 | 0.18 | 0.57 |
| | 3 | 6.54 | 5.64 | 7.45 | 6.70 | 7.45 | -0.16 | 0.91 |
| | 4 | 7.07 | 6.09 | 8.05 | 6.70 | 7.45 | 0.37 | 0.38 |
| | 5 | 7.24 | 6.28 | 8.19 | 6.70 | 7.45 | 0.54 | 0.21 |
| | 6 | 8.26 | 7.67 | 8.86 | 6.70 | 7.45 | 1.56 | -0.81 |
| | Total | 7.08 | 6.70 | 7.45 | 6.70 | 7.45 | 0.38 | 0.37 |

**Appendix I1:  Sample Characteristics**
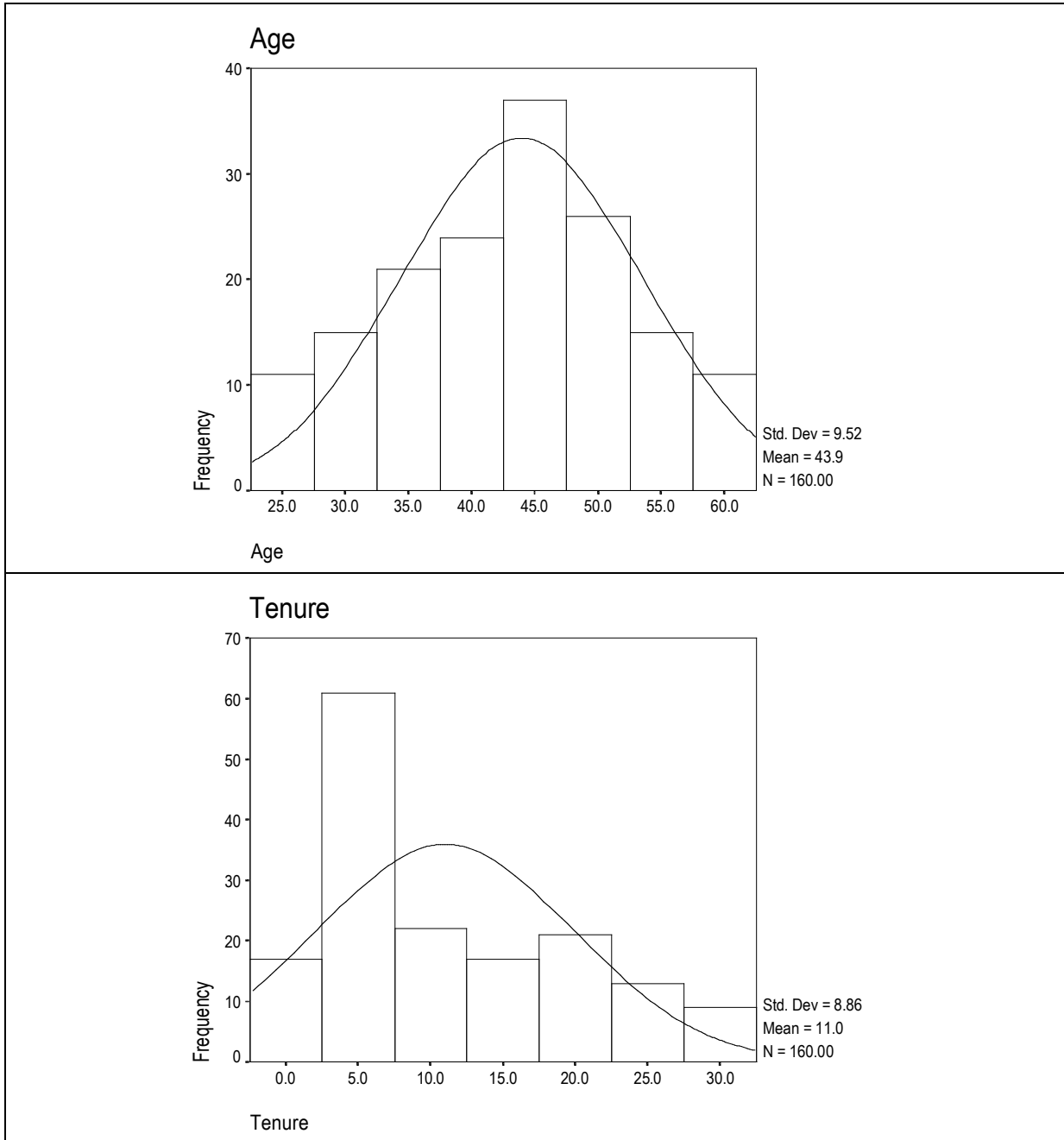
**Appendix I2:  Personal Value Priorities**

## Centered Social Values

Std. Dev = .47
Mean = .42
N = 155.00

## Centered Individual Values

Std. Dev = .50
Mean = -.69
N = 155.00

222
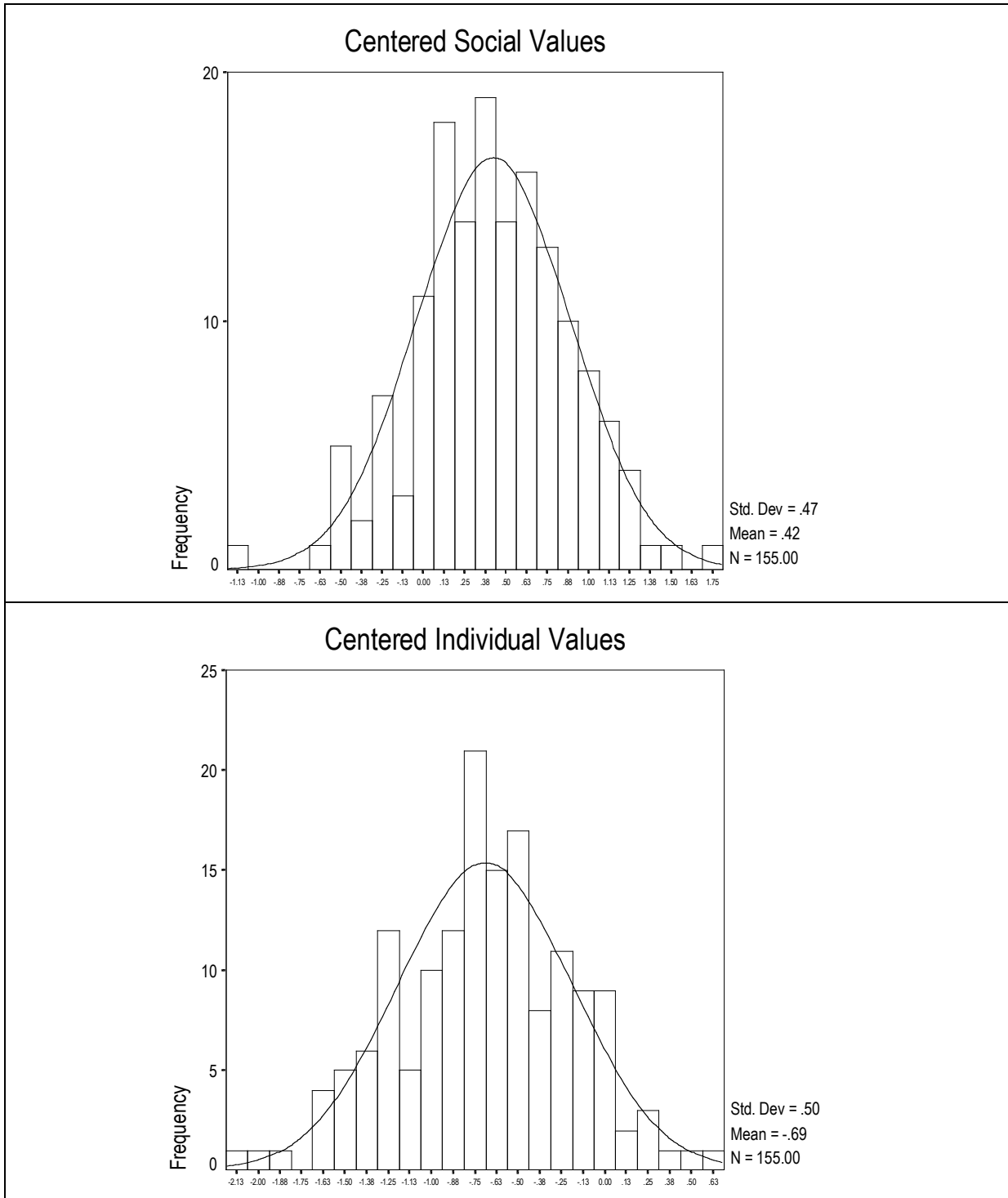
**Centered Stability Values**

Std. Dev = .58
Mean = -.06
N = 155.00
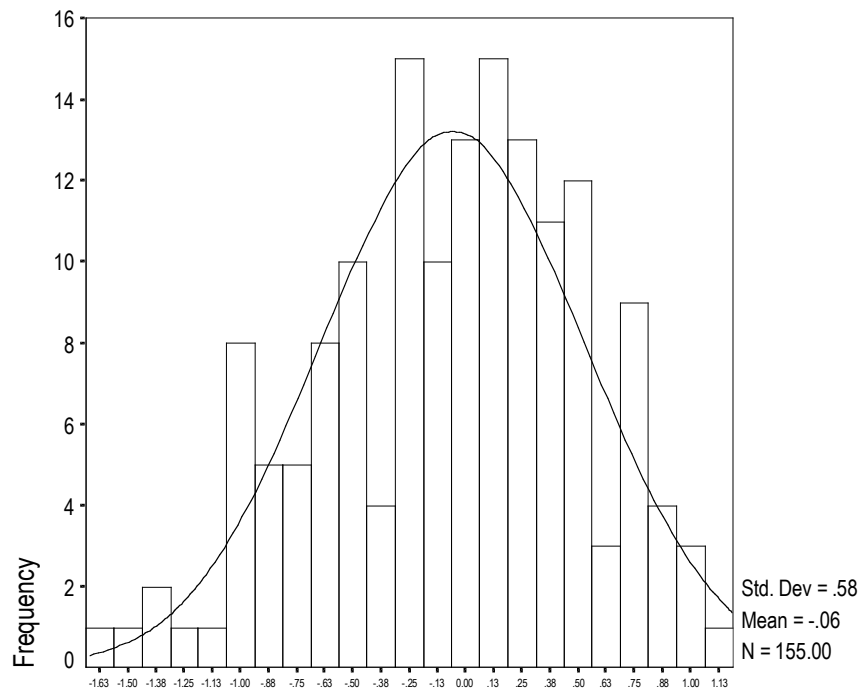
**Centered Opportunity Values**

Std. Dev = .60
Mean = -.15
N = 155.00

Centered Aspiration Values

Std. Dev = .56
Mean = .41
N = 155.00

Centered Status Quo Values

Std. Dev = .64
Mean = -.29
N = 155.00
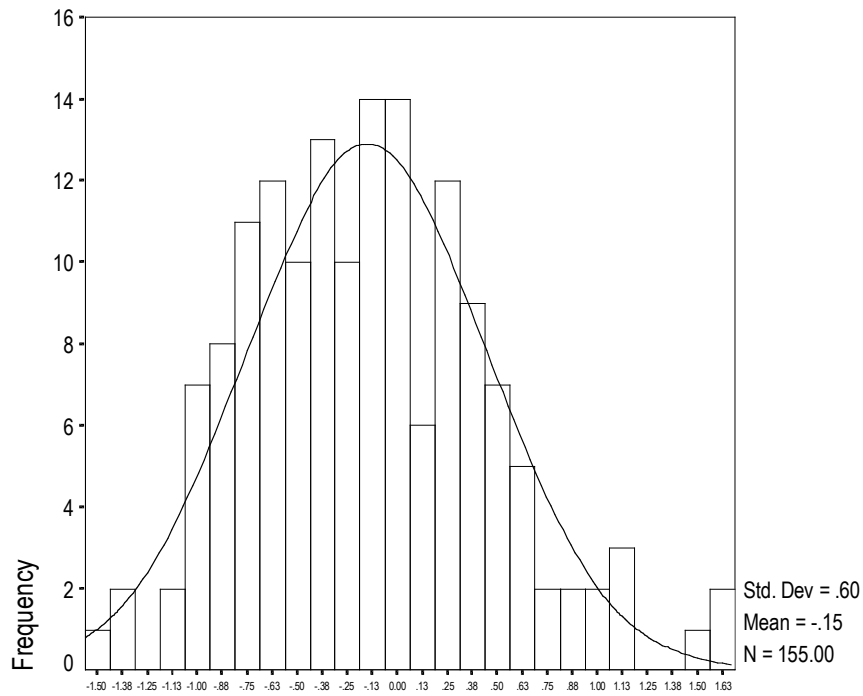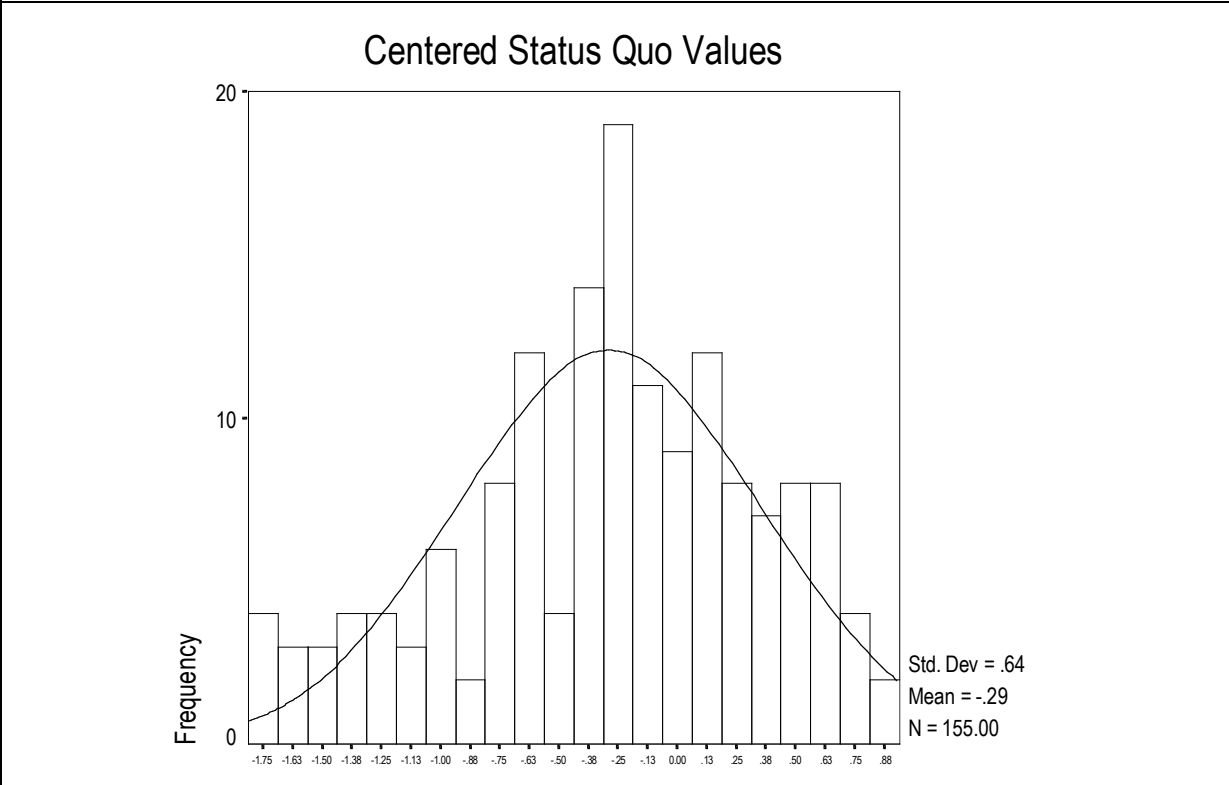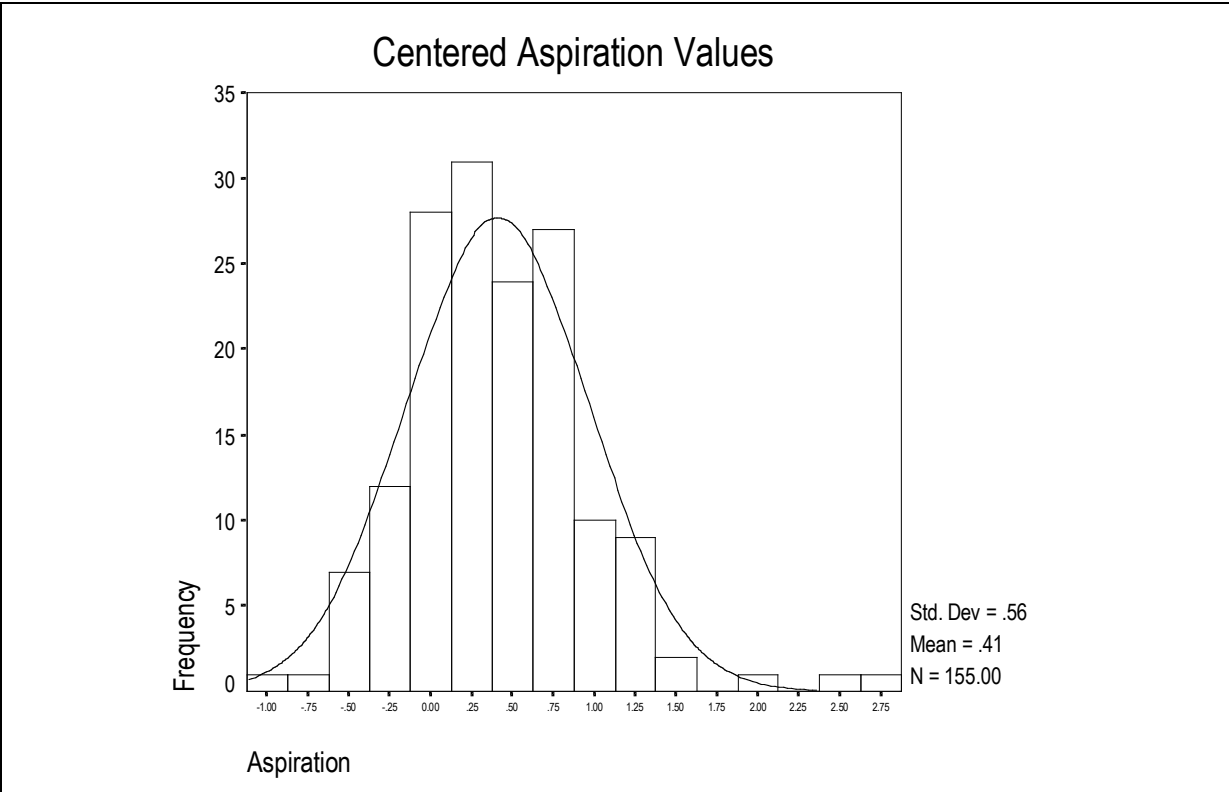
Centered Tradition Values

Std. Dev = .96
Mean = -.91
N = 155.00
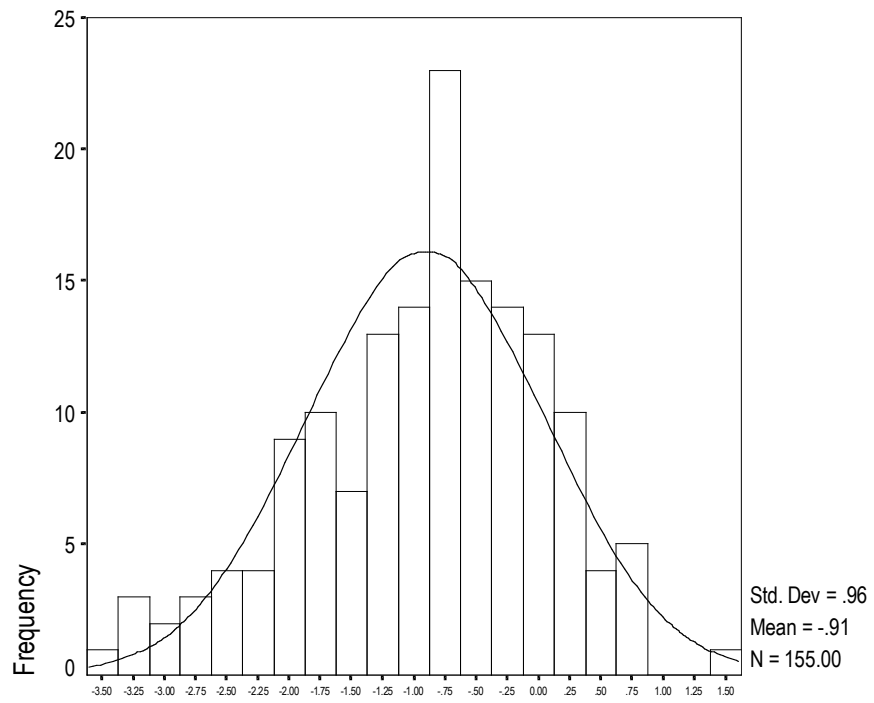
Centered Self Direction Values

Std. Dev = .80
Mean = .50
N = 155.00

225
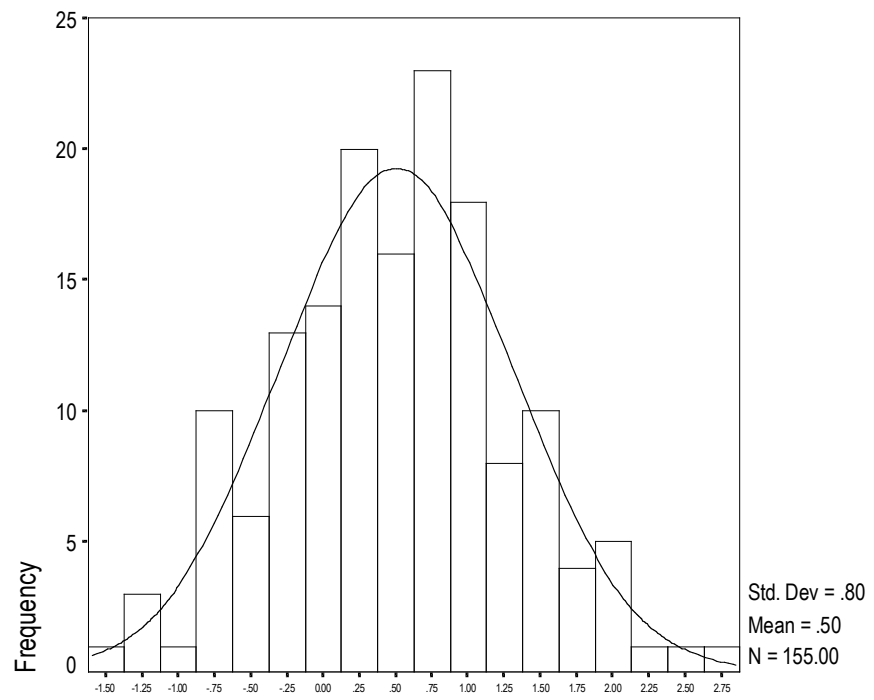
**Appendix I3:  Regulatory Focus**



Net RFQ Promotion

Std. Dev = 4.26
Mean = 6.6
N = 151.00
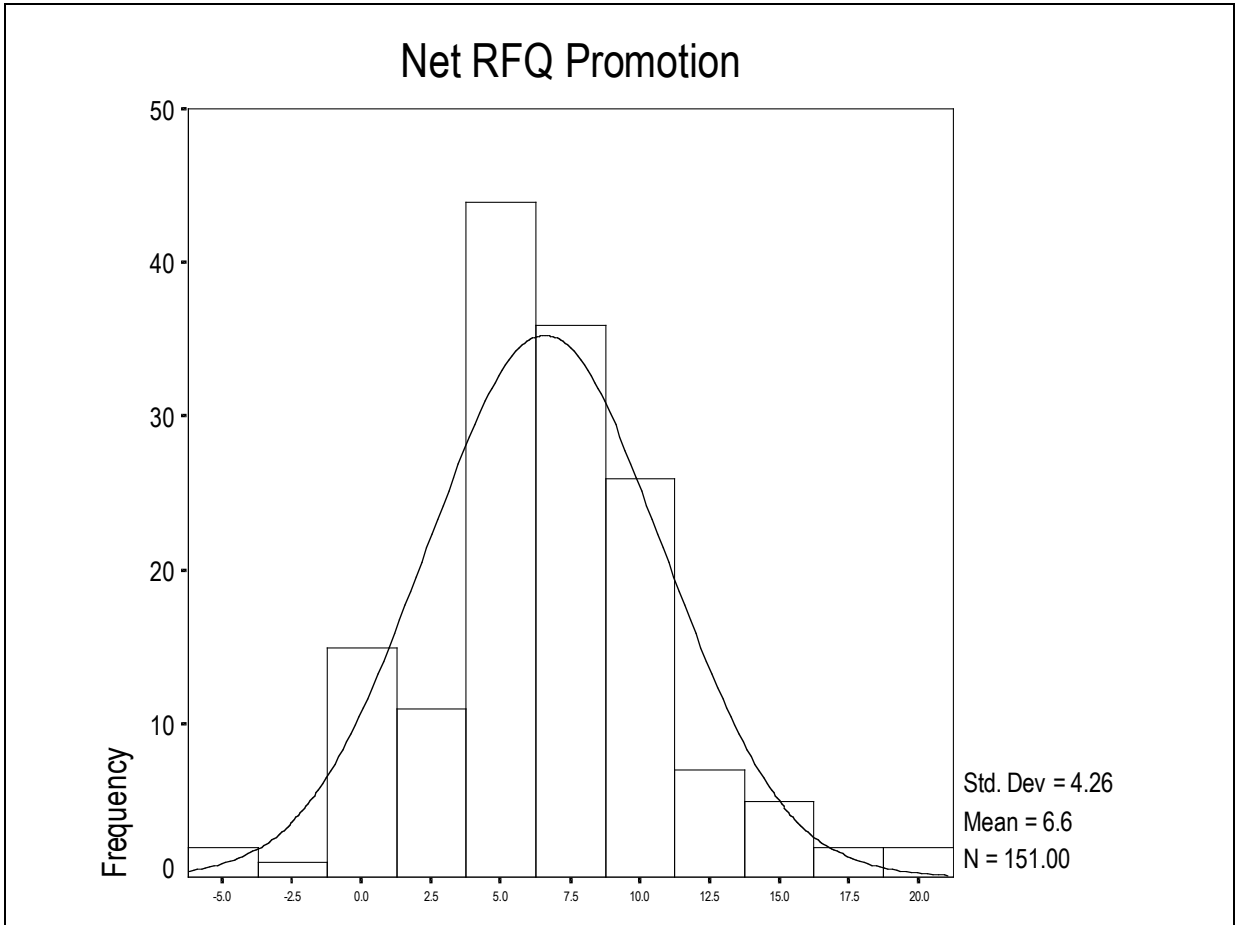
**Appendix I4: Motivational Traits**

## Trait Personal Mastery (total score)

Std. Dev = 9.42
Mean = 74.3
N = 153.00

## Trait Competitive Excellence (total score)

Std. Dev = 10.71
Mean = 44.2
N = 153.00

Trait Motivation Anxiety (total score)

Std. Dev = 14.88
Mean = 59.4
N = 153.00
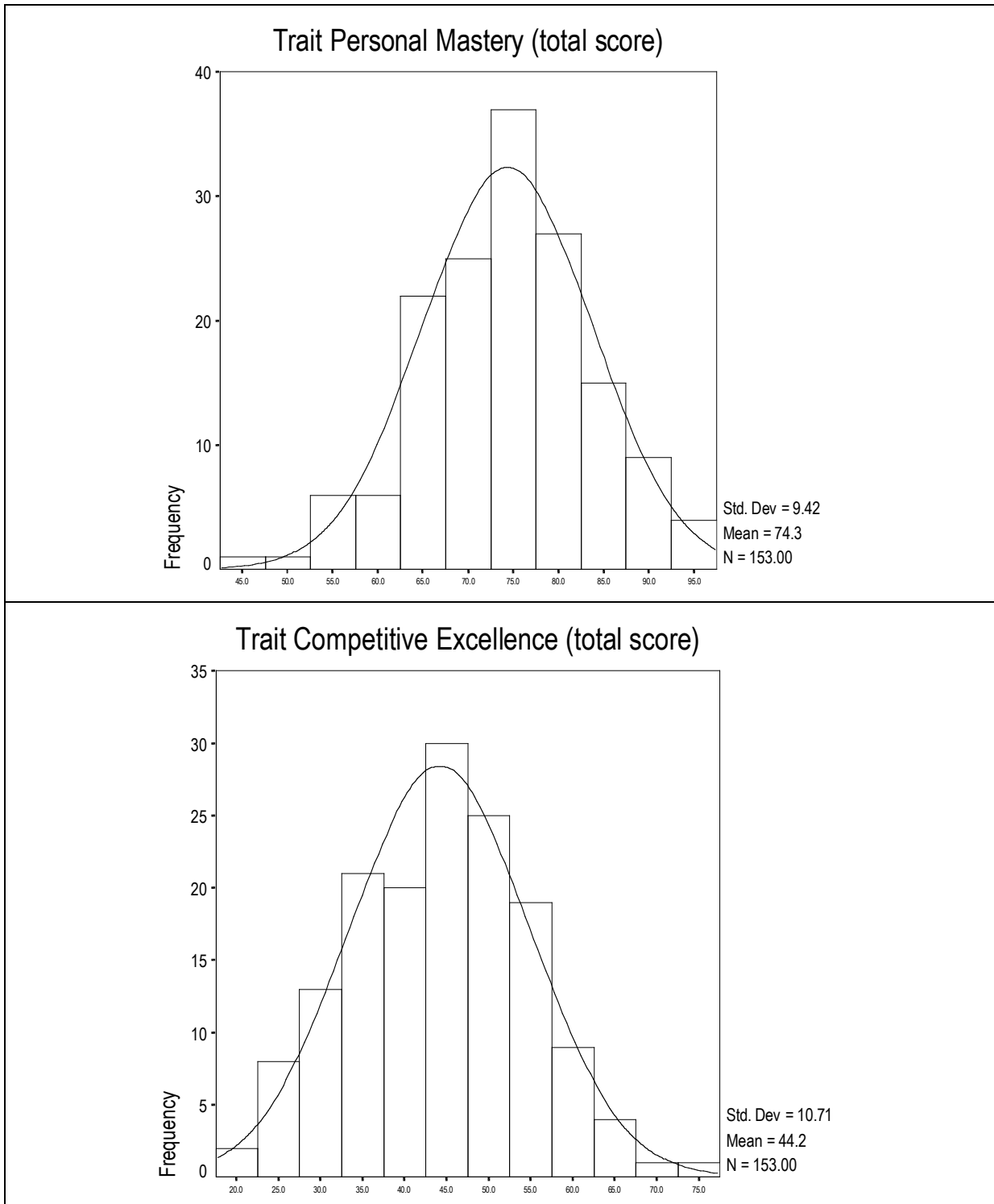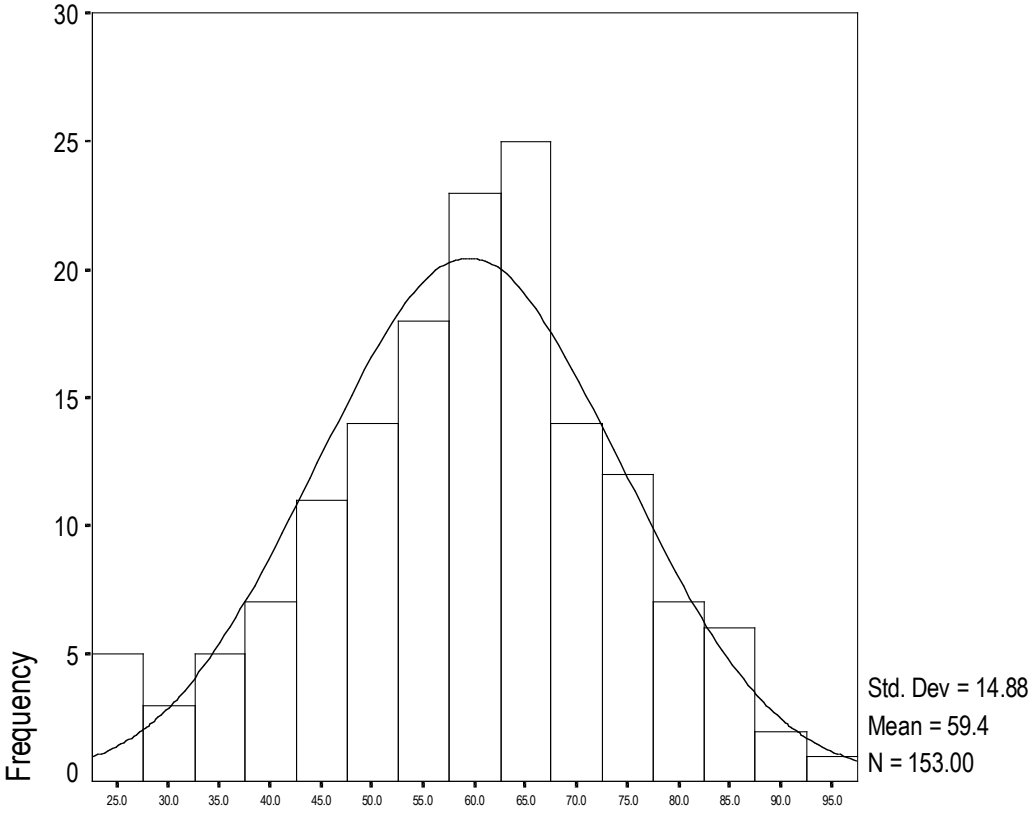
# APPENDIX J: SCORE DISTRIBUTIONS FROM RFQ AND MTQ

## Appendix J1: Summary of Participant Scores on the RFQ

*RFQ Promotion and RFQ Prevention*

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Promotion | 13 | 1 | .6 | .7 | .7 |
|  | 17 | 3 | 1.9 | 2.0 | 2.6 |
|  | 18 | 5 | 3.1 | 3.3 | 6.0 |
|  | 19 | 9 | 5.6 | 6.0 | 11.9 |
|  | 20 | 9 | 5.6 | 6.0 | 17.9 |
|  | 21 | 8 | 5.0 | 5.3 | 23.2 |
|  | 22 | 13 | 8.1 | 8.6 | 31.8 |
|  | 23 | 20 | 12.5 | 13.2 | 45.0 |
|  | 24 | 18 | 11.3 | 11.9 | 57.0 |
|  | 25 | 17 | 10.6 | 11.3 | 68.2 |
|  | 26 | 13 | 8.1 | 8.6 | 76.8 |
|  | 27 | 11 | 6.9 | 7.3 | 84.1 |
|  | 28 | 11 | 6.9 | 7.3 | 91.4 |
|  | 29 | 8 | 5.0 | 5.3 | 96.7 |
|  | 30 | 5 | 3.1 | 3.3 | 100.0 |
|  | Total | 151 | 94.4 | 100.0 |  |
| Missing | System | 9 | 5.6 |  |  |
| Total |  | 160 | 100.0 |  |  |

RFQ Prevention

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 7 | 1 | .6 | .7 | .7 |
|  | 8 | 1 | .6 | .7 | 1.3 |
|  | 10 | 4 | 2.5 | 2.6 | 4.0 |
|  | 11 | 5 | 3.1 | 3.3 | 7.3 |
|  | 12 | 5 | 3.1 | 3.3 | 10.6 |
|  | 13 | 9 | 5.6 | 6.0 | 16.6 |
|  | 14 | 4 | 2.5 | 2.6 | 19.2 |
|  | 15 | 9 | 5.6 | 6.0 | 25.2 |
|  | 16 | 18 | 11.3 | 11.9 | 37.1 |
|  | 17 | 16 | 10.0 | 10.6 | 47.7 |
|  | 18 | 20 | 12.5 | 13.2 | 60.9 |
|  | 19 | 20 | 12.5 | 13.2 | 74.2 |
|  | 20 | 18 | 11.3 | 11.9 | 86.1 |
|  | 21 | 6 | 3.8 | 4.0 | 90.1 |
|  | 22 | 6 | 3.8 | 4.0 | 94.0 |
|  | 23 | 6 | 3.8 | 4.0 | 98.0 |
|  | 24 | 1 | .6 | .7 | 98.7 |
|  | 25 | 2 | 1.3 | 1.3 | 100.0 |
|  | Total | 151 | 94.4 | 100.0 |  |
| Missing | System | 9 | 5.6 |  |  |
| Total |  | 160 | 100.0 |  |  |

*Net Promotion*

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | -6 | 1 | .6 | .7 | .7 |
|  | -4 | 1 | .6 | .7 | 1.3 |
|  | -3 | 1 | .6 | .7 | 2.0 |
|  | -1 | 4 | 2.5 | 2.6 | 4.6 |
|  | 0 | 5 | 3.1 | 3.3 | 7.9 |
|  | 1 | 6 | 3.8 | 4.0 | 11.9 |
|  | 2 | 5 | 3.1 | 3.3 | 15.2 |
|  | 3 | 6 | 3.8 | 4.0 | 19.2 |
|  | 4 | 17 | 10.6 | 11.3 | 30.5 |
|  | 5 | 7 | 4.4 | 4.6 | 35.1 |
|  | 6 | 20 | 12.5 | 13.2 | 48.3 |
|  | 7 | 18 | 11.3 | 11.9 | 60.3 |
|  | 8 | 18 | 11.3 | 11.9 | 72.2 |
|  | 9 | 14 | 8.8 | 9.3 | 81.5 |
|  | 10 | 8 | 5.0 | 5.3 | 86.8 |
|  | 11 | 4 | 2.5 | 2.6 | 89.4 |
|  | 12 | 3 | 1.9 | 2.0 | 91.4 |
|  | 13 | 4 | 2.5 | 2.6 | 94.0 |
|  | 14 | 4 | 2.5 | 2.6 | 96.7 |
|  | 16 | 1 | .6 | .7 | 97.4 |
|  | 17 | 1 | .6 | .7 | 98.0 |
|  | 18 | 1 | .6 | .7 | 98.7 |
|  | 19 | 2 | 1.3 | 1.3 | 100.0 |
|  | Total | 151 | 94.4 | 100.0 |  |
| Missing | System | 9 | 5.6 |  |  |
| Total |  | 160 | 100.0 |  |  |

**Appendix J2: Summary of Participant Scores on the MTQ**

*Desire to Learn (subscale)*

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 20 | 1 | .6 | .7 | .7 |
| | 22 | 1 | .6 | .7 | 1.3 |
| | 26 | 2 | 1.3 | 1.3 | 2.6 |
| | 28 | 3 | 1.9 | 2.0 | 4.6 |
| | 29 | 4 | 2.5 | 2.6 | 7.2 |
| | 30 | 3 | 1.9 | 2.0 | 9.2 |
| | 31 | 3 | 1.9 | 2.0 | 11.1 |
| | 32 | 9 | 5.6 | 5.9 | 17.0 |
| | 33 | 8 | 5.0 | 5.2 | 22.2 |
| | 34 | 12 | 7.5 | 7.8 | 30.1 |
| | 35 | 5 | 3.1 | 3.3 | 33.3 |
| | 36 | 9 | 5.6 | 5.9 | 39.2 |
| | 37 | 12 | 7.5 | 7.8 | 47.1 |
| | 38 | 14 | 8.8 | 9.2 | 56.2 |
| | 39 | 10 | 6.3 | 6.5 | 62.7 |
| | 40 | 14 | 8.8 | 9.2 | 71.9 |
| | 41 | 3 | 1.9 | 2.0 | 73.9 |
| | 42 | 13 | 8.1 | 8.5 | 82.4 |
| | 43 | 8 | 5.0 | 5.2 | 87.6 |
| | 44 | 3 | 1.9 | 2.0 | 89.5 |
| | 45 | 2 | 1.3 | 1.3 | 90.8 |
| | 46 | 8 | 5.0 | 5.2 | 96.1 |
| | 47 | 3 | 1.9 | 2.0 | 98.0 |
| | 48 | 3 | 1.9 | 2.0 | 100.0 |
| | Total | 153 | 95.6 | 100.0 | |
| Missing | System | 7 | 4.4 | | |
| Total | | 160 | 100.0 | | |

*Mastery Goals (subscale)*

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 24 | 1 | .6 | .7 | .7 |
|  | 25 | 3 | 1.9 | 2.0 | 2.6 |
|  | 27 | 2 | 1.3 | 1.3 | 3.9 |
|  | 28 | 2 | 1.3 | 1.3 | 5.2 |
|  | 29 | 1 | .6 | .7 | 5.9 |
|  | 30 | 7 | 4.4 | 4.6 | 10.5 |
|  | 31 | 6 | 3.8 | 3.9 | 14.4 |
|  | 32 | 11 | 6.9 | 7.2 | 21.6 |
|  | 33 | 6 | 3.8 | 3.9 | 25.5 |
|  | 34 | 11 | 6.9 | 7.2 | 32.7 |
|  | 35 | 6 | 3.8 | 3.9 | 36.6 |
|  | 36 | 15 | 9.4 | 9.8 | 46.4 |
|  | 37 | 16 | 10.0 | 10.5 | 56.9 |
|  | 38 | 12 | 7.5 | 7.8 | 64.7 |
|  | 39 | 10 | 6.3 | 6.5 | 71.2 |
|  | 40 | 10 | 6.3 | 6.5 | 77.8 |
|  | 41 | 7 | 4.4 | 4.6 | 82.4 |
|  | 42 | 8 | 5.0 | 5.2 | 87.6 |
|  | 43 | 4 | 2.5 | 2.6 | 90.2 |
|  | 44 | 3 | 1.9 | 2.0 | 92.2 |
|  | 45 | 4 | 2.5 | 2.6 | 94.8 |
|  | 46 | 5 | 3.1 | 3.3 | 98.0 |
|  | 47 | 3 | 1.9 | 2.0 | 100.0 |
|  | Total | 153 | 95.6 | 100.0 |  |
| Missing | System | 7 | 4.4 |  |  |
| Total |  | 160 | 100.0 |  |  |

*Other Referenced Goals (subscale)*

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 9 | 1 | .6 | .7 | .7 |
|  | 10 | 1 | .6 | .7 | 1.3 |
|  | 11 | 1 | .6 | .7 | 2.0 |
|  | 13 | 3 | 1.9 | 2.0 | 3.9 |
|  | 14 | 4 | 2.5 | 2.6 | 6.5 |
|  | 15 | 5 | 3.1 | 3.3 | 9.8 |
|  | 16 | 6 | 3.8 | 3.9 | 13.7 |
|  | 17 | 3 | 1.9 | 2.0 | 15.7 |
|  | 18 | 3 | 1.9 | 2.0 | 17.6 |
|  | 19 | 6 | 3.8 | 3.9 | 21.6 |
|  | 20 | 2 | 1.3 | 1.3 | 22.9 |
|  | 21 | 2 | 1.3 | 1.3 | 24.2 |
|  | 22 | 12 | 7.5 | 7.8 | 32.0 |
|  | 23 | 13 | 8.1 | 8.5 | 40.5 |
|  | 24 | 8 | 5.0 | 5.2 | 45.8 |
|  | 25 | 11 | 6.9 | 7.2 | 52.9 |
|  | 26 | 10 | 6.3 | 6.5 | 59.5 |
|  | 27 | 12 | 7.5 | 7.8 | 67.3 |
|  | 28 | 12 | 7.5 | 7.8 | 75.2 |
|  | 29 | 7 | 4.4 | 4.6 | 79.7 |
|  | 30 | 7 | 4.4 | 4.6 | 84.3 |
|  | 31 | 8 | 5.0 | 5.2 | 89.5 |
|  | 32 | 3 | 1.9 | 2.0 | 91.5 |
|  | 33 | 5 | 3.1 | 3.3 | 94.8 |
|  | 34 | 2 | 1.3 | 1.3 | 96.1 |
|  | 35 | 1 | .6 | .7 | 96.7 |
|  | 36 | 3 | 1.9 | 2.0 | 98.7 |
|  | 38 | 1 | .6 | .7 | 99.3 |
|  | 39 | 1 | .6 | .7 | 100.0 |
|  | Total | 153 | 95.6 | 100.0 |  |
| Missing | System | 7 | 4.4 |  |  |
| Total |  | 160 | 100.0 |  |  |

## Competition Seeking (subscale)

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 6 | 1 | .6 | .7 | .7 |
| | 7 | 1 | .6 | .7 | 1.3 |
| | 8 | 1 | .6 | .7 | 2.0 |
| | 9 | 1 | .6 | .7 | 2.6 |
| | 10 | 3 | 1.9 | 2.0 | 4.6 |
| | 11 | 4 | 2.5 | 2.6 | 7.2 |
| | 12 | 7 | 4.4 | 4.6 | 11.8 |
| | 13 | 4 | 2.5 | 2.6 | 14.4 |
| | 14 | 10 | 6.3 | 6.5 | 20.9 |
| | 15 | 9 | 5.6 | 5.9 | 26.8 |
| | 16 | 9 | 5.6 | 5.9 | 32.7 |
| | 17 | 4 | 2.5 | 2.6 | 35.3 |
| | 18 | 8 | 5.0 | 5.2 | 40.5 |
| | 19 | 11 | 6.9 | 7.2 | 47.7 |
| | 20 | 12 | 7.5 | 7.8 | 55.6 |
| | 21 | 12 | 7.5 | 7.8 | 63.4 |
| | 22 | 9 | 5.6 | 5.9 | 69.3 |
| | 23 | 7 | 4.4 | 4.6 | 73.9 |
| | 24 | 13 | 8.1 | 8.5 | 82.4 |
| | 25 | 3 | 1.9 | 2.0 | 84.3 |
| | 26 | 10 | 6.3 | 6.5 | 90.8 |
| | 27 | 2 | 1.3 | 1.3 | 92.2 |
| | 28 | 3 | 1.9 | 2.0 | 94.1 |
| | 29 | 1 | .6 | .7 | 94.8 |
| | 30 | 2 | 1.3 | 1.3 | 96.1 |
| | 31 | 3 | 1.9 | 2.0 | 98.0 |
| | 32 | 2 | 1.3 | 1.3 | 99.3 |
| | 36 | 1 | .6 | .7 | 100.0 |
| | Total | 153 | 95.6 | 100.0 | |
| Missing | System | 7 | 4.4 | | |
| Total | | 160 | 100.0 | | |

*Worry (subscale)*

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 13 | 2 | 1.3 | 1.3 | 1.3 |
| | 14 | 1 | .6 | .7 | 2.0 |
| | 15 | 1 | .6 | .7 | 2.6 |
| | 16 | 2 | 1.3 | 1.3 | 3.9 |
| | 17 | 3 | 1.9 | 2.0 | 5.9 |
| | 18 | 2 | 1.3 | 1.3 | 7.2 |
| | 19 | 1 | .6 | .7 | 7.8 |
| | 20 | 2 | 1.3 | 1.3 | 9.2 |
| | 21 | 1 | .6 | .7 | 9.8 |
| | 22 | 2 | 1.3 | 1.3 | 11.1 |
| | 23 | 1 | .6 | .7 | 11.8 |
| | 24 | 2 | 1.3 | 1.3 | 13.1 |
| | 25 | 1 | .6 | .7 | 13.7 |
| | 26 | 10 | 6.3 | 6.5 | 20.3 |
| | 27 | 4 | 2.5 | 2.6 | 22.9 |
| | 28 | 3 | 1.9 | 2.0 | 24.8 |
| | 29 | 7 | 4.4 | 4.6 | 29.4 |
| | 30 | 5 | 3.1 | 3.3 | 32.7 |
| | 31 | 4 | 2.5 | 2.6 | 35.3 |
| | 32 | 6 | 3.8 | 3.9 | 39.2 |
| | 33 | 4 | 2.5 | 2.6 | 41.8 |
| | 34 | 7 | 4.4 | 4.6 | 46.4 |
| | 35 | 10 | 6.3 | 6.5 | 52.9 |
| | 36 | 7 | 4.4 | 4.6 | 57.5 |
| | 37 | 11 | 6.9 | 7.2 | 64.7 |
| | 38 | 3 | 1.9 | 2.0 | 66.7 |
| | 39 | 5 | 3.1 | 3.3 | 69.9 |
| | 40 | 7 | 4.4 | 4.6 | 74.5 |
| | 41 | 3 | 1.9 | 2.0 | 76.5 |
| | 42 | 10 | 6.3 | 6.5 | 83.0 |
| | 43 | 1 | .6 | .7 | 83.7 |
| | 44 | 4 | 2.5 | 2.6 | 86.3 |
| | 45 | 6 | 3.8 | 3.9 | 90.2 |
| | 46 | 1 | .6 | .7 | 90.8 |
| | 48 | 5 | 3.1 | 3.3 | 94.1 |
| | 49 | 1 | .6 | .7 | 94.8 |
| | 50 | 2 | 1.3 | 1.3 | 96.1 |
| | 51 | 4 | 2.5 | 2.6 | 98.7 |
| | 52 | 1 | .6 | .7 | 99.3 |
| | 53 | 1 | .6 | .7 | 100.0 |
| | Total | 153 | 95.6 | 100.0 | |
| Missing | System | 7 | 4.4 | | |
| Total | | 160 | 100.0 | | |

*Emotionality (subscale)*

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 9 | 1 | .6 | .7 | .7 |
|  | 11 | 2 | 1.3 | 1.3 | 2.0 |
|  | 12 | 5 | 3.1 | 3.3 | 5.2 |
|  | 13 | 3 | 1.9 | 2.0 | 7.2 |
|  | 14 | 1 | .6 | .7 | 7.8 |
|  | 15 | 3 | 1.9 | 2.0 | 9.8 |
|  | 16 | 4 | 2.5 | 2.6 | 12.4 |
|  | 18 | 4 | 2.5 | 2.6 | 15.0 |
|  | 19 | 8 | 5.0 | 5.2 | 20.3 |
|  | 20 | 8 | 5.0 | 5.2 | 25.5 |
|  | 21 | 5 | 3.1 | 3.3 | 28.8 |
|  | 22 | 7 | 4.4 | 4.6 | 33.3 |
|  | 23 | 6 | 3.8 | 3.9 | 37.3 |
|  | 24 | 7 | 4.4 | 4.6 | 41.8 |
|  | 25 | 8 | 5.0 | 5.2 | 47.1 |
|  | 26 | 16 | 10.0 | 10.5 | 57.5 |
|  | 27 | 8 | 5.0 | 5.2 | 62.7 |
|  | 28 | 10 | 6.3 | 6.5 | 69.3 |
|  | 29 | 9 | 5.6 | 5.9 | 75.2 |
|  | 30 | 11 | 6.9 | 7.2 | 82.4 |
|  | 31 | 8 | 5.0 | 5.2 | 87.6 |
|  | 32 | 2 | 1.3 | 1.3 | 88.9 |
|  | 33 | 3 | 1.9 | 2.0 | 90.8 |
|  | 34 | 5 | 3.1 | 3.3 | 94.1 |
|  | 36 | 2 | 1.3 | 1.3 | 95.4 |
|  | 37 | 2 | 1.3 | 1.3 | 96.7 |
|  | 38 | 1 | .6 | .7 | 97.4 |
|  | 39 | 2 | 1.3 | 1.3 | 98.7 |
|  | 41 | 1 | .6 | .7 | 99.3 |
|  | 42 | 1 | .6 | .7 | 100.0 |
|  | Total | 153 | 95.6 | 100.0 |  |
| Missing | System | 7 | 4.4 |  |  |
| Total |  | 160 | 100.0 |  |  |

*Trait Personal Mastery (total score)*

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 47 | 1 | .6 | .7 | .7 |
|  | 52 | 1 | .6 | .7 | 1.3 |
|  | 55 | 1 | .6 | .7 | 2.0 |
|  | 56 | 1 | .6 | .7 | 2.6 |
|  | 57 | 4 | 2.5 | 2.6 | 5.2 |
|  | 59 | 2 | 1.3 | 1.3 | 6.5 |
|  | 60 | 2 | 1.3 | 1.3 | 7.8 |
|  | 61 | 1 | .6 | .7 | 8.5 |
|  | 62 | 1 | .6 | .7 | 9.2 |
|  | 63 | 5 | 3.1 | 3.3 | 12.4 |
|  | 64 | 7 | 4.4 | 4.6 | 17.0 |
|  | 65 | 4 | 2.5 | 2.6 | 19.6 |
|  | 66 | 5 | 3.1 | 3.3 | 22.9 |
|  | 67 | 1 | .6 | .7 | 23.5 |
|  | 68 | 4 | 2.5 | 2.6 | 26.1 |
|  | 69 | 4 | 2.5 | 2.6 | 28.8 |
|  | 70 | 3 | 1.9 | 2.0 | 30.7 |
|  | 71 | 9 | 5.6 | 5.9 | 36.6 |
|  | 72 | 5 | 3.1 | 3.3 | 39.9 |
|  | 73 | 4 | 2.5 | 2.6 | 42.5 |
|  | 74 | 8 | 5.0 | 5.2 | 47.7 |
|  | 75 | 9 | 5.6 | 5.9 | 53.6 |
|  | 76 | 8 | 5.0 | 5.2 | 58.8 |
|  | 77 | 8 | 5.0 | 5.2 | 64.1 |
|  | 78 | 8 | 5.0 | 5.2 | 69.3 |
|  | 79 | 6 | 3.8 | 3.9 | 73.2 |
|  | 80 | 4 | 2.5 | 2.6 | 75.8 |
|  | 81 | 6 | 3.8 | 3.9 | 79.7 |
|  | 82 | 3 | 1.9 | 2.0 | 81.7 |
|  | 83 | 2 | 1.3 | 1.3 | 83.0 |
|  | 84 | 4 | 2.5 | 2.6 | 85.6 |
|  | 85 | 3 | 1.9 | 2.0 | 87.6 |
|  | 86 | 2 | 1.3 | 1.3 | 88.9 |
|  | 87 | 4 | 2.5 | 2.6 | 91.5 |
|  | 88 | 2 | 1.3 | 1.3 | 92.8 |
|  | 89 | 1 | .6 | .7 | 93.5 |
|  | 90 | 1 | .6 | .7 | 94.1 |
|  | 91 | 2 | 1.3 | 1.3 | 95.4 |
|  | 92 | 3 | 1.9 | 2.0 | 97.4 |
|  | 93 | 2 | 1.3 | 1.3 | 98.7 |
|  | 94 | 1 | .6 | .7 | 99.3 |
|  | 95 | 1 | .6 | .7 | 100.0 |
|  | Total | 153 | 95.6 | 100.0 |  |
| Missing | System | 7 | 4.4 |  |  |
| Total |  | 160 | 100.0 |  |  |

*Trait Competitive Excellence (total score)*

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 20 | 2 | 1.3 | 1.3 | 1.3 |
|  | 23 | 2 | 1.3 | 1.3 | 2.6 |
|  | 24 | 1 | .6 | .7 | 3.3 |
|  | 25 | 1 | .6 | .7 | 3.9 |
|  | 26 | 1 | .6 | .7 | 4.6 |
|  | 27 | 3 | 1.9 | 2.0 | 6.5 |
|  | 28 | 3 | 1.9 | 2.0 | 8.5 |
|  | 29 | 3 | 1.9 | 2.0 | 10.5 |
|  | 30 | 2 | 1.3 | 1.3 | 11.8 |
|  | 31 | 3 | 1.9 | 2.0 | 13.7 |
|  | 32 | 2 | 1.3 | 1.3 | 15.0 |
|  | 33 | 2 | 1.3 | 1.3 | 16.3 |
|  | 34 | 6 | 3.8 | 3.9 | 20.3 |
|  | 35 | 3 | 1.9 | 2.0 | 22.2 |
|  | 36 | 4 | 2.5 | 2.6 | 24.8 |
|  | 37 | 6 | 3.8 | 3.9 | 28.8 |
|  | 38 | 2 | 1.3 | 1.3 | 30.1 |
|  | 39 | 3 | 1.9 | 2.0 | 32.0 |
|  | 40 | 2 | 1.3 | 1.3 | 33.3 |
|  | 41 | 8 | 5.0 | 5.2 | 38.6 |
|  | 42 | 5 | 3.1 | 3.3 | 41.8 |
|  | 43 | 10 | 6.3 | 6.5 | 48.4 |
|  | 44 | 6 | 3.8 | 3.9 | 52.3 |
|  | 45 | 3 | 1.9 | 2.0 | 54.2 |
|  | 46 | 5 | 3.1 | 3.3 | 57.5 |
|  | 47 | 6 | 3.8 | 3.9 | 61.4 |
|  | 48 | 8 | 5.0 | 5.2 | 66.7 |
|  | 49 | 3 | 1.9 | 2.0 | 68.6 |
|  | 50 | 7 | 4.4 | 4.6 | 73.2 |
|  | 51 | 1 | .6 | .7 | 73.9 |
|  | 52 | 6 | 3.8 | 3.9 | 77.8 |
|  | 53 | 4 | 2.5 | 2.6 | 80.4 |
|  | 54 | 3 | 1.9 | 2.0 | 82.4 |
|  | 55 | 3 | 1.9 | 2.0 | 84.3 |
|  | 56 | 3 | 1.9 | 2.0 | 86.3 |
|  | 57 | 6 | 3.8 | 3.9 | 90.2 |
|  | 58 | 3 | 1.9 | 2.0 | 92.2 |
|  | 59 | 2 | 1.3 | 1.3 | 93.5 |
|  | 61 | 4 | 2.5 | 2.6 | 96.1 |
|  | 63 | 2 | 1.3 | 1.3 | 97.4 |
|  | 65 | 1 | .6 | .7 | 98.0 |
|  | 67 | 1 | .6 | .7 | 98.7 |
|  | 71 | 1 | .6 | .7 | 99.3 |
|  | 74 | 1 | .6 | .7 | 100.0 |
|  | Total | 153 | 95.6 | 100.0 |  |
| Missing | System | 7 | 4.4 |  |  |
| Total |  | 160 | 100.0 |  |  |

## Trait Motivation Anxiety (total score)

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 23 | 1 | .6 | .7 | .7 |
| | 24 | 1 | .6 | .7 | 1.3 |
| | 25 | 1 | .6 | .7 | 2.0 |
| | 27 | 2 | 1.3 | 1.3 | 3.3 |
| | 29 | 2 | 1.3 | 1.3 | 4.6 |
| | 30 | 1 | .6 | .7 | 5.2 |
| | 35 | 2 | 1.3 | 1.3 | 6.5 |
| | 36 | 1 | .6 | .7 | 7.2 |
| | 37 | 2 | 1.3 | 1.3 | 8.5 |
| | 38 | 3 | 1.9 | 2.0 | 10.5 |
| | 39 | 2 | 1.3 | 1.3 | 11.8 |
| | 40 | 1 | .6 | .7 | 12.4 |
| | 42 | 1 | .6 | .7 | 13.1 |
| | 43 | 2 | 1.3 | 1.3 | 14.4 |
| | 44 | 2 | 1.3 | 1.3 | 15.7 |
| | 45 | 1 | .6 | .7 | 16.3 |
| | 46 | 3 | 1.9 | 2.0 | 18.3 |
| | 47 | 3 | 1.9 | 2.0 | 20.3 |
| | 48 | 2 | 1.3 | 1.3 | 21.6 |
| | 49 | 6 | 3.8 | 3.9 | 25.5 |
| | 50 | 4 | 2.5 | 2.6 | 28.1 |
| | 52 | 2 | 1.3 | 1.3 | 29.4 |
| | 53 | 3 | 1.9 | 2.0 | 31.4 |
| | 54 | 4 | 2.5 | 2.6 | 34.0 |
| | 55 | 5 | 3.1 | 3.3 | 37.3 |
| | 56 | 2 | 1.3 | 1.3 | 38.6 |
| | 57 | 4 | 2.5 | 2.6 | 41.2 |
| | 58 | 4 | 2.5 | 2.6 | 43.8 |
| | 59 | 3 | 1.9 | 2.0 | 45.8 |
| | 60 | 6 | 3.8 | 3.9 | 49.7 |
| | 61 | 2 | 1.3 | 1.3 | 51.0 |
| | 62 | 8 | 5.0 | 5.2 | 56.2 |
| | 63 | 6 | 3.8 | 3.9 | 60.1 |
| | 64 | 6 | 3.8 | 3.9 | 64.1 |
| | 65 | 5 | 3.1 | 3.3 | 67.3 |
| | 66 | 2 | 1.3 | 1.3 | 68.6 |
| | 67 | 6 | 3.8 | 3.9 | 72.5 |
| | 68 | 1 | .6 | .7 | 73.2 |
| | 69 | 1 | .6 | .7 | 73.9 |
| | 70 | 4 | 2.5 | 2.6 | 76.5 |
| | 71 | 3 | 1.9 | 2.0 | 78.4 |
| | 72 | 5 | 3.1 | 3.3 | 81.7 |
| | 73 | 1 | .6 | .7 | 82.4 |
| | 74 | 2 | 1.3 | 1.3 | 83.7 |
| | 75 | 3 | 1.9 | 2.0 | 85.6 |
| | 76 | 3 | 1.9 | 2.0 | 87.6 |
| | 77 | 3 | 1.9 | 2.0 | 89.5 |
| | 78 | 3 | 1.9 | 2.0 | 91.5 |
| | 79 | 3 | 1.9 | 2.0 | 93.5 |
| | 80 | 1 | .6 | .7 | 94.1 |
| | 84 | 2 | 1.3 | 1.3 | 95.4 |
| | 85 | 1 | .6 | .7 | 96.1 |
| | 86 | 1 | .6 | .7 | 96.7 |
| | 87 | 2 | 1.3 | 1.3 | 98.0 |
| | 89 | 1 | .6 | .7 | 98.7 |
| | 90 | 1 | .6 | .7 | 99.3 |
| | 94 | 1 | .6 | .7 | 100.0 |
| | Total | 153 | 95.6 | 100.0 | |
| Missing | System | 7 | 4.4 | | |
| Total | | 160 | 100.0 | | |

239

| Schwartz Value Indices | (n=155) |
|---|---|
| Universalism | .819 |
| Benevolence | .708 |
| Tradition | .906 |
| Conformity | .850 |
| Security | .808 |
| Power | .867 |
| Achievement | .787 |
| Hedonism | .899 |
| Stimulation | .889 |
| Self-Direction | .782 |

| Larkam Indices Derived from Schwartz | (n=155) |
|---|---|
| Social (Universalism, Benevolence) | .648 |
| Stability (Tradition, Conformity, Security) | .783 |
| Individual (Power, Achievement, ½ of Hedonism) | .697 |
| Opportunity (Self-Direction, Stimulation, ½ of Hedonism) | .745 |
| Personal Aspiration (Achievement, Self-Direction) ** | .617 |
| Status Quo (Tradition, Security) | .807 |

| Motivational Trait Questionnaire Traits and Subscales | (n=153) |
|---|---|
| Desire to Learn (subscale) | .829 |
| Mastery Goals (subscale) | .785 |
| Competition Seeking (subscale) | .902 |
| Other Referenced Goals (subscale) | .894 |
| Worry (subscale) | .902 |
| Emotionality (subscale) | .828 |
| Personal Mastery (trait) | .771 |
| Competitive Excellence (trait) | .872 |
| Motivation Anxiety (trait) | .849 |

Note: Achievement and Self-Direction are not adjacent in the Schwartz Theory. I discussed my rationale for excluding the Stimulation value from this index on page 48. The comparison for raw score and centered score values for the Regulatory Focus Questionnaire scales (promotion and prevention) is shown in Table 15. All correlations shown above are significant at $p<.001$.

Conceptually, the difference between raw and centered value priorities is theoretically meaningful because value priorities are important to the extent that one value is more or less important than other values. In other words, a comparison between values is implicit in value priorities. As I discussed in Chapter 3, Motivational Traits tend to be independent, and a "centering" of traits (by subtracting the average score across all three traits) may not be theoretically meaningful.

## APPENDIX L: CORRELATIONS OF SVS ITEMS WITH MTQ AND RFQ SUBSCALES

| | Desire to Learn | Mastery Goals | Other Referenced Goals | Competition Seeking | Worry | Emotionality |
|---|---|---|---|---|---|---|
| UN-Wisdom | **0.345** | **0.313** | 0.046 | 0.087 | -0.039 | -0.091 |
| UN-A World at Peace | -0.057 | -0.100 | -0.063 | -0.183 | **0.219** | **0.233** |
| SD-Privacy | 0.026 | -0.013 | -0.139 | -0.204 | **-0.217** | -0.110 |
| SD-Curious | **0.345** | 0.162 | -0.087 | -0.021 | **-0.260** | **-0.233** |
| SD-Creativity | **0.274** | 0.181 | 0.074 | -0.024 | -0.194 | -0.118 |
| SD-Choosing Own Goals | **0.270** | 0.201 | 0.027 | 0.039 | -0.040 | -0.075 |
| ST-Daring | 0.203 | 0.006 | 0.113 | **0.301** | -0.154 | -0.159 |
| ST(SD)-A Varied Life | **0.286** | 0.131 | 0.051 | 0.064 | -0.118 | -0.128 |
| HE-Pleasure | -0.133 | -0.139 | **0.220** | 0.094 | 0.148 | 0.191 |
| AC-Successful | 0.117 | **0.236** | 0.160 | 0.069 | 0.082 | 0.056 |
| AC-Capable | 0.213 | **0.297** | 0.106 | 0.108 | -0.154 | -0.191 |
| AC(SD)-Intelligent | **0.263** | 0.057 | 0.052 | 0.054 | -0.082 | -0.132 |
| PO-Wealth | -0.208 | -0.138 | 0.180 | 0.135 | **0.244** | **0.229** |
| PO-Social Power | -0.118 | 0.031 | **0.269** | 0.168 | 0.107 | 0.072 |
| PO-Preserving My Public Image | -0.200 | -0.059 | 0.201 | 0.069 | **0.294** | **0.251** |
| PO-Authority | 0.008 | 0.076 | 0.193 | **0.225** | 0.077 | 0.017 |
| SE-Sense of Belonging | -0.113 | -0.156 | 0.040 | -0.088 | **0.287** | 0.173 |
| SE-Reciprocation of Favors | -0.181 | -0.070 | **0.223** | 0.206 | 0.005 | 0.086 |
| SE-National Security | -0.182 | -0.195 | 0.033 | 0.091 | **0.275** | **0.339** |
| TR-Respect for Tradition | -0.147 | -0.134 | 0.114 | 0.106 | **0.338** | **0.307** |
| TR-Moderate | -0.189 | **-0.250** | -0.034 | -0.105 | 0.212 | 0.146 |
| TR-Devout | -0.033 | -0.026 | **-0.244** | -0.199 | 0.101 | **0.228** |
| TR-Accepting My Portion in Life | -0.133 | -0.170 | -0.115 | -0.121 | 0.130 | **0.251** |
| CO-Self-Discipline | 0.114 | **0.234** | 0.052 | 0.065 | -0.095 | -0.085 |
| CO-Mature Love | -0.007 | -0.025 | 0.043 | 0.009 | **0.223** | 0.136 |
| CO-Honoring of Parents and Elders | -0.202 | -0.131 | -0.196 | -0.175 | **0.269** | **0.339** |

Note: Grey indicates not significant at p<.05. Black indicates significant at p<.05. **Bold** indicates significant at p<.01. Red indicates correlation is negative.

| | Promotion | Prevention | Net Promotion |
|---|---|---|---|
| SD-Curious | 0.083 | **-0.308** | **0.314** |
| AC-Capable | **0.297** | 0.13 | 0.119 |
| TR-Moderate | -0.184 | 0.12 | **-0.237** |
| CO-Politeness | -0.092 | 0.177 | **-0.214** |
| | | | |
| UN-Wisdom | 0.173 | -0.012 | 0.141 |
| PO-Wealth | -0.176 | -0.013 | -0.122 |
| SE-National Security | -0.179 | -0.023 | -0.117 |
| TR-Devout | -0.145 | 0.127 | -0.213 |
| TR-Accepting My Portion in Life | -0.201 | 0.042 | -0.186 |

Note: Grey indicates not significant at p<.05. Black indicates significant at p<.05.
**Bold** indicates significant at p<.01. Red indicates correlation is negative.

## Appendix M1: Permission to use Regulatory Focus Questionnaire

**From:** tory@paradox.psych.columbia.edu
**Subject: Re: Request for permission to use the RFQ (1997) in my dissertation at UT Austin**
**Date:** February 2, 2006 8:47:45 PM CST
**To:** plarkam@earthlink.net

Dear Peter,

You can certainly use the EJSP (2001) Questionnaire for your study. Good luck with your research.

Regards

Tory Higgins
--
E. TORY HIGGINS
    Stanley Schachter Professor of Psychology
    Professor of Business
    Director, Motivation Science Center
    Columbia University

## Appendix M2: Permission to use Motivational Trait Questionnaire

**From:** edhegges@email.uncc.edu
**Subject:** **RE: Permission to use the MTQ - Short form in my dissertation**
**Date:** February 16, 2006 12:38:03 PM CST
**To:** plarkam@earthlink.net

Peter--

Sorry for the long delay, I have been crazy busy here over the last
couple of weeks and I am way behind on my emails.

So, attached are the two forms of the MTQ. I know that you have the
short form, but I thought I would give it to you again.

Good luck on the proposal. Sounds like you have a great mix of knowledge
in your training. It does sound like you have interest consistent with
I/O, but with a measurement background you can fit in a lot of places!!!

Let me know if you have any questions.
Eric

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Dr. Eric D. Heggestad
Department of Psychology
University of North Carolina-Charlotte
9201 University City Boulevard
Charlotte, NC 28223-0001
phone: 704.687.6061
email: edhegges@uncc.edu

"Purposeful prior planning prevents poor performance" (fortune cookie)
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**From:**     rk64@prism.gatech.edu
**Subject: Re: Request for permission to use the MTQ short form in my dissertation**
**Date:**      February 8, 2006 1:55:43 PM CST
**To:**        plarkam@earthlink.net

Dear Peter:

Thank you for your kind note and update on your interest in the MTQ.  Your project sounds quite interesting and I am pleased to hear that you might find the MTQ
useful in this work.  As I am sure Eric told you, we do allow the use of the MTQ for research purposes.  Because we are trying to track its use and control proliferation of potentially outdated versions, I typically ask researchers to complete the attached form
and either send it back via email/electronic signature or fax it back to me at 404-894-6904.
If you need another copy of the measure and key, let me know and I can email it to you.

I hope that all goes well on your project and truly look forward to hearing your results.  I was in Psychology at ASU from 1976-81 so didn't overlap with Dianne.  But I know that she had great training and you are in good hands!

Cordially,
Ruth Kanfer

----------------------------------------
Ruth Kanfer
Professor of Psychology
Georgia Institute of Technology
Room 226, J.S. Coon Building 654 Cherry Street, MC 0170 Atlanta, GA 30332-0170 USA
Tel:    404.894.5674
FAX:  404.894.6904
----------------------------------------

## Appendix M3: Permission from to use Facet Theory Table

**From:**        permissions@sagepub.com
**Subject:**    **RE: Permissions**
**Date:**        March 16, 2006 10:53:38 AM CST
**To:**           plarkam@earthlink.net

Dear Mr. Larkam,

Thank you for your request. Please consider this written permission to use the figure detailed below in your dissertation. Please be sure to cite the source with "Used by permission of Sage Publications, Inc.".

Thank you,

Malia

Malia Shanks
Permissions Administrator
Sage Publications, Inc.
2455 Teller Road
Thousand Oaks, CA 91320
P: 805-410-7133
F: 805-375-1722


-----Original Message-----
From: plarkam@earthlink.net [mailto:plarkam@earthlink.net]
Sent: Wednesday, March 15, 2006 5:26 PM
To: permissions
Subject: Permissions


Email: plarkam@earthlink.net
--------------------------------------------------------------------
----
Name: Peter Howard Larkam
Affliation: University of Texas at Austin
Address: Home: 3941 Sendero Drive
City: Austin
State: Texas (USA)
Zip: 78735
Phone: (512) 476-0533
Reference Code:
Title_of_publication: Introduction to Facet Theory: Content Design and Intrinsic Data Analysis in Behavioral Research
Type_of_publication: Book
Type_of_Pub_Other:
Isbn_issn: 0-8039-5671-1

Pub Date: 1994
Volume_Issue: Applied Social Research Methods Series volume 35
Title_of_Material: (untitled) Concept-Space & Geometric Space Analog (box) - see comments
Authors_of_Material: Samuel Shye, Dov Elizur, and Michael Hoffman
Portion_of_material: 1 table/figure
Page_Range: p.100
Type_of_use: republish in a thesis/dissertation
Type_of_use_Other:
Purpose_of_use: Academic
Distribution_qty: unlimited
Title_of_your_publication: Conceptions of Human Agency: Some Relationships Among Motivational Traits, Personal Value Priorities, and Regulatory Focus
Requestor_type_of_publication: Doctoral Dissertation
Author_Editor_your_publication: Peter Howard Larkam / none
your_publisher_distributor: UMI/Proquest
Estimated_pub_date: May or August 2006
Entire Publication:
Other_Use_of_Material:

Comments: I am requesting permission to incorporate the contents of the untitled box on page 100 into a Table in my doctoral dissertation. Proposed title:  Table 3: Comparison of Concept Space and Geometric Space.  I will use a footnote in the Table title and cite the full book title, authors, page, etc. copyright by Sage Publications, Inc. Adapted with permission of the publisher. I plan to contact the authors requesting permission as well. This is the first of 2 permission requests.

## Appendix M4: Permission to use Mileage Data for MDS Plot

**From:**       permissions@sagepub.com
**Subject:**    **RE: Permissions**
**Date:**       March 16, 2006 10:55:11 AM CST
**To:**          plarkam@earthlink.net

Dear Mr. Larkam,

Thank you for your request. Please consider this written permission to use the excerpt detailed below in your dissertation. Please be sure to cite the source with "Used by permission of Sage Publications, Inc.".

Thank you,

Malia

Malia Shanks
Permissions Administrator
Sage Publications, Inc.
2455 Teller Road
Thousand Oaks, CA 91320
P: 805-410-7133
F: 805-375-1722

-----Original Message-----
From: plarkam@earthlink.net [mailto:plarkam@earthlink.net]
Sent: Wednesday, March 15, 2006 5:47 PM
To: permissions
Subject: Permissions

Email: plarkam@earthlink.net
-----------------------------------------------------------------
----
Name: Peter Howard Larkam
Affliation: University of Texas at Austin
Address: Home: 3941 Sendero Drive
City: Austin
State: Texas (USA)
Zip: 78735
Phone: (512) 476-0533
Reference Code:
Title_of_publication: Multidimensional Scaling (ed. Eric M. Uslaner)
Type_of_publication: Book
Type_of_Pub_Other:
Isbn_issn: 0-8039-0940-3
Pub Date: copyright 1978 Bell Laboratories
Volume_Issue: volume 11 Series: Quantitative Applications in the Social Sciences

Title_of_Material: Figures A and B Geographic Locations of Ten U.S.
Cities & Airline Distances Between U.S. Cities
Authors_of_Material: Joseph B. Kruskal & Myron Wish
Portion_of_material: 1 page
Page_Range: page 8
Type_of_use: republish in a thesis/dissertation
Type_of_use_Other:
Purpose_of_use: Academic
Distribution_qty: unlimited
Title_of_your_publication: Conceptions of Human Agency: Some
Relationships Among Motivational Traits, Personal Value Priorities, and
Regulatory Focus
Requestor_type_of_publication: Doctoral Dissertation
Author_Editor_your_publication: Peter Howard Larkam / none
your_publisher_distributor: UMI/Proquest
Estimated_pub_date: May or August 2006
Entire Publication:
Other_Use_of_Material:
Comments: Permission Request #2 of 2.  I am requesting permission to use
the DATA in Figure B on page 8 to create my own MDS graph using ALSCAL
in SPSS 11 for Mac OSX.  Proposed figure title: "Figure 9: Calculated
locations of U.S. cities using point-to-point mileage data"  My footnote
11 provides citation for ALSCAL in Psychometrika 42 and indicates "Data
for mileage between cities comes from Kruskal, J.B., & Wish, M. (1978)
Multidimensional Scaling (Volume 07-011) Newbury Park: Sage, p. 8"
I would then add a sentence indicating permission.      Thank you so
much for your help!

## Appendix M5: Permission to use Circular Affect Figure

Dear Mr. Larkam

Thank you for your email request. Permission is granted for you to use the material *below* for your thesis subject to the usual acknowledgements and on the understanding that you will reapply for permission if you wish to distribute or publish your thesis commercially.

Good luck!
Best Wishes Zoë  Zoë Ellams (Miss)
Permissions Co-ordinator BlackwellPublishing
9600 Garsington Road
Oxford OX4 2DQ
Tel: 00 44 1865 476149
Fax: 00 44 1865 471149
Zoe.Ellams@oxon.blackwellpublishing.com

All future permission requests should be sent to
mailto:journalsrights@oxon.blackwellpublishing.com

**From:** Peter Larkam [mailto:plarkam@earthlink.net]
**Posted At:** 16 March 2006 20:40
**Posted To:** 10 March- 17 March
**Conversation:** Request for permission to adapt Figure 2 from Current Directions in Psychological Science 8(1) p. 11, 1999
**Subject:** Request for permission to adapt Figure 2 from Current Directions in Psychological Science 8(1) p. 11, 1999

I am writing to request permission to adapt Figure 2 "A schematic for the two-dimensional structure of affect.  Adapted from Feldman Barrett and Russell (1998)." appearing on page 11 in Current Directions in Psychological Science, volume 8, issue number 1, February 1999.

Article Title: The Structure of Current Affect: Controversies and Emerging Consensus
Authors: Lisa Feldman Barrett and James A. Russell

I would like to use the circular arrangement of emotions in my doctoral dissertation to be published May or August 2006 by UMI/Proquest.

Dissertation Title: Conceptions of Human Agency: Some Relationships Among Motivational Traits, Personal Value Priorities, and Regulatory Focus
Author:  Peter Howard Larkam

Contact information:
Peter Howard Larkam
3941 Sendero Drive
Austin, Texas 78735 (USA)
(512) 476-0533
Doctoral Candidate

The University of Texas at Austin
Educational Psychology

Use in dissertation: Figure 6: Selected emotions represented in two-dimensional space.

Citation (footnoted from Figure title):
From "The Structure of Current Affect: Controversies and Emerging Consensus" by Lisa Feldman Barrett and James A. Russell, Current Directions in Psychological Science, 8(1), p. 11 Figure 2. Copyright, 1999 by American Psychological Society. Adapted with permission of Blackwell Publishing.

## Appendix M6: Permission to use MDS Euclidian Distance Equations

**From:** info@krieger-publishing.com
**Subject:** **Copyright Permissions**
**Date:** March 17, 2006 10:20:46 AM CST
**To:** plarkam@earthlink.net

Dear Mr. Larkam:

We have no objection to your use of the materials as outlined in your email
of March 16th as long as the material will not be used commercially.

Sincerely,
Shannon L. Ryder
Permissions Department

Krieger Publishing Company
P.O. Box 9542
Melbourne, FL  32902-9542
tel: (321) 724-9542
fax: (321) 951-3671
1 800 724 0025
E-mail: info@krieger-publishing.com
www.krieger-publishing.com

**From:** plarkam@earthlink.net
**Subject:** **Request permission to use 4 equations in my doctoral dissertation**
**Date:** March 16, 2006 4:36:45 PM CST
**To:** info@krieger-publishing.com

I am writing to request permission to include the following four equations in my doctoral dissertation:

1. $d(a,b) >= 0$
2. $d(a,a) = 0$
3. $d(a,b) = d(b,a)$
4. $d(a,b) + d(b,c) >= d(a,c)$

Source:

Book Title: Multidimensional Scaling
Author: Mark L. Davison
ISBN: 0-89464-662-1
Purpose: Academic (Doctoral dissertation)

Affiliation: University of Texas at Austin
Contact Information:
Peter Howard Larkam
3941 Sendero Drive
Austin, Texas 78735 (USA)
(512) 476-0533

I plan to include full citation as follows:

From "Multidimensional Scaling" by Mark L. Davison, 1983 (reprint edition 1992), page 2. Copyright, 1983 by John Wiley & Sons, Inc.
Used by permission of Krieger Publishing Company, Malabar, Florida.

Thank you for your help!

## Appendix M7: Permission to use MTQ Initial Traits and Facets

**From:** J.Jones@elsevier.co.uk
**Subject:** **RE: Obtain Permission**
**Date:** March 21, 2006 6:03:15 AM CST
**To:** plarkam@earthlink.net

Dear Peter Howard Larkam

We hereby grant you permission to reproduce the material detailed below at no charge **in your thesis** subject to the following conditions:

1. If any part of the material to be used (for example, figures) has appeared in our publication with credit or acknowledgement to another source, permission must also be sought from that source. If such permission is not obtained then that material may not be included in your publication/copies.

2. Suitable acknowledgment to the source must be made, either as a footnote or in a reference list at the end of your publication, as follows:

"Reprinted from Publication title, Vol number, Author(s), Title of article, Pages No., Copyright (Year), with permission from Elsevier".

3. Reproduction of this material is confined to the purpose for which permission is hereby given.

4. This permission is granted for non-exclusive world **English** rights only. For other languages please reapply separately for each one required. Permission excludes use in an electronic form. Should you have a specific electronic project in mind please reapply for permission.

5.     This includes permission for UMI to supply single copies, on demand, of the complete thesis. Should your thesis be published commercially, please reapply for permission.

Yours sincerely


Jennifer Jones
Rights Assistant


## Appendix M8: Permission from Shalom Schwartz

**From:**        msshasch@mscc.huji.ac.il
**Subject: Re: Permissions for dissertation (followup)**
**Date:**        April 12, 2006 1:04:58 PM CDT
**To:**          plarkam@earthlink.net

Dear Peter,

I am traveling and therefore have some difficulty viewing and responding to files. You are welcome to use whatever figure and table you have chosen in your dissertation.


        Shalom


## Appendix M9: Permission from Tory Higgins


**From:**        tory@paradox.psych.columbia.edu
**Subject:       Re: Request for permission to adapt a figure in "Beyond Pleasure and Pain" (1997) article in American Psychologist**
**Date:** April 10, 2006 2:33:01 PM CDT
**To:**          plarkam@earthlink.net

Hi Dr. Higgins -

I last wrote on Feb 2 requesting permission to use the RFQ measure in my dissertation.

I'm now writing for permission to adapt a figure in your 1997 American Psychologist Article "Beyond Pleasure and Pain"

I've attached the two pages in my dissertation proposal that use the figure.  Full citation of the original source is listed in the footnote at the bottom of each page.
My understanding is that APA journals grant permission to use or adapt figures pending permission from the author.

Thank you for your help.

251

Sincerely,

Peter H. Larkam
3941 Sendero Drive
Austin, Texas  78735

Doctoral Candidate, University of Texas at Austin

Attachment converted: Macintosh HD:Higgins (p. 23,26).pdf (PDF /CARO) (0009FE74)

Dear Peter,

Yes, you have my permission to adapt my 1997 figure for your dissertation.

Regards

Tory Higgins
--
E. TORY HIGGINS
   Stanley Schachter Professor of Psychology
   Professor of Business
   Director, Motivation Science Center Columbia University

## Appendix M10: Permission from Andrew Elliot

Certainly you have my permission.

Andrew Elliot

========================================================
Andrew J. Elliot, Ph. D.
Department of Clinical and Social Sciences in Psychology
Meliora Hall
University of Rochester
Rochester, NY  14627

Work phone: 585-275-8710
Work fax: 585-273-1100

## Appendix M11: Permission from Lawrence Erlbaum Associates

**From:** Bonita.D'Amil@erlbaum.com
**Subject:** **RE: Rights and Permissions Request from the Web**
**Date:** April 10, 2006 11:38:57 AM CDT
**To:** plarkam@earthlink.net

Hello Professor Larkam,

Permission granted under the following conditions:

PERMISSION GRANTED provided that material has appeared in our work without credit to another source; you obtain the consent of the author(s); you credit the original publication; and reproduction is confined to the purpose for which permission is hereby given.

This is an original email document; no other document will be forthcoming. Should you have any questions, please don't hesitate to contact me.

Regards, Bonita
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Bonita R. D'Amil
Executive Assistant
Permissions and Translations Manager
Office of Rights and Permissions
Lawrence Erlbaum Associates/The Analytic Press
10 Industrial Avenue
Mahwah, NJ 07430
E-mail: Bonita.D'Amil@erlbaum.com
Phone: (201) 258-2211
Fax: (201) 236-0072

For more information on LEA visit our website at: www.erlbaum.com


-----Original Message-----
From: plarkam@earthlink.net [mailto:plarkam@earthlink.net]
Sent: Sunday, April 09, 2006 3:57 PM
To: Bonita D'Amil
Subject: Rights and Permissions Request from the Web

Applicant: Peter Howard Larkam
Address 1: 3941 Sendero Drive
City: Austin
State/Province: Texas
Zip/Postal Code: 78735

253

Country: USA
Phone: 512-358-8877
Fax: 512-358-8878
E-mail: plarkam@earthlink.net
Reprint Title: Conceptions of Human Agency: (see additional info below)
Reprint Author/Editor: Peter Howard Larkam
Reprint Publisher: UMI/Proquest (single copies supplied upon request)

Additional Information: I am also requesting permission from Meg Rohan and Shalom Schwartz (her source).  She referenced his work in Table 2 but did not in Figure 1.
I am a doctoral student at the University of Texas at Austin and plan to finish August 2006.  Intended use is academic only.  No commercial use requested.
Dissertation Title: "Conceptions of Human Agency: Structural Relations Among Motivational Traits, Personal Value Priorities, and Regulatory Focus"
*** Best if you can reply by email since I do not leave the fax machine on all the time...
Thank you!

Title #1 (ISBN or ISSN): Personality and Social Psychology Review 2000, Vol 4. No. 3
Title #1 (Title): A Rose by Any Name? The Values Construct (p. 255-277)
Title #1 (Author/Editor): Meg J. Rohan

Title #1 (Selection): Adapt Table 2 (p. 261) and Figure 1 (p. 262) for use in my doctoral dissertation.  Both the table and the figure will be slightly modified.  I will provide citation credit in a footnote, including full journal citation and "Copyright, 2000 by Lawrence Erlbaum Associates.  Adapted with permission." and will include a copy of your permission email in my Appendices.


## Appendix M12: Permission from SurveyMonkey.com

**From:**        support@surveymonkey.com
**Subject: RE: Permission Request**
**Date:** June 29, 2006 10:32:39 PM CDT
**To:**        plarkam@earthlink.net

Peter,
You have our permission.

When referencing SurveyMonkey.com please note that all material is copyright and trademark protected. All title and copyrights in and to the Software are owned by SurveyMonkey.com. All title and intellectual property rights in and to the content which may be accessed through use of the Software Application Services is the property of the respective content owner and also may be protected by applicable copyright or other intellectual property laws and treaties.

Thanks,
Chris Finley

## Appendix M13: Permission from Gene Glass to use correlation data

**From:**      glass@asu.edu
**Subject:**   **Re: Permission Request (Statistical Methods in Education and Psychology)**
**Date:**      July 7, 2006 4:19:57 PM CDT
**To:**        plarkam@earthlink.net

Permission granted.    Gene Glass

Peter Larkam wrote:
Hello Dr. Glass -
I'm ABD in Educational Psychology at the University of Texas at Austin.
In my first semester, I took a statistics course in which we used your text "Statistical Methods in Education and Psychology" (Third Edition).
Ed Emmer, taught the course.
I would like your permission to include in my dissertation, data on the Diskette from the CHAPMAN data set.
These data are included in a scatter plot in your Figure 7.14 on page 143.
In my dissertation (investigating relationships among personal value priorities, motivational traits, and regulatory focus), I found correlations of approximately the same magnitude as those in the Chapman study. (height-weight, age-blood pressure, age-cholesterol).   I would like to refer to the correlations in the Chapman study because most lay people recognize the relationships between these variables.  So my purpose is to provide a context for people to interpret the magnitude of the correlations in my study.
I would probably create my own scatter plot rather than copy the ones from the book, so my use would be of the data, rather than the  figure, per se.
I am also contacting Allyn & Bacon for permission.
I would of course include full citation to your book and indicate  "with permission from the author and publisher" or other wording you request or require.
I did not find a current email address for Kenneth D. Hopkins.
Please let me know whether this is OK with you.  Of course, I would not use the data without the written permission of Allyn & Bacon as  well.

I would appreciate a reply by email.

Thank you.

--
_____
Gene V Glass
Regents' Professor
Mary Lou Fulton College of Education
Arizona State University http://glass.ed.asu.edu/gene/

**Appendix M14: Permission from Allyn & Bacon to use Scatterplot data**

PEARSON **Allyn and Bacon A Pearson Education Company**
Copyright and Permissions Department
75 Arlington Street, Suite 300, Boston, MA 02116
Phone: 617-848-6084    Fax: 617-848-7320    Country Code: 01

Date  July 19, 2006

Dear Peter Larkam

Allyn & Bacon grants permission for your June 7, 2006 request to adapt Fig. 7.14, P. 143, "
Illustrative Scatterplots From Case Study" from Statistical Methods In Education And Psychology 3/
E (c)1996 by Glass, S. V., & Hopkins, K. D. for use in Conceptions Of Human Agency: Structural
Relations Among Motivational Traits ( Diss)

This is a nonexclusive permission for one time use in your printed dissertation, thesis or
research project in the English language and in all copies to meet your degree requirements.
Permission is also granted for UMI Dissertation Services to make single copies on demand.
New permission is required if your thesis is to be published at a later date.   Permission
for copies in formats other than print is prohibited.  This permission does not extend to
any material appearing in our publication with credit to another source.  Permission to use
such material must be obtained from the original copyright holder.  Please refer to the
credit lines for the appropriate sources.

We require that the following credit line be included on the first page where our material appears:
**From Glass, S. V., & Hopkins, K. D. Statistical Methods In Education And Psychology 3/ E (c)1996
published by Allyn and Bacon, Boston, MA.
Copyright  ©  by Pearson Education adapt by permission of the publisher.**

Sincerely,

*Sarah Bylund*

Sarah Bylund
Copyright and Permissions Department

# Comments

### Group 1: Random Sample Selected by HR

Curious to learn more about the results and how they may have been used.

Glad to be of help. Hope this benefits [company] employes.

Good luck!

Great questionaire, I really enjoyed being a participant. This type of questionaire really got to the heart of a persons integral feelings.

I debated for some time on whether or not to mark question 1 a 3 or 5. I am often hesitant and reluctant to answer these type of questions because frankly, I don't much care to be psycho analyzed. Overall,it wasn't that bad.

I enjoyed participating and would like to see the results of the study.  Thank you.

I would be interested in participating in more survey in the future.

instructions were too wordy and the invitation email was un-necessarily intimidating.

So I'm wondering what the output data looks like...

This really made me dig deep inside me to answere these thought provoking q's. I like to see the correlations between our values and how (they) affect how we interact with others (and ourselves!)  Would love to read your dissertation.

This was a very interesting assignment. Thanks for the opportunity to assist with your dissertation. I have a lot of respect for you and your position. Good Luck with your findings and your doctoral work. Congratulations.

Too long and repetitive

Will we be able to see the results of this survey, from the whole group?  Will we be able to see how this survey fits in to your dissertation or project, and the conclusions you have drawn?

### Group 2: Selected by Researcher

Best wishes with your dissertation!

Congratulations Peter.

Didn't take too long.  More than willing to help...

Glad to help, good luck Peter.

Good luck!

Good Luck!

Have a nice day and honored that I was selected to fill out your survey.

I felt like the questions were fairly easy to answer and I did not have to pause much in trying to determine my answers. I felt very consistent in my thoughts as I answered the questions.

I found the questions thought provoking and thank you for the opportunity to participate.

I found this survey helpful as I reviewed my true values.

I have great concerns about managment of the [company] placing so much emphasis on divirsity and challenging my value system and implying that we are not enlightened or accepting because we do not wish to participate in this or that event. According to many people I talk to - they feel the same way. If the [company] really cares about diversity then MANAGEMENT needs to accept our differences and stop pushing NON issues in the workplace and focus on taking better care of our customers and producing a higher skilled and engaged workforce.    Sorry - I just had to vent!

I hope these results will be shared with the individuals who participated in the study.  Thanks for your time.

I'd like to see the results.

I'm generally uncomfortable assessing myself.  I always second guess my answers and I often think I am not answering the questions accurately.

Interesting line of questioning.   Good luck with your dissertation

Just curious to know the results of the survey.

Not sure how I was choosen to participate but I thank you very much.  I also look forward to hearing more of your findings.  Maybe at an all managers/supervisors meeting for [company].

Thanks for including me in this study!  I found the format very easy and fun, and the questions varied enough to keep things moving.  Best to you Peter!  [name removed]

Thanks for picking me to be a part of your survey!    [name removed]

These questionnaires are well designed.  I actually understand my own behavior better after I answered all those questions.  Thank you and good luck to you.

This survey caused me to pause and reflect ... thanks. As it has been said, an unexamined life is not worth living.

WHAT are you writing about?

257

# APPENDIX O: UNIVERSITY OF TEXAS IRB APPROVAL

**OFFICE OF RESEARCH SUPPORT & COMPLIANCE**

THE UNIVERSITY OF TEXAS AT AUSTIN

*P.O. Box 7426, Austin, Texas 78713 (512) 471-8871 - FAX (512 471-8873)*
*North Office Building A, Suite 5.200 (Mail code A3200)*

FWA# 2030

Date: **06/01/06**

PI(s): **Peter H Larkam**                    Department & Mail Code: **Educational Psychology**

Dear: **Peter H Larkam**

IRB APPROVAL – IRB Protocol # **2006-04-0064**

Title: **Conceptions of Human Agency: Structural Relations Among Motivational Traits, Personal Value Priorities, and Regulatory Focus**

In accordance with Federal Regulations for review of research protocols, the Institutional Review Board has reviewed the exempt status assessment of the above referenced protocol and found that it meets exempt approval under the category designated below for the following period: **06/01/2006** - **05/31/2007**

Any research involving surveys, interviews, or observation of children is not eligible for exempt review, unless it consists only of observational research where the investigator(s) do not participate in the activities being observed. Research that is FDA regulated cannot be granted an exemption except for category 6. (Research is FDA-regulated when it involves the use of a drug or medical device, other than the use of an approved drug or medical device in the course of medical practice, or when the results are to be submitted to or held for inspection by the FDA.) Unless otherwise required by Department or Agency heads, exempt research must fall within one of the following categories:

___1. Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as:
    (i) research on regular and special education instructional strategies, or
    (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
    (iii). The research is not FDA-regulated

_x_ 2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
    (i.) Information obtained is recorded in such a manner that human subjects can be identified, directly or through

258

identifiers linked to the subjects: and
(ii.) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subject's financial standing, employability, or reputation; or
(iii.) The research involves surveys, interviews, or observation of children (where the investigator does not participate in the activities being observed);
(iv.) The research is not FDA-regulated

___3. Research involving the use of educational tests, survey or interview procedures, or observing public behavior that is not exempt under number 2 above, if the subjects are public officials or candidates for public office or a federal statute requires that the confidentiality of personally identifiable information will be maintained throughout the research and thereafter. The research is not FDA-regulated

___4. Research involving the collection or study of existing data, documents, records, pathological or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, either directly or through identifiers linked to the subjects. To qualify for exemption, the data, documents, records or specimens must be in existence before the project begins. The research is not FDA-regulated

___5. Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate; or otherwise examine:
  i.   Public benefit or service programs;
  ii.  Procedures for obtaining benefits or services under those programs;
  iii. Possible changes in-or alternatives to those programs or procedures; or
  iv.  Possible changes in methods or levels of payment for benefits or services under those programs.
  v.   The program under study must deliver a public benefit (e.g., financial or medical benefits as provided under the Social Security Act or service (e.g., social, supportive, or nutrition services as provided under the Older Americans Act).
  vi.  The research or demonstration project must be conducted pursuant to specific federal statutory authority;
  vii. There must be no statutory requirement that an IRB review the project;
  viii. The project must not involve significant physical invasions or intrusions upon the privacy of participants;
  ix.  The funding agency must authorize or concur with this exemption.
  x.   The research is not FDA-regulated

___6. Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

_____

__x__Please use the attached approved consent forms

__x__Waiver of Documentation of Consent

_____Waiver of Informed Consent

## RESPONSIBILITIES OF PRINCIPAL INVESTIGATOR FOR ONGOING PROTOCOLS:

(1) Report immediately to the IRB any unanticipated problems.

(2) Proposed changes in approved research during the period for which IRB approval cannot be initiated without IRB review and approval, except when necessary to eliminate apparent immediate hazards to participant. Changes in approved research initiated without IRB review and approval to eliminate apparent immediate hazards to the participant must be promptly reported to the IRB, and reviewed under the unanticipated problems policy to determine whether the change was consistent with ensuring the participants continued welfare.

(3) Report any significant findings that become known in the course of the research that might affect the willingness of subjects to continue to take part.

(4) Insure that only persons formally approved by the DRC enroll subjects.

(5) If relevant to your study, please use only a currently approved consent form (remember approval periods are for 12 months or less).

(6) Protect the privacy and confidentiality of all persons and personally identifiable data, and train your staff and collaborators on policies and procedures for ensuring the privacy and confidentiality of participants and information.

(7) Submit for review and approval by the IRB all modifications to the protocol or consent form(s) prior to the implementation of the change.

(8) Please note that this office will send out a reminder prior to the end of your approval period (typically at the end of the 12 months). At this time we will ask you to give us an update on whether the study is still in progress and/or has had any changes that need to be reviewed for approval.

(9) Notify the IRB and the DRC when the study has been completed and complete the Final Report Form.

(10) Please help us help you by including the above protocol number on all future correspondence relating to this protocol.

Thank you for your help in this matter.

Sincerely,

Lisa Leiden Ph.D., IRB Chair,
Director of the Office of Research, Support, & Compliance

# References

Aaker, J. L., & Lee, A. Y. (2001). "I" Seek Pleasures and "We" Avoid Pains: The Role of Self-Regulatory Goals in Information Processing and Persuasion. *Journal of Consumer Research, 28*(1), 33-49.

Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology, 52*, 27-58.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Upper Saddle River, N.J.: Prentice-Hall, Inc.

Alexander, P. A., Schallert, D. L., & Hare, V. C. (1991). Coming to terms: How researchers in learning and literacy talk about knowledge. *Review of Educational Research, 61*(3), 315-343.

Ames, C. (1992). Achievement goals and the classroom motivational climate. In D. H. Schunk & J. L. Meece (Eds.), *Student perceptions in the classroom* (pp. 327-348). Hillsdale, NJ: Erlbaum.

Ansbacher, H. L., & Ansbacher, R. R. (Eds.). (1956). *The individual psychology of Alfred Adler: A systematic presentation in selections from his writings*. New York: Harper & Row, Publishers, Inc.

Atkinson, R. L., Atkinson, R. C., Smith, E. E., & Bem, D. J. (1990). *Introduction to psychology* (Tenth ed.). San Diego: Harcourt Brace Jovanovich, Publishers.

Bandura, A. (1989). Chapter 2: Self-regulation of motivation and action through internal standards and goal systems. In L. A. Pervin (Ed.), *Goal concepts in social and personality psychology* (pp. 19-85). Hillsdale, N.J.: Lawrence Erlbaum Associates.

Bandura, A. (1991). Self-regulation of motivation through anticipatory and self-reactive mechanisms. In R. A. Dienstbier (Ed.), *Nebraska Symposium on Motivation: Perspectives on motivation* (Vol. 38, pp. 69-164). Lincoln: University of Nebraska Press.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman and Company.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*, 1-26.

Bargh, J. A., Bond, R. N., Lombardi, W. J., & Tota, M. E. (1986). The additive nature of chronic and temporary sources of construct accessibility. *Journal of Personality and Social Psychology, 50*(5), 869-878.

Baron, J., & Spranca, M. (1997). Protected values. *Organizational Behavior and Human Decision Processes, 70*(1), 1-16.

Barrett, L. F., & Russell, J. A. (1999). The Structure of current affect: Controversies and emerging consensus. *Current Directions in Psychological Science, 8*(1), 10-14.

Bentler, P. M. (1995). *EQS Structural Equations Program Manual*. Encino, CA: Multivariate Software, Inc.

Biernat, M., Vescio, T. K., Theno, S. A., & Crandall, C. S. (1996). Chapter 7: Values and prejudice: Toward understanding the impact of American values on outgroup attitudes. In C. Seligman, J. M. Olson & M. P. Zanna (Eds.), *The psychology of values: The Ontario symposium* (Vol. 8, pp. 153-189). Mahwah, N.J.: Lawrence Erlbaum.

Bobko, P. (2001). *Correlation and regression: Applications for industrial organizational psychology and management* (Second ed.). Thousand Oaks, CA: Sage Publications.

Box, G. E. P., Hunter, W. G., & Hunter, J. S. (1978). *Statistics for experimenters*. New York: John Wiley.

Braithwaite, V. A., & Law, H. G. (1985). Structure of human values: Testing the adequacy of the Rokeach Value Survey. *Journal of Personality and Social Psychology, 49*(1), 250-263.

Brendl, C. M., & Higgins, E. T. (1996). Principles of judging valence: What makes events positive or negative? *Advances in Experimental Social Psychology, 28*, 95-160.

Byrne, B. M. (1994). *Structural Equation Modeling with EQS and EQS/Windows*. Thousand Oaks, CA.

Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Boston: Houghton Mifflin Company.

Campbell, J. D. (1990). Self-esteem and clarity of the self-concept. *Journal of Personality and Social Psychology, 59*(3), 538-549.

Conroy, W. J. (1979). Chapter 12: Human values, smoking behavior, and public health programs. In M. Rokeach (Ed.), *Understanding human values* (pp. 199-209). New York: The Free Press.

Crocker, L., & Algina, J. (1986). *Introduction to classical and modern test theory*. Orlando: Holt, Rinehart and Winston, Inc.

Crowe, E., & Higgins, E. T. (1997). Regulatory focus and strategic inclinations: Promotion and prevention in decision-making. *Organizational Behavior and Human Decision Processes, 69*(2), 117-132.

Davison, M. (1992). *Multidimensional scaling*. Malabar: Krieger Publishing Company.

Deci, E. L., & Ryan, R. M. (Eds.). (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum Press.

Deci, E. L., Vallerand, R. J., Pelletier, L. G., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. *Educational Psychologist, 26*(3 & 4), 325-346.

DeVellis, R. F. (2003). *Scale development: Theory and applications* (Vol. 26). Thousand Oaks: Sage Publications.

Donne, J. (1624). Excerpt from meditation XVII, Devotions upon emergent occasions. from http://www.anglicanlibrary.org/donne/devotions/devotions17.htm

Dweck, C. S. (1988). Motivational processes affecting learning. *American Psychologist, 41*, 1040-1048.

Dweck, C. S. (2000). *Self-theories: Their role in motivation, personality, and development*. Lillington: Taylor and Francis.

Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry, 6*(4), 267-285.

Dweck, C. S., & Elliott, E. S. (1983). Achievement motivation. In P. H. Mussen (Ed.), *Handbook of child psychology: Socialization, personality, and social development* (Vol. 4). New York: Wiley.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256-273.

Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology, 53*, 109-132.

Edmundson, E. W., Koch, W. R., & Silverman, S. (1993). A facet analysis approach to content and construct validity. *Educational and Psychological Measurement, 53*, 351-368.

Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 72*(1), 218-232.

Elliot, A. J., & Harackiewicz, J. M. (1994). Goal setting, achievement orientation, and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 66*(5), 968-980.

Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation. *Journal of Personality and Social Psychology, 70*(3), 461-475.

Elliot, A. J., & McGregor, H. A. (1999). Test anxiety and the hierarchical model of approach and avoidance motivation. *Journal of Personality and Social Psychology, 76*(4), 628-644.

Elliot, A. J., McGregor, H. A., & Gable, S. (1999). Achievement goals, study strategies, and exam performance: A mediational analysis. *Journal of Educational Psychology, 91*(3), 549-563.

Emerson, R. W. (1841). Compensation. In C. W. Eliot (Ed.), *The Harvard Classics: Essays and English Traits*. Danbury, CT: Grolier Enterprises Corp.

Emmons, R. A. (1986). Personal strivings: An approach to personality and subjective well-being. *Journal of Personality and Social Psychology, 51*(5), 1058-1068.

Emmons, R. A. (1989). Chapter 3: The personal striving approach to personality. In L. A. Pervin (Ed.), *Goal concepts in personality and social psychology* (pp. 87-126). Hillsdale, N.J.: Lawrence Erlbaum Associates.

Emmons, R. A. (1999). *The psychology of ultimate concerns: Motivation and spirituality in personality*. New York: Guilford Press.

Emmons, R. A., & McAdams, D. P. (1991). Personal strivings and motive dispositions: exploring the links. *Personality and Social Psychology Bulletin, 17*(6), 648-654.

Ericsson, K. A., & Charness, N. (1994). Expert performance: Its structure and acquisition. *American Psychologist, 49*, 725-747.

Ericsson, K. A., & Lehmann, A. C. (1996). Expert and exceptional performance: Evidence of maximal adaptation to task constraints. *Annual Review of Psychology, 47*, 273-305.

Erikson, E. H. (Ed.). (1978). *Adulthood*. New York: W. W. Norton & Company.

Feather, N. T. (1990). Bridging the gap between values and actions. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 151-192). New York: Guilford.

Feather, N. T. (1992a). Expectancy-value theory and unemployment effects. *Journal of Occupational and Organizational Psychology, 65*(1), 315-331.

Feather, N. T. (1992b). Values, valences, expectations, and actions. *Journal of Social Issues, 48*, 109-124.

Feather, N. T. (1995). Values, valences, and choice: The influence of values on the perceived attractiveness and choice of alternatives. *Journal of Personality and Social Psychology, 68*, 1135-1151.

Feather, N. T. (1996). Chapter 9: Values, deservingness, and attitudes toward high achievers: Research on tall poppies. In C. Seligman, J. M. Olson & M. P. Zanna (Eds.), *The psychology of values: The Ontario symposium* (Vol. 8, pp. 215-251). Mahwah, N.J.: Lawrence Erlbaum.

Förster, J., & Higgins, E. T. (2005). How Global Versus Local Perception Fits Regulatory Focus. *Psychological Science, 16*(8), 631-636.

Franklin, B. (1962). *The Autobiography of Benjamin Franklin*. New York: Macmillan Publishing Company.

Frijda, N. H. (1988). The laws of emotion. *American Psychologist, 43*, 349-358.

Gardner, W. L., Gabriel, S., & Lee, A. Y. (1999). "I" value freedom, but "we" value relationships: Self-construal priming mirrors cultural differences in judgment. *Psychological Science, 10*(4), 321-326.

Gilovich, T. (1983). Biased evaluation and persistence in gambling. *Journal of Personality and Social Psychology*(44), 1110-1126.

Gilovich, T., & Douglas, C. (1986). Biased evaluations of randomly determined outcomes. *Journal of Experimental Social Psychology*(22), 228-241.

Gilovich, T., Griffin, D., & Kahneman, D. (Eds.). (2002). *Heuristics and biases: The psychology of intuitive judgment*. Cambridge: Cambridge University Press.

Glass, G. V., & Hopkins, K. D. (1996). *Statistical Methods in Education and Psychology* (Third ed.). Needham Heights: Allyn and Bacon.

Gough, H. G. (1996). *The California Psychological Inventory Manual*. Palo Alto, CA: Consulting Psychologists Press, Inc.

Gough, H. G., & McAllister, L. W. (1995). *CPI form 434 configural analysis report: An interpretation of scale combinations*. Palo Alto, CA: Consulting Psychologists Press, Inc.

Guttman, L. (1982). Personal communication to William R. Koch at the Seminar in nonmetric data analysis, Psychology Department, University of Texas. Austin.

Harackiewicz, J. M., Barron, K. E., Carter, S. M., Lehto, A. T., & Elliot, A. J. (1997). Predictors and consequences of achievement goals in the college classroom: Maintaining interest and making the grade. *Journal of Personality and Social Psychology, 73*(6), 1284-1295.

Harackiewicz, J. M., & Elliot, A. J. (1993). Achievement goals and intrinsic motivation. *Journal of Personality and Social Psychology, 65*(5), 904-915.

Havercamp, S. M., & Reiss, S. (2003). A comprehensive assessment of human strivings: Test-retest reliability and validity of the Reiss Profile. *Journal of Personality Assessment, 81*(1), 123-132.

Haverkamp, B. E. (1994). Cognitive bias in the assessment phase of the counseling process. *Journal of Employment Counseling, 31*(4), 155-168.

Heckhausen, J. (1997). Developmental regulation across adulthood: Primary and secondary control of age-related challenges. *Developmental Psychology, 33*(1), 176-187.

Heggestad, E. D., & Kanfer, R. (2000). Individual differences in trait motivation: Development of the motivational trait questionnaire. *International Journal of Educational Research, 33*, 751-776.

Helmreich, R. L., & Spence, J. T. (1978). The work and family orientation questionnaire: An objective instrument to assess components of achievement motivation and attitudes toward family and career. *JSAS Catalog of Selected Documents in Psychology, 8*(35), MS # 1677.

Higgins, E. T. (1996). The "Self Digest": Self-knowledge serving self-regulatory functions. *Journal of Personality and Social Psychology, 71*(6), 1062-1083.

Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52*(12), 1280-1300.

Higgins, E. T. (2000). Making a good decision: Value from fit. *American Psychologist*(November), 1217-1230.

Higgins, E. T. (2002). How self-regulation creates distinct values: The case of promotion and prevention in decision making. *Journal of Consumer Psychology, 12*(3), 177-191.

Higgins, E. T., Freitas, A. L., Idson, L. C., Spiegel, S., & Molden, D. C. (2003). Transfer of value from fit. *Journal of Personality and Social Psychology, 84*(6), 1140-1153.

Higgins, E. T., Friedman, R. S., Harlow, R. E., Idson, L. C., Ayduk, O. N., & Taylor, A. (2001). Achievement orientations from subjective histories of success: promotion pride versus prevention pride. *European Journal of Social Psychology, 31*, 3-23.

Higgins, E. T., Roney, C. J. R., Crowe, E., & Hymes, C. (1994). Ideal versus ought predilections for approach and avoidance: Distinct self-regulatory systems. *Journal of Personality and Social Psychology, 66*(2), 276-286.

Higgins, E. T., Shah, J. Y., & Friedman, R. S. (1997). Emotional responses to goal attainment: Strength of regulatory focus as a moderator. *Journal of Personality and Social Psychology, 72*(3), 515-525.

Higgins, E. T., & Silberman, I. (1998). Development of regulatory focus: Promotion and prevention as ways of living. In J. Heckhausen & C. S. Dweck (Eds.), *Motivation and self-regulation across the lifespan*. Cambridge: Cambridge University Press.

Hinsz, V. B., & Jundt, D. K. (2005). Exploring individual differences in a goal-setting situation using the motivational trait questionnaire. *Journal of Applied Social Psychology, 35*(3), 551-571.

Hoffman, R. (1996). Inventory of aptitudes and knowledge. Houston, TX: Johnson O'Connor Research Foundation Human Engineering Laboratory.

Hy, L. X., & Loevinger, J. (1996). *Measuring Ego Development* (Second ed.). Mahway, NJ: Lawrence Erlbaum Associates.

Jackson, A. P., & Meadows, F. B. J. (1991). Getting to the bottom to understand the top. *Journal of Counseling and Development, 70*, 72-76.

Kahle, L. R. (1996). Chapter 6: Social values and consumer behavior: Research from the list of values. In C. Seligman, J. M. Olson & M. P. Zanna (Eds.), *The psychology of values: The Ontario symposium* (Vol. 8, pp. 135-151). Mahwah, N.J.: Lawrence Erlbaum.

Kane, R. (1994). *Through the moral maze: Searching for absolute values in a pluralistic world*. Armonk, NY: M. E. Sharpe, Inc.

Kanfer, R., & Ackerman, P. L. (2000). Individual differences in work motivation: Further explorations of a trait framework. *Applied Psychology: An International Review, 49*(3), 470-482.

Kanfer, R., & Heggestad, E. D. (1997). Motivational traits and skills: A person-centered approach to work motivation. In B. M. Straw & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 19, pp. 1-56). Greenwich, CT: JAI Press, Inc.

Kegan, R. (1980). Making meaning: The constructive-developmental approach to persons and practice. *The Personnel and Guidance Journal*(January), 373-380.

Kegan, R. (1982). *The evolving self: Problem and process in human development*. Cambridge, M.A.: Harvard University Press.

Kegan, R. (1994). *In over our heads: The mental demands of modern life*. Cambridge: Harvard University Press.

Kegan, R. (2000). Chapter 2: What "form" transforms?: A constructive-developmental approach to transformational learning. In J. Mezirow (Ed.), *Learning as transformation: Critical perspectives on a theory in progress* (pp. 35-69). San Francisco: Jossey-Bass.

Kinder, D. R., & Weiss, J. A. (1978). In lieu of rationality: Psychological perspectives on foreign policy decision making. *Journal of Conflict Resolution, 22*(4), 707-735.

Klinger, E. (1977). *Meaning & void: Inner experience and the incentives in people's lives*. St. Paul: University of Minnesota Press.

Kluckhohn, C. (1951). Values and value-orientations in the theory of action. In T. Parsons & A. Shils (Eds.), *Toward a general theory of action*. Cambridge, Mass.: Harvard University Press.

Koch, W. R. (1983, March). *The analysis of dichotomous test data using nonmetric multidimensional scaling*. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal.

Kristiansen, C. M., & Hotte, A. M. (1996). Morality and the self: Implications for the when and how of value-attitude-behavior relations. In C. Seligman, J. M. Olson & M. P. Zanna (Eds.), *The psychology of values: The Ontario symposium* (Vol. 8, pp. 77-105). Mahah, N.J.: Lawrence Erlbaum.

Kruglanski, A. W., Higgins, E. T., Pierro, A., Thompson, E. P., Atash, M. N., Shah, J. Y., et al. (2000). To "do the right thing" or to "just do it": Locomotion and assessment as distinct self-regulatory imperatives. *Journal of Personality and Social Psychology, 79*(5), 793-815.

Kruskal, J. B., & Wish, M. (1978). *Multidimensional scaling* (Vol. 07-011). Newbury Park: Sage.

Kubiszyn, T. (2000). The fragmented nature of psychological inquiry: Personal remarks during Fall 2000 course in Child and Adolescent Social and Cognitive Development: The University of Texas at Austin.

Lahey, L., Souvaine, E., Kegan, R., Goodman, R., & Felix, S. (1988). *A Guide to the subject-object interview: Its administration and interpretation*. Cambridge: The Subject Object Workshop.

Latham, G. P., & Pinder, C. C. (2005). Work motivation theory and research at the dawn of the twenty-first century. *Annual Review of Psychology, 56*, 485-516.

Levy, S. R., Plaks, J. E., Hong, Y., Chiu, C., & Dweck, C. S. (2001). Static versus dynamic theories and the perception of groups: Different routes to different destinations. *Personality and Social Psychology Review, 5*(2), 156-168.

Liberman, N., Idson, L. C., Camacho, C. J., & Higgins, E. T. (1999). Promotion and prevention choices between stability and change. *Journal of Personality and Social Psychology, 77*(6), 1135-1145.

Locke, E. A. (2000a). Motivation, cognition, and action: An analysis of studies of task goals and knowledge. *Applied Psychology: An International Review, 49*(3), 408-429.

Locke, E. A. (2000b). *The prime movers: Traits of the great wealth creators*. New York: AMACOM.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice-Hall.

Loevinger, J. (Ed.). (1998). *Technical foundations for measuring ego development: The Washington University Sentence Completion Test*. Mahwah, N. J.: Lawrence Erlbaum.

Manaster, G. J., & Corsini, R. J. (1982). *Individual psychology: Theory and practice*. Chicago: Adler School of Professional Psychology.

Mandt, A. J. (1990). Immanual Kant. In J. Lachs & M. Hassell (Eds.), *The giants of philosophy* (Vol. Tape 1 in a two-tape audiocassette series). Nashville, TN: Knowledge Products.

Markman, A. B. (1999). *Knowledge representation*. Mahwah, NJ: Lawrence Erlbaum Associates.

Markman, A. B., & Brendl, C. M. (2005). Goals, policies, preferences, and actions. In F. R. Kardes, P. M. Herr & J. Nantel (Eds.), *Applying social cognition to consumer-focused strategy*. Mahwah, NJ: Lawrence Erlbaum Associates.

Markman, A. B., Maddox, W. T., & Baldwin, G. C. (2005). The implications of advances in research on motivation for cognitive models. *Journal of Experimental & Theoretical Artificial Intelligence, 17*(4), 371-384.

Markman, A. B., & Ross, B. H. (2003). Category use and category learning. *Psychological Bulletin, 129*(4), 592-613.

Markus, H., & Rouvolo, A. (1989). Chapter 6: Possible selves: Personalized representations of goals. In L. A. Pervin (Ed.), *Goal concepts in personality and social psychology* (pp. 211-241). Hillsdale, N.J.: Lawrence Erlbaum, Associates.

Maslow, A. H. (1955). *Deficiency motivation and growth motivation*. Paper presented at the Nebraska symposium on motivation, Lincoln, Nebraska.

Maslow, A. H. (1968). *Toward a psychology of being* (Third ed.). New York: John Wiley.

McAdams, D. P. (1995). What do we know when we know a person? *Journal of Personality, 63*(3), 365-396.

McClelland, D. C. (1961a). Chapter 2: The achievement motive: How it is measured and its possible economic effects. In *The Achieving Society* (pp. 36-62). New York: The Free Press.

McClelland, D. C. (1961b). *The achieving society*. New York: The Free Press.

McClelland, D. C. (1985). How motives, skills, and values determine what people do. *American Psychologist*(July), 812-825.

McClelland, D. C. (1987a). Chapter 7: The achievement motive. In *Human Motivation* (pp. 223-267). New York: Cambridge University Press.

McClelland, D. C. (1987b). *Human motivation*. New York: Cambridge University Press.

McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). *The achievement motive*. New York: Appleton-Century Crofts.

McClelland, D. C., Koestner, R., & Weinberger, J. (1989). How do self-attributed and implicit motives differ? *Psychological Review, 96*(4), 690-702.

McCrae, R. R., Terracciano, A., & 78 Members of the Personality Profiles of Cultures Project. (2005). Universal features of personality traits from the observer's perspective: Data from 50 cultures. *Journal of Personality and Social Psychology, 88*(3), 547-561.

McGregor, I., & Little, B. R. (1998). Personal projects, happiness, and meaning: On doing well and being yourself. *Journal of Personality and Social Psychology, 74*(2), 494-512.

Mezirow, J. (2000). Chapter 1: Learning to think like an adult: Core concepts of transformation theory. In J. Meziros (Ed.), *Learning as transformation* (pp. 3-34). San Francisco: Jossey-Bass.

Midgley, C., Kaplan, A., & Middleton, M. (2001). Performance-approach goals: Good for what, for whom, under what circumstances, and at what cost? *Journal of Educational Psychology, 93*(1), 77-86.

Myers, D. G. (1999). Behavior and attitudes (chapter 4). In *Social Psychology* (6th ed., pp. 129-167): McGraw Hill.

Netemeyer, R. G., Bearden, W. O., & Sharma, S. (2003). *Scaling procedures: Issues and applications*. Thousand Oaks: Sage Publications, Inc.

Newman, B. M., & Newman, P. R. (1975). *Development through life*. Homewood, Illinois: The Dorsey Press.

Nicholls, J. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91*, 328-346.

Planalp, S., & Fitness, J. (1999). Thinking / feeling about social and personal relationships. *Journal of Social and Personal Relationships, 16*(6), 731-750.

Reiss, S., & Havercamp, S. M. (1998). Toward a Comprehensive Assessment of Fundamental Motivation: Factor Structure of the Reiss Profies. *Psychological Assessment, 10*(2), 97-106.

Rohan, M. J. (2000). A rose by any name? The values construct. *Personality and Social Psychology Review, 4*(3), 255-277.

Rokeach, M. (1979a). Chapter 13: Long-term value change initiated by computer feedback. In M. Rokeach (Ed.), *Understanding human values* (pp. 210-225). New York: The Free Press.

Rokeach, M. (1979b). *Understanding human values: individual and societal*. New York: The Free Press.

Ros, M., Schwartz, S. H., & Surkiss, S. (1999). Basic individual values, work values, and the meaning of work. *Applied Psychology: An International Review, 48*(1), 49-71.

Ross, L. D. (1977). The intuitive psychologist and his shortcomings. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 10, pp. 173-220). New York: Academic Press.

Ross, L. D. (2001). Getting down to fundamentals: Lay dispositionism and the attributions of psychologists. *Psychological Inquiry, 12*(1), 37-40.

Rozenblit, L., & Keil, F. (2002). The misunderstood limits of folk science: An illusion of explanatory depth. *Cognitive Science, 26*, 521-562.

Rudman, L. A., Ashmore, R. D., & Gary, M. (2000). *Unlearning automatic biases: The malleability of implicit stereotypes and prejudice*: Manuscript submitted for publication.

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141-166.

Schwartz, S. H. (1968). Awareness of consequences and the influence of moral norms on interpersonal behavior. *Sociometry, 31*, 355-369.

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 1-65). Orlando, FL: Academic Press.

Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues, 50*, 19-45.

Schwartz, S. H. (1996). Value priorities and behavior: Applying a theory of integrated value systems. In C. Seligman, J. M. Olson & M. P. Zanna (Eds.), *The psychology of values: The Ontario symposium* (Vol. 8, pp. 1-24). Mahwah, N.J.: Lawrence Erlbaum.

Schwartz, S. H. (1999). A theory of cultural values and some implications for work. *Applied Psychology: An International Review, 48*(1), 23-47.

Schwartz, S. H. (2004). Basic human values: Their content and structure across countries. In A. Tamayo & J. Porto (Eds.), *Valores e trabalho [Values and Work].* Brasilia: Editora Universidade de Brasilia.

Schwartz, S. H. (2005). Robustness and fruitfulness of a theory of universals in individual values. In A. Tamayo & J. Porto (Eds.), *Valores e trabalho [Values and work].* Brasilia: Editora Universidade de Brasilia.

Schwartz, S. H., & Bilsky, W. (1987). Toward a universal psychological structure of human values. *Journal of Personality and Social Psychology, 53*(3), 550-562.

Schwartz, S. H., & Bilsky, W. (1990). Toward a theory of the universal content and structure of values: Extensions and cross-cultural replications. *Journal of Personality and Social Psychology, 58*(5), 878-891.

Schwartz, S. H., & Boehnke, K. (2004). Evaluating the structure of human values with confirmatory factor analysis. *Journal of Research in Personality, 38*, 230-255.

Schwartz, S. H., & Huismans, S. (1995). Value priorities and religiosity in four western religions. *Social Psychology Quarterly, 58*(2), 88-107.

Schwartz, S. H., & Inbar-Saban, N. (1988). Value self-confrontation as a method to aid in weight loss. *Journal of Personality and Social Psychology, 54*(3), 396-404.

Schwartz, S. H., & Sagie, G. (2000). Value consensus and importance: A cross-national study. *Journal of Cross-Cultural Psychology, 31*(4), 465-497.

Schwartz, S. H., & Sagiv, L. (1995). Identifying culture-specifics in the content and structure of values. *Journal of Cross Cultural Psychology, 26*, 92-116.

Schwartz, S. H., Sagiv, L., & Boehnke, K. (2000). Worries and values. *Journal of Personality, 68*(2), 309-346.

Schwartz, S. H., Struch, N., & Bilsky, W. (1990). Values and intergroup social motives: A study of Israeli and German students. *Social Psychology Quarterly, 53*(3), 185-198.

Seligman, C., & Katz, A. N. (1996). Chapter 3: The dynamics of value systems. In C. Seligman, J. M. Olson & M. P. Zanna (Eds.), *The psychology of values: The Ontario symposium* (Vol. 8, pp. 53-75). Mahway, N.J.: Lawrence Erlbaum.

Shaffer, D. R. (2000). *Social & Personality Development* (Fourth ed.). Belmont: Wadsworth/Thompson Learning.

Shah, J. Y., & Higgins, E. T. (1997). Expectancy x value effects: Regulatory focus as a determinant of magnitude and direction. *Journal of Personality and Social Psychology, 73*(3), 447-458.

Sheldon, K. M., Arndt, J., & Houser-Marco, L. (2003). In search of the organismic valuing process: The human tendency to move toward beneficial goal choices. *Journal of Personality, 71*(5), 835-869.

Shye, S., Elizur, D., & Hoffman, M. (1994). *Introduction to facet theory: Content design and intrinsic data analysis in behavioral research* (Vol. 35). Thousand Oaks, CA: Sage.

Slife, B. D., & Williams, R. N. (1995). *What's behind the research? - Discovering hidden assumptions in the behavioral sciences*. Thousand Oaks: Sage.

Smith, M., Duda, J., Allen, J., & Hall, H. (2002). Contemporary measures of approach and avoidance goal orientations: Similarities and differences. *British Journal of Educational Psychology, 72*, 155-190.

Snell, W. E., Hargrove, L., & Falbo, T. (1986). Birth order and achievement motivation configurations in women and men. *Individual Psychology: The Journal of Adlerian Theory, Research, and Practice, 42*(3), 428-438.

Solomon, R. C. (1993). *The passions: Emotions and the meaning of life*. Indianapolis: Hackett Publishing.

Spence, J. T., & Helmreich, R. L. (1983). Achievement-related motives and behaviors. In J. T. Spence (Ed.), *Achievement and Achievement Motives: Psychological and sociological approaches* (pp. 7-74). San Francisco: W.H. Freeman and Company.

Spiegel, S., Grant-Pillow, H., & Higgins, E. T. (2004). How regulatory fit enhances motivational strength during goal pursuit. *European Journal of Social Psychology, 34*, 39-54.

Tetlock, P. E. (1986). A value pluralism model of ideological reasoning. *Journal of Personality and Social Psychology, 50*, 365-375.

Tetlock, P. E., Peterson, R. S., & Lerner, J. S. (1996). Chapter 2: Revising the value pluralism model: Incorporating social content and context postulates. In C. Seligman, J. M. Olson & M. P. Zanna (Eds.), *The psychology of values: The Ontario symposium* (Vol. 8, pp. 25-51). Mahwah, N.J.: Lawrence Erlbaum.

Triandis, H. C. (2000). Culture and conflict. *International Journal of Psychology, 35*(2), 145-152.

Tversky, A. (1977). Features of similarity. *Psychological Review, 84*(4), 327-352.

Verplanken, B., & Holland, R. W. (2002). Motivated decision making: Effects of activation and self-centrality of values on choices and behavior. *Journal of Personality and Social Psychology, 82*(3), 434-447.

Weiner, B. (1974). *Achievement and attribution theory*. Morristown, NJ: General Learning Press.

Weiner, B. (1991). Metaphors in motivation and attribution. *American Psychologist, 46*, 921-930.

Weiner, B. (1992). *Human motivation: Metaphors, theories, and research*. Thousand Oaks, CA: SAGE Publications, Inc.

Weinstein, C. E., & Mayer, R. E. (1986). The teaching of learning strategies. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (Third ed., pp. 315-327). New York: Macmillan.

Wicker, F. W., Lambert, F. B., Richardson, F. C., & Kahler, J. (1984). Categorical goal hierarchies and classification of human motives. *Journal of Personality, 52*(3), 285-305.

Wicker, F. W., Wiehe, J. A., Hagen, A. S., & Brown, G. (1994). From wishing to intending: differences in salience of positive versus negative consequences. *Journal of Personality, 62*(3), 347-368.

Williams, R. M., Jr. (1979). Chapter 2: Change and stability in values and value systems: A sociological perspective. In M. Rokeach (Ed.), *Understanding human values: Individual and societal* (pp. 15-46). New York: The Free Press.

Wilson, T. D., & Dunn, E. W. (2004). Self-knowledge: Its limits, value, and potential for improvement. *Annual Review of Psychology, 55*, 493-518.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist, 35*, 151-175.

Zimmerman, B. J. (2000). Chapter 2: Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13-39). San Diego: Academic Press.

## Vita

Peter Howard Larkam was born in Austin, Texas on January 27, 1962, the fourth child and second son of Beverley McCosham Larkam and Charles Wilbur Larkam. After completing secondary education at St. Stephen's Episcopal School, Austin, Texas, in 1980, he entered Claremont McKenna College in Claremont, California to pursue the Management Engineering curriculum. After completing the Claremont requirements for the joint degree in 1983, he transferred to The University of Texas at Austin. He earned the degree of Bachelor of Science (chemical engineering) in December 1986. In January 1987, he was awarded a Bachelor of Arts from Claremont McKenna College. Peter Larkam began employment with the Lower Colorado River Authority in Austin in 1986. In August 1993, he began the Option II (Executive) MBA program at The University of Texas at Austin, and earned the degree of Master of Business Administration in May 1995. In August 2000, Mr. Larkam entered The Graduate School at The University of Texas to pursue a doctorate in Educational Psychology. He was awarded Master of Arts in Educational Psychology (Program Evaluation) August 2004. His dual specialization in doctoral work includes Learning, Cognition, Motivation, and Instruction (Area I) and Quantitative Methods, Psychometrics Sequence (Area III). He has continued full time employment with the Lower Colorado River Authority, presently serving as Manager of Transmission System Reliability and Maintenance, and Chair of the System Reliability Team. In this role, he has provided expert witness testimony for electric utility rate case and other legal proceedings. Mr. Larkam has direct responsibility for a staff of 165 employees and an operating budget of $22 million. Peter is married to Sandra Kay (Freund) Larkam and has three sons, William Charles Larkam (14), Matthew Alexander Larkam (12), and Andrew Peter Larkam (6 ¾).

Permanent address:    3941 Sendero Drive, Austin, Texas  78735
This dissertation was typed by the author.