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PRIVATE AND PUBLIC HELP: THE TRIPARTITE MODEL OF PERSONALITY
AND ORGANIZATIONAL CITIZENSHIP BEHAVIOR

By

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ABSTRACT

Currently, a trait-bandwidth debate is engaged in the personality literature regarding the proper level of measurement for personality variables. The most popular conceptualization of personality argues that five broad traits best defines an individual's personality. Others argue that facets embedded within the broad traits provide a more conceptually clear link between personality constructs and organizational criterion. However, a theoretically driven link between the broad traits and the narrow traits does not exist. I present a tripartite theory whereby within each broad trait, facets differ along the dimension of self versus other-centeredness.

One context in which the tri-partite facets might manifest themselves is offered to be in both the level and type of OCB individuals engage in. 160 participants in a team based computer simulation provided 320 observations in a within and between subject design. It was hypothesized that, in general, other-centered facets would be positively related to OCBs while self-centered facets would be negatively related to OCBs. A laboratory study was conducted wherein support was not found relating facets of personality to organizational citizenship behaviors.

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INTRODUCTION

"It sounds almost like a timely problem to speak on the striving for
perfection and the roots of social interest. For Individual Psychology,
however, it is an old problem. I may well say that in these two questions
and their solution rests the entire value and the entire significance of
Individual Psychology (Adler, 1933)."

Overview of the research question

Self and other-centeredness. The quote by Adler introduces a recurrent research
query across the social sciences pertaining to understanding the degree to which
individuals emphasize either self or other-centered interests in their daily interactions.
Individuals who are self-centered (striving for perfection) would tend to frame the
situation from a self-interested perspective while other centered (socially interested)
individuals would demonstrate more concern for other individuals or their surrounding
environment. These constructs have been addressed by a wide range of theorists at many
different levels of analysis.

Across societies Riesman (1961) asserts that societies in a high growth mode with
concomitant lower death rates tend toward self-centered (self-directed) behaviors. On the
other hand, when the society is on a downward slope, or in decline, its members become
increasingly other-centered (other-directed). Riesman sees a correlation between the life
cycle of a society and the centeredness of its population. In both infancy and decline
environmental forces tend to accentuate cooperative behaviors. During the apex of a
civilization individualism is emphasized.

Within societies, Mead (1937) surveyed several different cultures and noticed differences in levels of other-centeredness (cooperation) and self-centeredness (competition). However, while Riesman (1961) implies that cooperative and competitive tendencies are somewhat mutually exclusive Meade states that "no society is exclusively competitive or exclusively cooperative...both competitive and cooperative habits must coexist within the society (p. 460)."

At the individual level early psychologists viewed self and other-centeredness as an individual's internal struggle between selfish and altruistic tendencies. Freud (1930) focused on internally driven dysfunction by differentiating between the immature wants and needs of the id and the maturity of the super ego. Horney (1937; 1945) summed the manifestation of the internal needs of individuals as propelling individuals to move toward, move against, or move away from other people. Rank (1964) provides an interesting integration of early personality theorists. He classifies early work by Freud (1930) as based on self-centered personality issues, the work by Adler (1939) as concerned chiefly with socially driven motives of personality and the work of Jung (1923; 1933) as an integration of the self-centered and the socially interested aspects of personality.

Some researchers at the individual level of analysis have taken a temporal view of the relationship between cooperation and competition similar to Riesman (1961). Adler, viewed individuals as naturally self-centered (striving for perfection) but with the ability and need to develop other-centeredness (social interest). Bakan (1966) viewed the progression from self-centeredness (agency) to other-centeredness (communion) as a result of religious growth and enlightenment.

Other researchers imply a more situational conceptualization. Olson (1965) views self and other-centeredness as a rational, situation driven decision. Individuals calculate the utility of acting in their own self-interest versus that of the group, or collective using a personal cost benefit analysis; resulting behaviors can either be self or other-centered. Buss and Craik (1985) provide theoretical support for this contingent view of self and other-centered behaviors. They view personality as the outcome of an aggregation of behaviors. Therefore, individuals can act both self-centered and other-centered over the course a specific time period, which may involve thousands of interactions with other individuals and the environment, but may tend toward one or the other.

Self and other-centeredness has also been studied as related constructs. Individualism and collectivism are very close in their definitions to notions of self and other-centeredness. Wagner and Moch (1986) define individualism as the condition in which personal interests are given greater emphasis than are the needs of the group. Wagner (1995) states "individualists tend to look out for themselves and tend to ignore group interests if they conflict with personal desires (p. 153)." The opposite of an individualist would be a collectivist. These individuals tend to have concerns about the needs and interests of groups over that of themselves. Historically, these constructs have also been afforded the greatest amount of attention at higher levels of analysis including societal (Hofstede, 1980) and group (Early, 1993; Wagner, 1995) levels of analysis.

Recently, Triandis et al. (1985) established the measurement of individualism and collectivism at the individual level of analysis. Allocentrism was defined as those individuals who were other-centered. They placed a higher emphasis on cooperation, equality and honesty. Idiocentric individuals emphasized lifestyle, competition, pleasure,

and social recognition. Further, Hough et al. (1990) established "rugged individualism" as one of 9 separable personality factors.

Although the extent to which an individual tends to be self and other-centered has been a central construct across many fields, and many levels of analysis, current conceptualizations of personality have devolved themselves from a focus on self and other-centeredness as central components of an individual's personality. Among organizational scientists the most common conceptualization of personality currently in use (this is the five factor model of personality including neuroticism, extraversion, openness, agreeableness and conscientiousness hereafter referred to as the FFM) appears to be devoid of direct references to self and other-centeredness. I contend that self and other-centeredness is embedded within the current FFM (five-factor model) framework and is manifested through the facets associated with the broad traits. That is, the purpose of this manuscript is to detail a theory of how self and other-centeredness exists within the FFM framework and influences the behavior of individuals.

Momentum towards a five-factor model of personality. The early 1990s witnessed a large number of personality researchers converge on the assertion that the contents of an individual's personality can, and should, be described along five broad dimensions (Costa and McCrae, 1992; Digman, 1990; Goldberg, 1992). This five-factor model represented the culmination of nearly a half-century of consolidation by a large number of researchers interested in a more parsimonious model of personality (Cattell, 1947, 1956; Digman & Inouye, 1986; Norman, 1963). Although the precision (Block, 1995) and theoretical grounding (McAdams, 1992; Waller & Ben-Porath, 1987) associated with the FFM has been questioned the popularity of a simplified model of personality has

coincided with the emergence of personality, once again, as a potentially viable predictor of behavior within organizations (Hogan, 1991; Weiss and Adler, 1985).

The present momentum concerning the utility of a FFM of personality was empirically buttressed by several large-scale meta-analyses (Barrick & Mount, 1991; Hough et al., 1990; Salgado, 1997; Tett, Jackson & Rothstein, 1991) that demonstrated robust links between broad factors associated with the FFM and job related criteria. Mount and Barrick (1998) attribute much of the recent resurgence in personality based studies over the past decade to the ability of the FFM to both demonstrate predictive ability on organizational variables of interest and to allow a taxonomic means by which to accumulate a coherent body of knowledge.

Goldberg (1981) is credited with coining the phrase "the Big 5," and has been a staunch advocate (1972, 1990) of the legitimacy of personality being structured around five broad constructs. Goldberg (1992), John (1989; 1990), and Digman (1989, 1990) have all proclaimed the taxonomic validity of the FFM of personality using similar arguments. In sum, they proclaim that across a wide variety of studies attempting to numerate the traits best suited to describe an individual's personality five broad factors have increasingly been found to holistically bound the contents of an individual's personality. Perhaps the most ambitious declaration of the validity of the FFM personality dimensions was McCrae & John's (1992) statement that "we believe it is an empirical fact, like the fact that there are seven continents on earth or eight American presidents from Virginia (p. 194)."

Reservations about the FFM. As important as the development of the FFM has been to the advancement of personality theory among organizational scientists Mount and

Barrick (1998) recently reflected upon the past decade of personality research and the results of several meta-analyses and noted that there was wide discrepancy in the correlations found between the FFM and job related criteria. Further, they note that they initially had a level of concern about the relatively low predictive ability of their broad measure of conscientiousness, the most important personality predictor of job related criteria. The stable but low predictive ability of several of the broad traits associated with the FFM was recently confirmed in a clarifying meta-analysis conducted by Hurtz and Donovan (2000). Hurtz and Donovan restricted the studies used in their meta-analysis to those that were specifically based upon the five factor constructs. They found similar, although muted, relationships. Therefore, although the FFM has been instrumental in re-establishing the importance of personality as a valid predictor of organizational criterion there appears to be room for improvement even among its advocates.

Summary and purpose

In sum, today there exists a model of personality based upon 5 broad constructs that has achieved a modicum of consensus pertaining both to its dimensions and its empirical links to organizational criterion of interest. The FFM has been established theoretically as the proper level of specification of personality via a number of factor analyses conducted over several decades. The FFM has been established as empirically important to organizational researchers via a number of large-scale meta-analyses conducted over the past decade. However, currently there is room for improvement based upon concerns with both the theoretical development of the model and the amount of variance in behavior it is capable of explaining.

There are 3 major challenges facing the FFM as we enter a new millennium of personality research. First, there is vigorous debate as to the proper level of specification of the model. Authors have provided evidence that from two (Digman, 1997) to twenty (Browne & Howarth, 1977) factors encompass an individual's personality. Second, a growing number of researchers are beginning to question the narrow means by which the FFM has developed over the past half century (Block, 1995). Finally, as eluded in the introduction, a lack of integration between self and other-centeredness and the current conceptualization of the FFM exists.

<u>Introduction to the tripartite model of personality.</u> Clark & Watson (1991) introduce the term tripartite to demonstrate the relationship between the facets anxiety and depression and their broad trait of neuroticism. Tripartite indicates a situation wherein the shared variance between the facets forms the broad trait at the same time that the unique variance attributable to each facet also has important and relevant meaning. Recently, Moon (2001) presented what he referred to as a tri-partite model of personality such that each of the broad traits associated with the FFM were created via a confluence of facets that reflected either a self or other-centered orientation. Moon presented duty as an other-centered facet of conscientiousness and achievement striving as a self-centered facet of conscientiousness. On the one hand, the shared variance between similar facets forms the structure of the FFM. On the other hand, the variance unique to each facet, which is currently thought of as random error is proposed to have systematic meaning. That is, the unique variance of the facets comprising the FFM form a complementary personality structure based upon the internal structure of personality associated with self and other-centeredness. Recently, empirical support was found for the self and other

dimensions embedded within both conscientiousness (Moon, 2001) and neuroticism

(Moon, Hollenbeck, Humphrey & Maue, 2001).

In figure 1 each of the 5 factors of personality is depicted with facets that are both

related to the broad factor and to either a self or other-centered orientation. For example,

surgency represents the self-centered aspect of extraversion while sociability provides the

other-centered aspect of extraversion. Achievement striving represents the self-centered

aspect of conscientiousness while duty provides the other-centered aspect of .

conscientiousness.

Figure 1. Depiction of the tripartite model of personality

	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Self	Depression	Surgency	Intellect	Straightforward	Achievement striving
Other	Anxiety	Sociability	Culture	Altruism	Duty

Validation of the tripartite model. Two issues have yet to be resolved concerning

the tripartite model. First, Moon (2001) and Moon et al. (2001) limited themselves to a

facet level integration of self and other-centeredness within the FFM. They called for

future research that extended the tripartite model to the item level of analysis. This would

allow for the impact of items related to other facets that were ignored in the initial test of

the model. Second, although the conceptualization of the tripartite model was a result of

the findings concerning the differential impact of duty and achievement striving and

anxiety and depression within escalation decision-making dilemmas the tripartite model

has yet to be tested outside of the decision-making literature.

Therefore, I extend the utility of conceptualizing personality in this manner by

analyzing the extent to which the tri-partite facets predict the behaviors of individuals.

Specifically, the tripartite conceptualization of personality will be theorized to provide

superior predictive ability of an individual's self and other-centered behavior than that of

the FFM.

CHAPTER 2

REVIEW OF PERSONALITY LITERATURE

The study of personality within the organizational sciences has generated a substantial body of research over the past century and can be described as having developed along two separate but parallel paths that have attempted to answer two separate but related questions. Researchers on one path have attempted to holistically define the relevant dimensions that best capture an individual's personality. A more recent but parallel path to the development of a taxonomic structure of personality has been a substantial body of research attempting to demonstrate the ability of an individual's personality to predict organizational criterion of interest. After nearly a century of attention by a multitude of researchers, a substantial body of theoretical and empirical studies, and vast improvement in statistical technology, personality theory can still be viewed as an immature science (Eysenck, 1997).

Eysenck (1997) suggests that personality psychology has not reached paradigmatic status and will not do so until a theoretically driven deductive approach is conceptually agreed upon. He argued that not only is there a lack of consensus about how many dimensions best describes an individual's personality, but also, we still haven't come to agreement upon the *nature* of those dimensions. Eysenck further contends that the existence of a paradigm, or implicitly the advancement of the science of personality, is predicated upon consensus among the experts on what dimensions personality is best measured. For example, John (1990) noted that there was a perception that even with a level of consensus that personality consists of 5 broad traits we have yet to reach consensus on which five, or whose five is correct.

Nonetheless, a substantial amount of progress has been made over the past decade as to which dimensions best define an individual's personality and the extent to which certain dimensions are relevant to organizational variables of interest. The following sections will provide a brief review of the specification of personality, the utility of personality, and the current integrative debate (trait-bandwidth) attempting to resolve the proper specification of personality which maximizes the utility of personality constructs as a predictor of behavior in organizations.

Specificity of personality

Type and trait research. The word personality is derived from the Latin word persona, which means mask. In other words, the definition of personality is constructed around social dimensions of how we are assessed based upon our public acts (Buss & Craik, 1985). Hogan (1991) traces the attempt to classify personas taxonomically to Galen in the second century AD. The Greek philosopher described four types of people in the world: sanguine, choleric, melancholic, and phlegmatic. The benefit of the "type" approach to specifying personality advocated first by Galen, and advanced by recent personality scholars (Holland, 1985; Jung, 1923; Myers & McCaulley, 1985), is in its intuitive simplicity. This is based on the fact that people have a natural tendency to simplify and categorize what they observe. However, Hogan (1991) notes that types are actually conglomerates of specific traits. Therefore, one of the limitations of a type approach to personality research is that it is often vague and fuzzy in nature. Moreover, any one type can be embedded with various numbers of traits that can be argued to be distinct constructs. As a result, although type research might be a valuable tool with which to describe individuals, its lack of concrete boundaries makes it difficult to apply

in research settings. This is especially true to the extent that individuals are thought of as complex beings (Murray, 1938).

Trait researchers (Hogan & Nicholson, 1988) differed in their approach to studying personality than type researchers. Rather than focus on general descriptive categories, trait researchers focused on the complexities with which individuals, through descriptive language, defined the personas of other individuals. In other words, while type researchers relied on generalities for personality description, trait researchers relied on precision. The emphasis on specific descriptions of personality versus general categories led to the lexiconal approach to personality. Cattell (1943b) defined the lexiconal approach to personality by stating "all aspects of human personality which are or have been of importance, interest, or utility have already been recorded in the substance of language (p. 483)."

Allport and Odbert (1936) used the trait approach to provide a more comprehensive perspective of personality via an exhaustive search of language-based traits. They painstakingly produced every word from the 1925 *Webster's New International Dictionary* judged to have been created with the purpose of distinguishing one individual from another. In the end they came up with 17,953 descriptive words that were later thinned to 4,504 objective personality traits. The trait approach to personality brought with it promises of precision and refinement and more "scientifically pure" causal connections with behavior. However, the sheer number of potential traits that were measurable made it difficult to accumulate a coherent body of literature.

Cattell (1943a, 1943b, 1947) laid the methodological bridge between the unwieldy number of traits associated with personality as comprehensively described by

Allport & Odbert (1936) to the present day parsimonious view of personality as 5 broad factors. Through painstaking factor analysis (done by hand and without the aid of statistical software) Cattell and his associates simplified the trait structure of personality using 171, then 60, then 35, then 16 primary factors (see John, Angleitner & Ostendorf, 1988 for a full description of the lexiconal history). Later, Cattell (1956) conducted what he referred to as a "secondary-order" personality factor analysis and discovered either 4 or 5 second-order factors of personality. He initially found five factors but through rotation collapsed two factors into one.

Development of the FFM. What Cattell (1956) referred to as secondary-order factors of personality were defined by his contemporaries as primary factors. The first researcher to provide evidence that 5 factors emerged to describe an individual's personality was Fiske (1949). Tupes and Christal (1961) are often cited as the seminal argument for five factors based upon the similarity between their descriptive labels of the five factors (surgency or extraversion, agreeableness, dependability, emotional stability and culture) and the labels describing the 5 factors today (Costa & McCrae, 1992). Norman (1963) similarly argued for 5 broad factors of personality (he substituted conscientiousness for dependability). More recently, Digman and Inouye (1986) replicated the 5-traits through factor analysis argument but substituted will to achieve for conscientiousness and intellect for culture (see Mount and Barrick (1995) who provide an exhaustive table of the various constructs researchers have used in constructing the FFM model).

The various forms of the FFM advocated by a wide range of researchers do not differ greatly with the four types espoused by Galen thousands of years prior. Digman

(1989; 1990) acknowledges that unanimity has not been reached concerning the *exact* number of general factors but he observes that a substantial number of researchers across different cultures have obtained 5 broad dimensions of personality. Although historic debates about how an individual's personality should be described has oscillated between attempts to capture an individual's personality either comprehensively (Allport and Odbert, 1936) or parsimoniously (Cattell, 1943, 1947; Eysenck, 1992; Eysenck & Eysenck, 1985) the development of factor analytic methods has underpinned a trend toward defining an individual's personality in the broadest of terms (Block, 1995). This has spurred the recent trend toward parsimony and consolidation. The benefits of the FFM in its present form is that it provides the simplicity associated with type theory, while having been developed through rigorous factor analysis of a broad range of traits. In other words, perhaps the single largest contribution of factor-analytic methods to personality literature has been a venue through which the comprehensiveness of a trait approach gains the advantages inherent within the parsimony of a type approach to personality.

Utility of personality

Historic oscillations. Just as the historic development of a taxonomic model of personality has oscillated between broadly and narrowly defined constructs, the perceived utility of personality as a useful construct with which to predict behavior within organizations has also waxed and waned. Perhaps an increasingly ambitious nomological net (Cronbach & Meehl, 1955) that personality constructs have been tasked to demonstrate relationships with has been the single largest influence hampering the perceived utility of personality constructs.

For example, early personality theorists were often clinical psychologists attempting to predict and understand an individual's psychological state. It is important to keep in mind that personality constructs were not initially intended to study behavior within organizations. This clinical view of personality was concerned with understanding specific behaviors that would then be an indicator of general well being (personality). Freud (1930; 1935) differentiated between the selfish wants and needs of individuals and the many sacrifices required of individuals to live with fellow individuals in civilized societies. Horney (1937; 1945) addressed the ability of individuals to suppress or eliminate the inherent neurosis of anxiety attributable to early childhood development and its impact on adult behavior. Adler (1939) also looked at the ability of an individual to be adjusted based upon the reconciliation of the innate propensity for individuals to strive for perfection against the altruistic concerns about social issues. Rather than having personality predict behaviors, early researchers attempted to use behaviors to predict personality.

The same level of generality underpinned the first large-scale application of a personality inventory. The United States during World War I screened out those individuals who might be susceptible to wartime stress using the Woodworth Personal Data Sheet. The utility of personality was limited to identifying those who might not be well adjusted enough to handle the rigors of battle. Simply, you were or you were not emotionally stable. The initial success of the inventory used for this purpose led to a dramatic increase in the level of activity in personality research during the years separating the two World Wars (Mount & Barrick, 1995). The popularity of personality

measures continued beyond World War II, and in the decades following personality

inventories proliferated (Whyte, 1954).

Personality, environment, and situations. As the perceived utility of personality

increased in the post War years, so did the level of ambition of personality theorists. The

independent and dependent variables were switched such that instead of predicting

personality via measurement of behavior. Predictions of behavior were now based upon

measurements of personality. Personality researchers also began to relate personality

constructs to an increasingly broad nomological net. Clinical psychologists who were

concerned with intrapersonal implications were joined by social theorists who attempted

an interpersonal interpretation of an individual's personality (Honnigman, 1954;

Kluckhohn & Murray, 1953) and value orientations (Kluckhohn & Strodbeck, 1961).

Kluckhohn and Murray (1953) observed that individuals are (1) like every other

human being (2) like some other human beings and (3) like no other human beings.

During this era of personality research several notable researchers wrote books

attempting to integrate bodies of literature including personality, culture, and social

systems (Honnigman, 1954; Smelser & Smelser, 1963). Honnigman (1954) stressed the

importance of integrating the individual's personality and the communality of culture in

determining the value system of individuals. Murray (1938) viewed behavior as an

interaction of individuals and their environment.

Underlying this shift in personality theory is a subtle change in the general

criterion of interest from that of basic adjustment or well being to that of predicting a

number of specific socially driven behaviors. Ghiselli and Bartol (1953) reviewed a large

number of personality studies in the prior half century and found positive albeit small

relationships with performance. Moreover, they found wide variance in effectiveness across instruments and job categories. Guion & Gottier (1965) examined over a decades worth of personality studies appearing in top tier journals and found negligible relationships. They gave the often-quoted statement that "the best that can be said is that in some situations, for some purposes, some personality measures can offer helpful predictions (p. 159)."

Situational strength exacerbated the difficulty that personality constructs had in predicting behavior. Mischel (1968; 1977), building upon the realization that personality variables seemed unable to explain more than about 9% of the variance in behaviors, led a vigorous attack on the utility of personality based on a situational strength argument. Mischel argued that individual differences were useful predictors of behavior in situations that allowed for the emergence of individual volition. However, some situations were of such "strength" as to overwhelm an individual's whims. An example of a strong situation would be an individual approaching a red traffic light while followed by a patrol car. Most, individuals would stop regardless of individual differences. A less strong situation might be a stop sign on a deserted road. Here, individual differences may predict those individuals who still come to a complete stop versus those who don't. Organizations were argued to be generally strong situations wherein rules, standard operating procedures, organizational climate, and organizational culture were thought to stifle the utility of personality variables.

Weiss and Adler (1984) reflected upon the pessimism that had engulfed personality literature and noted that perhaps the greatest problem with personality research was self-inflicted. That is, it is not surprising that there were difficulties tying

personality to specific behaviors to the degree that the literature had not reached consensus on what encompassed an individual's personality and how to measure it. Moreover, they note that all too often personality constructs were developed to relate to a particular theory, which then limited its ability to provide explanatory variance to a network of criteria.

In sum, personality researchers have been limited by a two front battle. On one side, there have been oscillations concerning the perceived correct number and breadth of personality constructs. On the other side, there have been changing criteria of interest. Personality has been thought of as both broad and narrow constructs while being asked to answer questions pertaining to both broad and narrow criterion of interest.

Integrating specification and utility

The trait-bandwidth debate. Cronbach & Gleser (1957) provided a means with which to maximize the explanatory ability of personality by matching the specificity of the constructs with the requisite breadth of criterion. They called this the band-width/fidelity trade-off. This was based on the realization that, on the one hand, broad and global constructs enable one to predict diverse behaviors at moderate levels of accuracy, while narrow constructs enable a higher level of prediction when matched with a narrow range of behaviors but performed poorly when matched with broad criterion.

Contemporary arguments about when to use either broad or narrow traits have thus far rested mainly upon an understanding of the criterion of interest (Hampson, John & Goldberg, 1986; Stewart, 1999) and then measuring personality at the appropriate breadth. It becomes necessary to use broad measures of personality to the degree that the criterion becomes more complex or less understood. Narrow traits, it follows would

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benefit to the extent that criteria are more explicit, better understood, and easier to align with the components of more narrowly defined personality traits.

Ones and Viswesvaran (1996) make the general argument that broad traits should be the primary level of measurement based on the fact that, within organizations, performance criterion are most often broadly defined constructs emanating from multiple rather than singular acts. Schneider, Hough, and Dunnette (1996) replied to Ones and Viswesvaran (1996) and argued for the potential utility of matching traits narrower than the FFM to criterion using a construct-oriented approach. That is, carefully constructed instruments should be developed to shed light on a specific type of criterion. Recently, a string of researchers have demonstrated that narrow traits associated with the Big 5 have superior predictive power than their broad traits do (Ashton, 1998; Hough, 1992; Moon, 2001; Stewart, 1999). As we go forward with more empirical research intended to resolve level of specification issues, there are two questions that have yet to be addressed that would greatly advance our knowledge in this area. First, greater clarity must be provided as to *how* narrow should narrow be? Second, a theoretical justification must accompany predictive ability as guidance for when a researcher should measure and test personality as either broadly or narrow constructs. To the extent that the trait-bandwidth debate implicitly argues for a contingent approach, a theoretical model based upon the personality factors does not exist that would instruct researcher when narrow or broad traits might be more useful levels of measurement.

For example, in the NEO-PIR, the most used measure of 5 broad traits (Costa & McCrae, 1992), the researcher has the choice of using either the 5 broad factors or one of 30 sub-factors (6 sub-factors per broad trait). Are 30 the correct number of traits to

encompass an individual narrowly? The 19th century philosopher Galton argued for the existence of well over one thousand trait descriptors each with a different shade of meaning. It is important to note that Costa & McCrae (1992) themselves provided neither theoretical justification for either the choice of their facets, nor why six relevant facets underlie each and every broad trait. Saucier & Ostendorf (1999) mention that the facets used by Costa and McCrae were chosen by review not theory. In discussing the various facets used with agreeableness and conscientiousness, Costa, McCrae, and Dye (1991) concede that their proposed facets are open to revision. Currently, the facet structure of the FFM in its current form reflect what is plausible, rather than what is theoretically grounded. Costa and McCrae (1992) state,

"Making sense of the 30 unrelated scales would be extremely difficult, and we have recommended that interpreters examine the facets domain by domain. However, there are also other ways of thinking about facet scales that may be useful, especially for the experienced interpreter. One way is by considering the relations of facet scales *across* domains – an approach that is justified by the secondary factor loadings of several scales (p. 18, emphasis not added)." Moreover, Hurtz and Donovan (2000) mention that developing composite constructs across the broad factors might be a useful mechanism to boost the modest predictive ability of personality variables. Hurtz and Donovan state "we also note that the formation of optimal composites may involve grouping facets from across the five broad dimensions. For example, combining selected facets of conscientiousness, emotional stability and agreeableness may optimize the prediction of an interpersonal facilitation criterion (p. 877)."

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Therefore, theoretical advancements to the efficacy of the FFM may, and perhaps should, be based upon a better understanding of the constructs themselves. In addition, resolution of the trait bandwidth debate may stem from improving the theoretical versatility of the FFM model rather than relying upon the nomological net surrounding the personality variables (Schneider, Hough & Dunnette, 1996). This is especially true in light of the attacks upon the FFM as being limited to nothing more than an atheoretical taxonomy of personality (McAdams, 1992; Waller & Ben-Porath, 1987).

CHAPTER 3

THE TRI-PARTITE MODEL OF PERSONALITY

Internal versus external aspects of personality

McAdams (1992) critiques the FFM model on theoretical grounds. Although McAdams acknowledges the advancement and potential utility that the FFM taxonomy brings to the field of personality his main concern regarding the FFM is that, in the end, it is limited by its role as a general taxonomy. The main problems associated with viewing personality as 5 broad traits are thought by McAdams to be: the inability of a general framework to predict specific behavior, and the inability of the general framework in its present form to provide a compelling view of the "whole person." McAdams (1992), in concert with the requirements laid forth by McClelland (1951, 1981), contends that the FFM might be useful in describing the stylistic traits of an individual, but does little to shed light on an individual's values and schemas or his/her dynamic motives and needs.

Hogan (1991) argues that an individual's personality has two *very different* meanings. One meaning or perspective of an individual's personality can be thought of as that person's social reputation. However, Hogan (1991) then adds that "personality may also refer to the structures, dynamics, processes, and propensities inside a person that explain why he or she behaves in a characteristic way...thus personality refers to a person's social reputation *and* to his or her inner nature (p. 875)." Internal motivations are an important component of an individual's personality (Humphreys & Revelle, 1984; Kanfer & Heggestad, 1997). Olson (1965) and Organ (1988) both wrote of the constant tension between obligations to the collective and tendencies toward self-preservation. Although, the importance of self and other-centeredness has been well established, what

has not been determined to date is exactly how this construct is manifested, or related to an individual's personality.

One related theory provides that a separate construct termed "rugged individualism" (Hough et al. 1990) captures elements of an individual's centeredness. That is, based upon a nine-factor model, differences in the level of individualism are thought to be at the same level as the other eight broad factors. However, I argue that self and other-centeredness is such a basic and important aspect of an individual's personality that it manifests itself through *all* of the social contents defining an individual's personality. Two recent studies looking at the broad constructs neuroticism and conscientiousness point toward the fact that the facets of personality are imbedded with the internal nature of an individual's personality. Both used the escalation of commitment paradigm as a tool with which to separate the internal motives associated with self and other centeredness. Each will be addressed in turn.

Tripartite model of neuroticism. Neuroticism has a long-standing tradition as a critical component of an individual's personality within the FFM framework (Costa & McCrae, 1992). The extent to which an individual displays evidence of neuroticism, or demonstrates a lack of emotional stability has been a primary focus of clinical psychologists for nearly a century (Freud, 1938; Jung, 1933). Early personality theorists tied their definitions of neuroticism closely to definitions related to anxiety (Cattell, 1947; Norman, 1963; Tupes and Christal, 1961).

Recently, the definition of neuroticism used by organizational researchers has begun to include elements of depression (Costa & McCrae, 1985; John, 1989). However, Clinical scientists have long distinguished between two facets of neuroticism (depression

and anxiety) as being uniquely important (Clark & Watson, 1991; Kremen, 1996; Mendels, Weinstein & Cochrane, 1972; Stavrakaki & Vargo, 1986). Clark and Watson (1991) summarize the body of literature concerning neuroticism, depression and anxiety by asserting that they form a tripartite model of neuroticism whereby depression and anxiety have both shared and unique variance. The shared variance between anxiety and depression indicate general affective distress (neuroticism) but the unique variance forms a separate and important construct. The unique difference between the two is best exemplified by Beck's (1967; 1976) cognitive theory. Depressives are dominated by thoughts of loss and failure while anxious individuals are thought to be fearful and apprehensive.

Several authors have alluded to the fact that depression is a self-centered construct and that anxiousness is an other-centered (environment) construct (Clark & Arkowitz, 1975; Coyne, 1976a; 1976b; Ingraham & Wright, 1987; Joiner & Metalsky, 1995). Horney (1945) wrote of anxiety as an environmentally generated neurosis. That is, all toddlers and young children face a world that is threatening and dangerous. There is a general environmentally driven fear, or anxiousness, that all individuals must address as they go through the maturation process. Those individuals who are unable adjust to their environment as they mature develop environmentally driven anxiety. Tellegen (1985) clarifies the external nature of anxiety as a heightened level of negative affectivity centrally constructed around a fear factor. Depression, on the other hand, is related to a lack of positive affectivity.

Early clinical psychologists had a view that depression led to insular or internal focus among individuals. Ruesch (1962) wrote of the frustration in trying to

communicate with a depressed individual and mentioned that "to talk to a depressed person made little sense and to listen to a depressed individual made little more (p. 60)." Grinker (1964) mentioned that depressed individuals are non responsive to communication of others. Coyne (1976a) views depression as equated to a relatively closed system. Beck (1967) believes that depressed individuals are internally dogmatic to the point that existing feelings of personal deficiency, self-blame, and negative expectations dominate their cognitive processes.

Moon, Hollenbeck, Humphrey, and Maue (2001) demonstrated the differential impact of depression and anxiety within an organizational decision-making context: Escalation of commitment dilemmas. Escalation contexts are a situation wherein a large amount of time or money has been spent on a previously chosen course of action (Arkes & Blumer, 1985; Staw, 1976) but negative information has put the previous decision's success in peril. The tendency to escalate one's commitment when confronting the potential to admit failure is consistent with agency theory (Kirby and Davis, 1998) and is based upon self-preservation or saving face (Brockner, Rubin & Lang, 1981). Moon (2001) argued that the ability to admit personal failure in escalation dilemmas demonstrated the ability to "do the right thing" even at one's own personal expense. Moon et al found clear evidence that depressed individuals were able to extract themselves from these situations and de-escalate their commitment while anxious individuals tended to escalate their commitment. As a result, the broad factor neuroticism demonstrated no relationship with escalation of commitment.

Recently, organizational scientists have conceptualized neuroticism as low emotional stability (Barrick & Mount, 1991; Salgado, 1997). Basically, this entails

nothing more than reversing the polarity of the constructs. Viewing neuroticism in this manner would have the following patterns in the Moon et al study. First, self-centered emotional stability (which would be viewed as low levels of depression) would be associated with ignoring negative information and escalating commitment in the face of negative news. However, other-centered emotional stability (which would be viewed as low levels of anxiety) would be associated with the de-escalation of commitment.

Tripartite model of conscientiousness. Moon (2001) conducted a complementary study looking at facets associated with conscientiousness (duty and achievement striving) within the same decision dilemma. An argument about whether conscientiousness is based upon definitions pertaining to duty or achievement striving has been long-standing in the literature (Barrick & Mount, 1991; Digman & Inouye, 1986; Mount and Barrick, 1995). Barrick & Mount (1991) argued that conscientiousness contains both duty (dependability) and achievement striving. Although several authors have found that the broad trait of conscientiousness predicts organizational criteria as well, if not better than its narrow traits (Judge & Bono, 2001; Mount & Barrick, 1995) others have demonstrated the superior predictive ability of duty and achievement-striving (Ashton, 1998; Hough, 1992; Stewart, 1999).

Moon (2001) contended that the unique variance attributable to achievement striving was associated with being self-centered. Conversely, duty was presented to be a uniquely other-centered construct. Similar to the tripartite model of neuroticism, the facets associated with conscientiousness can be viewed as also forming a tripartite relationship having both shared (general conscientiousness) variance at the content level and unique variance (duty and achievement striving) at the facet level. Once again, Moon

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used the escalation of commitment dilemma as a venue through which to demonstrate the unique difference between achievement striving and duty.

The extent to which the escalation of commitment is congruent with agency theory (Kirby & Davis, 1998) and an individual's attempt to save face would lead one to predict that if achievement striving is a self centered construct then individuals high in achievement striving would exhibit the decision bias. On the other hand, the ability to accept personal failure with the potential benefit of saving the organization's resources would seem to be congruent with individuals who are concerned about others. Within an escalation of commitment context achievement striving was associated with the escalation of commitment while duty was associated with the de-escalation of commitment.

Therefore, the findings between the two studies (Moon, 2001; Moon et al. 2001) were consistent. Two facets that were associated with being self-centered (low depression and achievement striving) were found to be associated with the escalation of commitment to a losing course of action. Two facets that were associated with being other-centered (low anxiety and duty) were found to be associated with the de-escalation of commitment to losing courses of action. In both studies the broad traits associated with the FFM demonstrated no relationship with this common organizational decision error.

Tripartite model of personality. The consistent nature of the relationship between proposed self and other-centered facets of neuroticism and conscientiousness within a FFM framework led Moon (2001) to suggest that self and other-centeredness might exist across all five of the broad traits. That is, each of the broad traits comprising the five factor model of personality was embedded with both a self and other-centered facet. This

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would create a ten-factor model consisting of 5 pairs of related but measurably distinct constructs.

In sum, across two studies self and other-centered aspects of both conscientiousness and neuroticism were related to an individual's decision making. Across the FFM systematic relationships were supported in line with a tripartite conceptualization of personality. I now address the extent to which personality conceptualized along the tripartite dimensions might provide superior predictive power of individual organizational citizenship behaviors. That is, in addition to preliminary model support, and relationships with individual decision-making, I now explore the utility of conceptualizing personality along tripartite facets when attempting to predict individual behaviors.

<u>Organizational citizenship behaviors</u>

<u>Theory behind organizational citizenship behaviors.</u> The importance of getting individuals to act in the interest of the organization for which they work has long been established in the organizational sciences. Barnard (1938) asserted that the chief function of an executive was to get the workers to behave in a cooperative manner. This was to be accomplished by providing a system of communication, securing essential efforts and defining a singular purpose. Katz and Kahn (1978) viewed the extent to which individuals acted in a benevolent, proactive manner as critical to the survival of any organization. That is, Katz and Kahn argued for individual actions beyond what was specifically prescribed in the job.

Bateman and Organ (1983) coined the phrase organizational citizenship behaviors (OCBs) to represent the other-centered actions of individuals within organizations.

Explicitly, Organ (1988: 4) describes OCBs as "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization."

An important aspect of the definition of OCBs provided by Organ is that the behavior is *not formally recognized* by the reward structure. That is, Organ's initial definition of a true OCB is that of an act which is beneficial to the organization but unrewarded. There is an assumption that conceptualizing OCBs along the definition of Organ implies a certain level of "privacy" such that the deed is done for altruistic reasons.

One difficulty in conceptualizing OCBs strictly in this manner is that several researchers note that citizenship behaviors are often conducted in public regardless of motive, and thus, enhance the impression of the individual who engages in that action (Eastman, 1994). That is, although individuals might engage in OCBs without the intention of being rewarded, they often are. Van Dyne, Graham and Dienesch (1994) provided support for a generalized public participation construct related to OCBs in addition to loyalty and obedience. They reconceptualize what was initially thought of as a more private and altruistic action to that of civic (taken from political philosophy) obedience and participation that could be undertaken for either altruistic or self-interested reasons.

Dimensions of Organizational Citizenship behaviors. Bolino (1999) expounds upon the inherent difficulty separating self versus other-centered motives behind organizational citizenship behaviors. He differentiates between behaviors that are internally motivated towards being a good soldier or externally focused on being a good actor. For example, suppose a supervisor happens to walk past the office of a subordinate

working late into the evening without pay. This would be seen as a positive work event and would reflect positively on that employee's performance appraisal. The employee could have been working late for one of two reasons. Perhaps the individual was concerned with a departmental deadline, or altruistically covering for an employee that was ill (good soldier). However, the individual might have rather been vying for a promotion, or putting in extra work in order to distinguish himself/herself from other members of the department (good actor).

Jones and Pittman (1982) outline several tactics individuals might use as impression-management strategies – that on the surface – seem very similar to citizenship behaviors. Impression management (Rosenfeld, Giacalone, & Riordan, 1995) refers to the process by which individuals attempt to influence the image that others may have of them in a positive way. Wayne and Green (1993) establish the fact that impression management is highly ($r = .49$) correlated with citizenship behaviors. However, Schnake (1991) observes that there are inherent difficulties trying to properly code actions that are taken to manage impressions versus those that are more altruistic in nature. This difficulty exists when positive actions are taken within the public purview.

Smith, Organ, and Near (1983) interviewed front line supervisors at several firms to illicit employee behaviors that were valued but not necessarily rewarded in any tangible fashion. Based upon their responses a factor analysis was conducted which produced two general OCBs: altruism and generalized compliance. Altruism comprised of direct specific help. Generalized compliance captured more conscientious driven behavior such as attendance, time management and observing the rules. Organ (1988) expanded the contents of OCBs to five distinct dimensions: altruism, civic virtue,

conscientiousness (exhibited behaviors rather than the personality trait), courtesy and sportsmanship. Podsakoff, Mackenzie, Moorman & Fetter (1990) supported this five-factor model of citizenship via factor analysis.

Recently, Van Dyne, Graham & Dienesch (1994) reconceptualized OCBs along the lines of civic citizenship behaviors. They build upon the work of Graham (1991) who proposed three distinct types of civic behaviors: obedience, loyalty and participation. Although Graham defined these behaviors to depict individual orientations toward their government, Van Dyne, Graham and Dienesch applied them towards organizations.

"Organizational obedience reflects acceptance of the necessity and desirability of rational rules and regulations governing organizational structure, job descriptions, and personnel policies. Obedience can be demonstrated by respect for rules and instructions, punctuality in attendance and task completion, and stewardship of organizational resources. Organizational loyalty is identification with and allegiance to an organization's leaders and the organization as a whole, transcending the parochial interests of individuals, work groups, and departments. Representative behaviors include defending the organization against threats, contributing to its good reputation, and cooperating with others to serve the interests of the whole. Organizational participation is interest in organizational affairs guided by ideal standards of virtue, validated by an individual's keeping informed, and expressed through full and responsible involvement in organizational governance (p. 767)."

Currently, there are two distinctly different conceptualizations of OCBs. The private nature of OCBs as defined initially by Organ (1988) can be contrasted with the public nature of OCBs as defined by Graham (1991) and applied by Van Dyne, Graham and Dienesch (1994). Public citizenship can be conducted with altruistic motives but may also be conducted with the intention to manage impressions. Private citizenship is more in line with the initial conceptualization of citizenship of Organ (1988) wherein the act does not receive public reward or recognition and because of this it is difficult to argue that an individual would engage in a private OCB with self-interested motives.

Smith, Organ and Near (1983) found two general forms of OCBs (altruism and compliance) based on direct questions asked of actual supervisors. These two forms fit nicely into conceptualizations of OCBs as public or private acts. Altruism can be viewed as **public citizenship** behaviors. These can be conducted with purely altruistic intentions, but because of the public nature might also be confounded with impression management. Compliance can be viewed as **private citizenship** type behaviors encompassing private adherence and promotion of company values and regulations that go relatively unnoticed. These two categories are not thought to be mutually exclusive but differ along the dimension on which the behavior is conducted within the purview of the public.

The difficulty in distinguishing between public and private citizenship behaviors extends to the way in which OCB research has been carried out. OCB literature has focused on public observations rather than on private acts. This is due to the fact that, most OCB research has been conducted via survey-based perceptions rather than actual behaviors (Allen & Rush, 1998; Farh, Earley & Lin, 1997; Kidwell, Mossholder & Bennett, 1997; Konovsky & Organ, 1996; Konovsky & Pugh, 1994; Moorman, 1993;

Niehoff & Moorman, 1993; Neuman & Kickul, 1998; Organ & Konovsky, 1989; Smith, Organ & Near, 1983; Van Dyne & Ang, 1998; Van Dyne, Graham & Dienesch, 1994). This leads to an emphasis on observable public citizenship behaviors rather than unrewarded private citizenship behaviors envisioned by Katz and Kahn (1978) and Bateman and Organ (1983). Assuming that OCBs can be conceptualized as either private or public acts of citizenship, I now turn to predictions of how and when individuals will engage in these behaviors.

Citizenship behaviors: cognition versus affect. Recently, Moorman (1993) theorized that when trying to predict whether individuals will engage in citizenship behaviors cognitive based predictors would be superior to affective based predictors. The importance of cognitive based predictors is in concert with the requirements provided by Barnard (1938) that the single most critical role of a leader is to compel individuals to cooperate. Cooperation is defined along unselfish acts with the benefit of the organization in mind. Citizenship through direction has been explored as a consequence of leader fairness (Farh, Podsakoff & Organ, 1990), leader charisma (Deluga, 1995a), leader-member exchange (Hui, Law, and Chen, 1999) and leader-member trust (Deluga, 1994; 1995b).

Another powerful cognitive predictor of citizenship is the extent to which the structure of the organization facilitates an environment of citizenship (Katz & Kahn, 1978). For example, Organ and Konovsky (1989) found a relationship between pay and job cognitions and altruistic and compliance behaviors. Pay cognitions included items such as: "Compared to all individuals who work for this organization, how good is your pay?" and "How good is your pay compared to other people who have the same amount

of education as you?" Job cognitions included items such as "Compared to all individuals who work for this organization, how good is your job?" and "How good is your job compared to other people who have the same amount of education as you?" Here, a large number of researchers have demonstrated a link between the citizenship of individual members of an organization and their perceptions of how justly they have been treated (Aquino, 1995; Bies, Martin, & Brockner, 1993; Farh, Earley & Lin, 1997; Folger, 1993; Greenberg, 1993; Moorman, Niehoff & Organ, 1993; Niehoff & Moorman, 1993; Robinson & Wolfe Morrison, 1995; Tansky, 1993).

Moorman (1991) argued that the fairness to citizenship link should be the most robust relationship in OCB research. This is due to the discretionary nature of the criterion of interest. Organ (1988) asserted that individuals might feel that they control their level of citizenship to a greater extent than they do other job behaviors. Therefore, based upon equitable exchange (Konovsky & Pugh, 1994) individuals might find it easier to withhold citizenship behaviors if they feel that they have been treated unfairly.

Affective predictors of OCBs have received scant attention thus far among organizational researchers. Although the positive relationship between justice and OCBs has been consistent, the relationship between individual differences and OCBs has been discouraging (Organ, 1994; Organ & Ryan, 1995). The link between disposition and citizenship is based on similar theory as that of cognition and citizenship. Each predicts that job satisfaction serves as a mediating influence on resulting OCBs. The theory that individual differences in disposition might predict differences in citizenship draws from the body of literature that has established individual differences in general satisfaction

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(Arvey, Bouchard, Segal & Abraham, 1989; Staw, Bell, & Clausen, 1986; Staw & Ross, 1985).

Citizenship behaviors: personality. Staw, Bell and Clausen (1986) conducted a longitudinal study and found robust differences between individuals in the level of satisfaction they felt toward their employment. These differences in level of satisfaction were robust over time and situation. Therefore, in addition to cognitive determinants of organizational citizenship behavior, dispositional differences have also been thought of as a potential predictor of OCBs. Building upon the work of Krebs (1970), Smith, Organ and Near (1983) predicted that extraversion would demonstrate a positive relationship and that neuroticism would demonstrate a negative relationship with OCBs. Smith, Organ and Near justified these hypotheses by asserting that extraverts are more sensitive to their environment and more sensitive to social stimuli, while neurotics were more preoccupied with their own anxieties. They found no relationship between extraversion and OCBs and found an indirect relationship between neuroticism and OCBs (mediated by its negative relationship with job satisfaction) among employees of two large Midwestern banks (they used their own 16 item scale to measure OCBs.

Barrick, Mount and Strauss (1992) tested the degree to which conscientiousness, extraversion and agreeableness related to OCBs using sales representative in a large manufacturing organization. They found no relationship between agreeableness and extraversion with OCBs and a positive relationship between conscientiousness and OCBs (Barrick, Mount and Strauss used an abbreviated version of the Smith, Organ and Near (1983) scale and the PCI personality scale).

Neuman and Kickul (1998) tested the extent to which conscientiousness, agreeableness, and extraversion related to OCBs within a large wholesale/retail jewelry organization with stores located in the northeast. Conscientiousness and agreeableness again demonstrated relationships with OCBs based on ratings by supervisors. Again, extraversion did not demonstrate any relationship with OCBs (Neuman and Kickul used the NEO-PIR and the 5-factor OCB scale developed by Podsakoff et al. (1990).

In sum, affective based relationships between personality and OCBs have been tested in several recent studies but the results have been far from noteworthy. In the Smith, Organ and Near study the average correlation between neuroticism and OCBs was -.16, and the average correlation between extraversion and OCGs was -.06. In the Barrick et al study (1992) the correlations between the personality variables and OCBs were: conscientiousness (.21), extraversion (.03) and agreeableness (.03). Finally, in the Neuman and Kickul study (1998) the average correlations between the personality variables and OCBs were: agreeableness (.26), conscientiousness (.32), extraversion (-.11).

Organ and Ryan (1995) conducted a meta-analysis of antecedents of OCBs. Of the two personality variables included in the meta-analysis conscientiousness was the most robust predictor (M_p = .23, 95% confidence interval .15 to .30), with agreeableness barely excluding zero based upon a 95% confidence interval (M_p = .11, 95% confidence interval .03 to .19). Both neuroticism and extraversion have failed to demonstrate significant relationships with OCBs and were not tested in the meta-analysis. Prior to the meta-analysis Organ (1994) conducted a review of the literature relating personality to OCBs with a generally negative outlook. Organ stated "first, the most disappointing

findings come from studies that take their personality measures unaltered from the Big Five or other factorially-derived frameworks. We can see now why this is not necessarily the most promising strategy (p. 474)." As a suggestion Organ notes, "results indicate that the best predictor of OCB is not a factorially pure dimension of the Big Five, but a constellation or profile of personality facets drawn from different factors of the Big Five (p. 465)."

Integrating the initial discussion of the importance of self and other-centeredness within the organizational sciences, the historic development of personality as a predictor of organizational criteria, the trait-bandwidth debate in the personality literature, and the struggles with predicting OCBs through broad traits of personality leads to the proposal that the tripartite model of personality might be a superior predictor of OCBs to the extent that self and other-centeredness impacts the degree to which an individual would engage in helping or citizenship behaviors.

Conceptualizing personality as a tripartite model heeds the advice of three researchers whom have independently called for looking at personality across the facets and constructing composite constructs to improve predictive ability: developers of the most widely used FFM personality scale (Costa & McCrae, 1992) authors of the most recent meta-analysis of the FFM (Hurtz & Donovan, 2000), and a theorist of an organizational criterion (OCBs) with a high level of individual discretion and proposed positive impact on organizational performance (Organ, 1994). *An overall proposition of this manuscript is that the tri-partite facets associated with self and other-centeredness will be superior predictors of OCBs than their broad traits (conscientiousness, extraversion, neuroticism, agreeableness).*

In addition to the potential that tripartite facets might be superior predictors of OCBs in general. The degree to which the OCB is public or private in nature might also impact the relationship with personality variables. Organ (1994) theorized that the dispositional differences related to personality might be an important predictor of OCBs based upon the fact that these behaviors occur in "weak situations (Mischel, 1977)." That is, critics of the impact of personality in organizations (Davis-Blake & Pfeffer, 1989; Mischel, 1977) have often based their critique on the fact that organizations often provide little latitude for individual actions. However, because OCBs are by definition discretionary, individual differences should be allowed to freely impact behaviors.

Perhaps the most relevant difference between a public and a private OCB is in the degree to which individual volition is involved. On the one hand, the socially desirable nature of OCBs might propel individuals to engage in public helping behaviors regardless of disposition. Therefore, one would expect that other-centered individuals might engage in public help because it is in their nature to do so, however, more self-interested individuals might also engage in the very same behaviors based on impression management tactics. Private OCBs would provide the highest level of individual discretion, or be among the "weakest situations" (Mischel, 1977). Therefore, one would expect that the impact of self and other-centeredness would reach its full potential as other-centered individuals would engage in these behaviors but self-centered individuals might actually shun private OCBs.

Tripartite facets will interact with type of OCB such that individuals high in self-centered facets will engage in significantly less private OCBs than public OCBs, while

individuals high in other-centered facets will engage in significantly more private OCBs than public OCBs

The next section will detail the specific hypotheses concerning the tripartite facets and how they relate to both public and private citizenship behaviors.

<u>Tripartite facets and organizational citizenship behaviors</u>

<u>Neuroticism, depression and anxiety</u>. Costa & McCrae (1992) define the broad trait neuroticism as "the general tendency to experience negative affects such as fear, sadness, embarrassment, anger, guilt, and disgust...however N includes more than susceptibility to psychological distress. Perhaps because disruptive emotions interfere with adaptation, men and women high in N are also prone to have irrational ideas, to be less able to control their impulses, and to cope more poorly than others with stress (p. 14)."

Anxiety and depression are the two facets thought to represent the self and other dimensions of general neuroticism (see previous discussion of the Moon, Humphrey, Hollenbeck & Maue, 2001 study for additional review of these two constructs). Anxious individuals are "apprehensive, fearful, prone to worry, nervous, tense, and jittery (p. 16)." Those who score low on this domain are thought to be calm and relaxed. A substantial body of research has looked at anxiety as a lack of emotional adjustment between an individual and his/her environment. Anxious individuals tend to be publicly self-conscious (Beck & Clark, 1988) or overly conscious of their surroundings to the point of hypervigilance (Eysenck, 1992). Hypervigilence refers to the extent that anxious individuals tend to broadly scan their environment for any potential dangers and might actually ignore neutral or non-threatening information. In terms of OCBs one would

expect that social concern would pervade those individuals who are anxious. Therefore, heightened environmental scanning (Eysenck, 1992) would lead anxious individuals to act in a socially desirable manner. In organizations this might lead anxious individuals to address any perceived need of others, even at the expense of themselves or their own productivity.

H1a: An individual's level of anxiety will be positively related to OCBs.

One aspect of anxiety might impact the type of OCB that is most attractive to engage in. Norton, Cox, Hewitt and McLeod (1997) demonstrated factor differences between social anxiety and depression or neuroticism (as measured by the NEO) among university students. They differentiated between social fears and what they refer to as generalized social anxiety. Clark and Arkowitz (1975) and Ingraham and Wright (1987) view anxiety as producing a type of social aversion to conflict or uncomfortable situations

Beck and Emery (1985) view anxiety as a maladaptive schema wherein perceived sense of physical or psychological threat and vulnerability predominate the thought processes. This makes the anxious individual tentative, and overly fearful (Beck & Clark, 1988). Therefore, anxious individuals might be more prone to engage in private OCBs than expose themselves to interactions with others when engaging in public OCBs (see figure 2 for a depiction of the proposed interaction).

H1b: An individual's level of anxiety will interact with type of OCBs such that individuals high in anxiety will engage in significantly more private OCBs than public OCBs.

Figure 2. Proposed interaction between Anxiety and type of OCB.
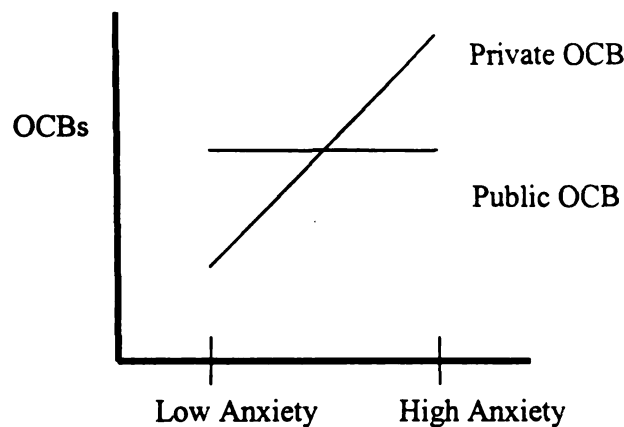
Watson, Clark and Carey (1988) define the difference between anxiety and depression along the lines of differences in affect. Both anxiety and depression were related to negative affectivity, but only depression was consistently negatively related to a lack of positive affect. Costa and McCrae (1992) define depressed individuals as those who "are prone to feelings of guilt, sadness, hopelessness, and loneliness. They are easily discouraged and often dejected (p. 16)." Abramson and Sackeim (1977) note that depressed individuals tend to blame themselves more during negative events. Coyne (1976a, 1976b) developed an interpersonal model of depression wherein depressed individuals exhibit dysfunctional self-centered tendencies in the type and amount of personal feedback they seek. This relationship was borne out in an empirical study by Joiner & Metalsky (1995) wherein depressed college roommates engaged in more negative feedback and reassurance seeking. This self-centered need for assurance was found to be a destructive element of the roommate's relationship.

Depression might have a different pattern of relationships with organizational citizenship behaviors than anxiety. Also, as implied by the interaction model, the type of

citizenship behavior will be important based on the self-centered nature of depression. The feedback seeking nature of depressed individuals might lead them to engage in public OCBs while the hopelessness, feeling of inferiority, lack of positive affect, and self-centered aspect of depression might lead to less attention to private OCBs.

H2a: An individual's level of depression will be negatively related to OCBs.

H2b: An individual's level of depression will interact with type of OCBs such that they will engage in significantly fewer private OCBs in relation to public OCBs.

Figure 3. Proposed interaction between Depression and type of OCB.
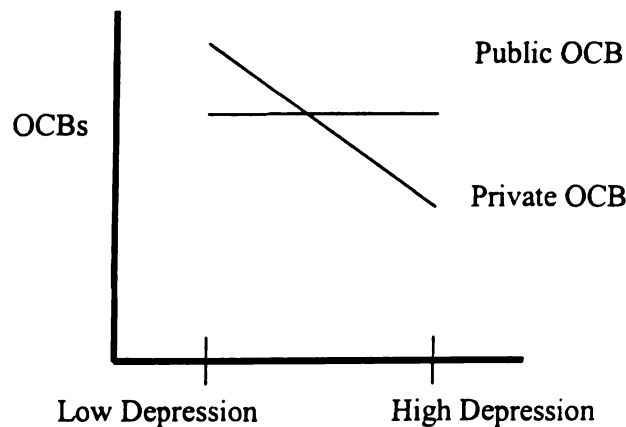
Viewing the hypotheses related to the tripartite facets of neuroticism leads to the comparative assertion that the generally positive relationship between anxiety and the interactive effects of depression and organizational citizenship behaviors would suppress the relationship between the general trait anxiety and OCBs such that:

H3: Neuroticism will be unrelated to OCBs.

Extraversion, excitement seeking and warmth. Costa and McCrae (1992) view extraverts as "sociable but sociability is only one of the traits that comprise the domain of

extraversion (warmth, gregariousness, assertiveness, activity, excitement seeking, positive emotions). In addition to liking people and preferring large groups and gatherings, extraverts are also assertive, active, and talkative. They like excitement and stimulation and tend to be cheerful in disposition. They are upbeat, energetic, and optimistic. Salespeople represent the prototypic extraverts in our culture (p. 15)."

Barrick and Mount (1991) found support for the fact that extraversion was a valid predictor for two occupations: management and sales. The reasons they gave for the relationship were the gregarious, talkative and sociable aspects of extraversion. However, Vinchur, Schippmann, Switzer, & Roth (1998) conducted a meta-analysis of predictors of job performance among salespersons and found potency (Hough et al., 1990) as a superior predictor of performance. Potency (surgency) is defined along the lines of assertiveness and intensity of interpersonal interactions.

Hogan (1993) argues that extraversion consists of two distinct facets including a sociability and a surgency component. Sociability encompasses the gregariousness (Digman & Takemoto-chock; 1981) warmth (Costa & McCrae, 1985; Krug & Johns, 1986) and talkative (Norman, 1963) aspects of an individual's personality. Surgency encompasses the energetic (Howarth, 1976), dominance (Lei & Skinner, 1982), and high standards of leadership (Hogan, 1993) aspects of an individual's personality. Interestingly, a review of classic and contemporary personality research reveals that extraversion normally contains these two dimensions. Saucier and Ostendorf (1999) note extraversion can be thought of as a composite of sociability and assertiveness...but some (e.g., Costa & McCrae, 1992) see sociability as most central, whereas others (e.g. Goldberg, 1993; Peabody, 1987) see assertiveness as most central.

There are many reasons to suspect that a sociability interpretation of extraversion would lead to positive relationships with OCBs. Warm individuals are those who place an emphasis on interpersonal intimacy, and who are generally warm and affectionate (Costa & McCrae, 1992). Gregarious individuals are those who truly prefer and enjoy the company of others (Costa & McCrae, 1992). In fact, one could actually conclude that the concern for relationships and intimacy embedded within the warmth construct might preclude one from taking an aggressive stance during competitive situations. The sociability (Hogan, 1993) aspect of these facets would lead one to make the assertion that sociable individuals would be more inclined to engage in OCBs. Further, the warmth and gregarious nature of sociable individuals would interact with type of OCB (see previous interactions for anxiety and duty for depiction of the relationship).

H4a: An individual's level of sociability will be positively related to OCBs.

H4b: An individual's level of sociability will interact with type of OCBs such that individuals high in sociability will engage in significantly more private OCBs than public OCBs.

Stewart (1996) provides an interesting example of the unique aspects of sociability and surgency within a sales organization. Stewart (1996) noted that Barrick, Mount, and Strauss (1993) did not find a relationship between extraversion and sales in a field study and proposed that future studies should search for some moderating relationships. In the Stewart (1996) study, he surprisingly found that reward structure moderated the relationship such that under conditions of high public reward extraversion demonstrated a significant relationship with performance. However, under no reward conditions extraversion did not relate significantly to performance. These findings are

perfectly consistent with those of Vinchur et al. (1998) who promote the importance of potency as essential to sales performance.

Therefore, what Stewart (1996) is implicitly arguing is that a self-centered aspect of extraversion (the seeking of external rewards) drives the extraversion – sales performance link. Vinchur et al. (1998) interpret surgency as a facet related to interpersonal dominance, while Costa and McCrae (1992) view excitement-seekers as those who would crave excitement and stimulation.

This self versus other-centered distinction is consistent with clinical studies concerning extraversion based upon cortical activity (Eysenck, 1967; Eysenck, 1973; Gray, 1970; Gray, 1973). Here, clinical researchers differentiate extraverts from introverts based upon levels of cortical activity. Extroverts have been demonstrated to have a lower baseline cortical rate therefore; they are able to handle more external stimulation. Introverts have a higher baseline rate and can become over stimulated more easily. What the cortical school of extraversion contends is that the self-centered need for excitement drives the behavior of extraverts.

In general, extraverts conceptualized along the dimension of surgency are by nature self-centered. They are often thought of as dominant leaders (Lei & Skinner, 1982; Hogan, 1993). This aspect of extraversion might not only lead to less OCBs but the dominance and leadership qualities associated with this trait might be associated with garnering OCBs from others (see previous figures related to depression and achievement striving for an example of the predicted interaction).

H5a: An individual's level of surgency will be negatively related to OCBs.

H5b: An individual's level of surgency will interact with type of OCB such that they will engage in significantly fewer private OCBs in relation to public OCBs.

Viewing the hypotheses relating to the tripartite facets of extraversion leads to the comparative assertion that the generally positive relationship between sociability and the interactive relationship between surgency and organizational citizenship behaviors would lead to the facets predicting more variance in OCBs than the broad trait extraversion.

H6: An individual's level of extraversion will be unrelated to OCBs.

Agreeableness, straightforwardness and altruism. Costa and McCrae (1992) describe agreeableness as primarily an interpersonal dimension. "The agreeable person is fundamentally altruistic. He or she is sympathetic to others and eager to help them, and believes that others will be equally helpful in return (p. 15)." Tupes and Christal (1961) view agreeable individuals as kindly and good-natured. Norman (1963) views agreeable individuals as gentle and cooperative.

Of the six facets associated with agreeableness (trust, straightforwardness, altruism, compliance, modest, and tender-mindedness) altruism is clearly the facet that is most closely tied to an other-centered orientation. In fact, several authors who study organizational citizenship behaviors (Organ & Konovsky, 1989; Organ & Ryan, 1995; Smith, Organ, & Near, 1983; Van Dyne, Graham & Dienesch, 1994) use altruism as a synonym for citizenship behaviors. Costa and McCrae (1992) define altruistic individuals as those who "have an active concern for others' welfare as shown in generosity, consideration of others, and a willingness to assist others in need of help." The active concern for others might be a critical dimension in propelling highly altruistic individuals

to engage private OCBs (see figures relating the other-centered facets for an example of the proposed interaction).

H7a: An individual's level of altruism will be positively related to OCBs.

H7b: An individual's level of altruism will interact with type of OCBs such that individuals high in altruism will engage in significantly more private OCBs than public OCBs.

The broad trait agreeableness, when viewed alongside the other broad factors, is the construct most concerned with interpersonal relationships (Graziano, Jensen-Campbell and Hair; 1996). Hogan (1983) views the utility of agreeableness as enabling humans to overcome the inevitable frustrations associated with communal living. Therefore, at first blush there does not appear to be promise of a self-centered aspect to agreeableness.

Krug & Johns (1986) conducted a second-order factor analysis of the 16 PF (Cattell, 1947) and came up with a slightly different definition of agreeableness. They found validity for a factor that was defined along the lines of low levels of sensitivity or warmth and dominance. This definition is close to that of straitforwardness (Costa & McCrae, 1992). High scorers on this dimension are thought to be frank, sincere, and honest. Strait-forward individuals refuse to manipulate others through flattery, craftiness, or deception. Admittedly, there has been a distinct lack of research on both agreeableness and its facets (Graziano, Jensen-Campbell & Hair, 1996). However, to the degree that a strait-forward individual is concerned with others understanding his/her stand on issues could be viewed as a self-centered aspect of agreeableness. Both altruism and straitforwardness seek and value a socially friendly environment. Perhaps the difference

is that altruistic individuals value agreeable situations based on others wants and needs while strait-forward individuals value agreeable situations wherein their personal views are known and craftiness is absent. There is no clear theory as to how straightforwardness would relate with OCBs. Perhaps, straightforwardness would be related to more extreme levels of OCBs. That is, straightforward individuals might be more sensitive to equity issues and more consistently adjust their behaviors accordingly. Therefore, we do not expect an overall main effect, or interactive effect, with straightforwardness.

Viewing the hypotheses relating to altruism and the lack of proposed relationships with straightforwardness leads to the comparative assertion that the generally positive relationship between altruism and OCBs might be somewhat muted by the non-significant relationship between straightforwardness and organizational citizenship behaviors.

H8: Agreeableness will be positively related to OCBs.

Conscientiousness, achievement striving and duty. Costa and McCrae (1992) define conscientiousness as describing individuals, who are,

> "purposeful, strong-willed, and determined...on the positive side, high C
> is associated with academic and occupational achievement; on the
> negative side, it may lead to annoying fastidiousness, compulsive
> neatness, or workaholic behavior. Conscientiousness is an aspect of what
> was once called *character;* high C scorers are scrupulous, punctual, and
> reliable (p. 16)."

Conscientiousness has received the most attention among organizational researchers over the past decade (Mount & Barrick, 1998). This is attributable in large part to the ability of this broad construct to predict a wide range of organizational criteria. However, Barrick and Mount (1991) and Mount and Barrick (1995) note that there has been a long-standing disagreement in the literature about what exactly constitutes

conscientiousness. Some researchers have focused on the achievement striving aspect of conscientiousness (Digman & Takemoto-Chock, 1981) while others have viewed it more along the lines of duty and dependability (Norman, 1963; Ashton, 1998).

Several authors have argued that indeed these two facets are, and should be measured as separate constructs (Jackson, Ashton & Tomes, 1996; Jackson, Paunonen, Fraboni & Goffin, 1996). Mount and Barrick (1995) assert that the broad construct conscientiousness includes both of these facets. Within the tri-partite model indeed achievement striving and duty create a broad trait but their unique variance would be associated with self and other-centeredness (see previous discussion of the Moon 2001 study for additional review of these two constructs).

Ashton (1998) found that lack of duty was a superior predictor of delinquent organizational behaviors than the broad trait of conscientiousness. That is, individuals high in duty engaged in significantly less destructive behaviors. The broad trait of conscientiousness was a weaker predictor. Moon (in press) demonstrated that dutiful individuals were more likely to abandon losing projects even though quitting projects that weren't finished would reflect badly on them (Staw & Ross, 1980), but benefit the organization. Hough (1992) demonstrated that duty was an important predictor of performance among health care workers where concern for others was important. This would lead to the hypotheses that:

H9a: An individual's level of duty will be positively related to OCBs.

Duty might be especially important when addressing the extent to which an individual might engage in private OCBs. Hough (1992) found that duty (dependability) was important to the job proficiency of health care workers ($r = .18$) where adherence to

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rules and regulations is a central component to the job. Also, Ashton (1998) found that the narrow trait of duty (responsibility) was negatively related to eight of eight forms of workplace delinquency. Therefore high levels of duty might predict the sort of individual who would engage in private OCBs.

H9b: An individual's level of duty will interact with type of OCBs such that individuals high in duty will engage in significantly more private OCBs than public OCBs.

Figure 4. Proposed interaction between duty and type of OCB
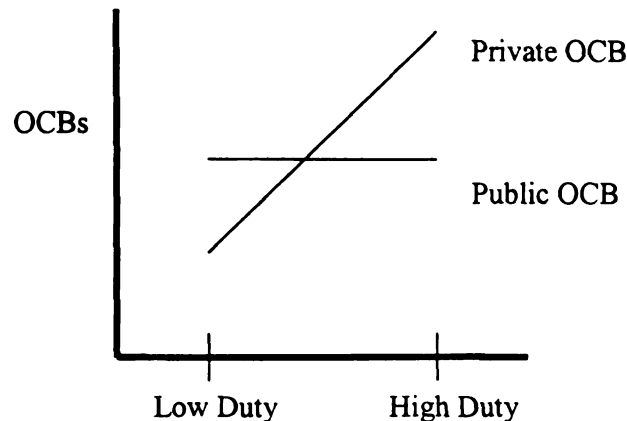
There is a long history of research suggesting that achievement striving is related to performance only in "achievement" situations (McClelland, Atkinson, Clark, & Lowell, 1953). Achievement situations require that some level of personal accomplishment is discernable. In fact, McClelland et al found that in low achievement situations achievement striving was actually negatively related to performance. Therefore, there are two aspects of achievement striving that would lead one to question the extent to which individuals high in this trait would engage in OCBs. Achievement striving is a self-centered construct (Moon, in press), and achievement striving has been

demonstrated to be negatively related to performance in conditions where individuals

view it as "low achievement" (McClelland, Atkinson, Clark & Lowell, 1953).

H10a: An individual's level of achievement striving will be negatively related to OCBs.

H10b: An individual's level of achievement striving will interact with type of OCB such that they will engage in significantly fewer private OCBs in relation to public OCBs.

Figure 5. Proposed interaction between achievement striving and type of OCB.

Low Achievement striving   High Achievement striving
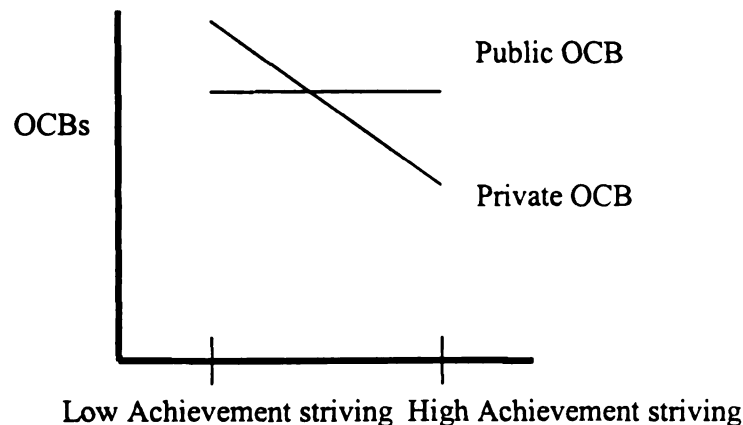
Viewing the hypotheses relating to the tripartite facets of conscientiousness leads

to the comparative assertion that the generally positive relationship between duty and the

generally negative relationship between achievement striving and organizational

citizenship behaviors would suppress the relationship between the broad trait

conscientiousness and OCBs such that:

H11: Conscientiousness will be unrelated to OCBs.

A concern with the hypotheses pertaining to conscientiousness is that the final

hypothesis asserts no relationship between conscientiousness and OCBs when in fact a

string of recent research has demonstrated a positive relationship between conscientiousness and OCBs (Barrick, Mount & Strauss, 1992; Neuman & Kickul, 1998; Organ & Ryan, 1995). The rational behind the proposed lack of relationship between conscientiousness and OCBs in this study is based upon the inclusion of private OCBs which may have not been measured in previous studies. For example, Barrik, Mount and Strauss conducted their study using sales representatives in a large manufacturing firm. Neuman and Kickul (1998) used employees of a large wholesale/retail jewelry organization. Perhaps in these service/sales contexts, OCBs are more actually a *requirement* of successful completion of tasks as opposed to *discretionary* behaviors envisioned by Organ (1988). In this study I balance (on equal footing) those OCBs that can be noticed and rewarded (public) with those that are done more discretely (private).

Personality and OCBs: Team based behaviors

Looking at an individual's behavior within a team context can be viewed as a microcosm of the duality that exists between the constant tension to act in a self or other interested manner between an individual and his/her surrounding environment (Meade, 1937). However, there are differences between a broad perspective of competitive and cooperative behaviors and that found in small groups or teams. Olson (1965) argues that individuals will almost always act in their own self-interest when evaluating their behaviors versus that of a society, thus distinguishing the need for government and public goods. Olson notes that an individual's choice between self and other-centered behaviors becomes more complicated when operating within a small group, "If there is some quantity of a collective good that can be obtained at a cost sufficiently low in relation to its benefit that some one person in the relevant group would gain from providing that

good all by himself, then there is some presumption that the collective good will be provided (p. 22)." Translated, what Olson contends is that when an individual is in a group setting he/she is better able to internalize group success with his or her own success, therefore, rational calculations between individual and group goals become muddled.

Hackman (1991) outlines various mechanisms at the disposal of groups to engender cooperative behaviors among its members. Ambient stimuli are those that pervade the group and/or its environment, and group members are normally exposed to them as a regular part of their life in the group. Discretionary stimuli are actions taken by the group that are transmitted or made available to individuals differentially and selectively at the discretion of the other members. Similarly, Olson (1965) adds that it is only via the small group that any actions can be taken to coerce cooperative behaviors among its members. Therefore, the hypotheses will be based upon individual level behaviors within a team environment.

CHAPTER 4

METHOD

Setting and participants

The hypotheses generated based on the tripartite facets will be assessed in a laboratory setting. This choice was made based on two factors. First, the choice of a laboratory experiment is almost a necessity based on the fact that one of the criteria of interest – private OCBs – is almost impossible to measure in a field setting. Also, the laboratory context allows one to directly measure OCBs and not rely solely on self or supervisory ratings, which has been the standard practice in this area of research.

Second, the theory underlying the hypotheses does not imply boundary conditions that preclude conducting the study in the lab. That is, there is nothing in the theory that implies that it would not hold in a laboratory context. To test the hypotheses, all that is required is teams of three or more members in a team-based task with opportunities for individuals to engage in either private or public acts of citizenship. Therefore, the setting will be a computer simulation and the participants will be undergraduate students at a large Mid-western university.

Participation in the experiment was strictly voluntary. Permission to engage in the experiment was subjected to and received approval of the UCHRIS human subject review board (see appendix B a sample of the voluntary consent form and the UCHRIS approval application).

Overall design of the study

Power analysis. It is important to conduct a power analysis to determine the minimum appropriate number of participants required to be confident of the probability

of rejecting the null hypothesis when it is false. This controls for the potential of committing a Type II error. Three parameters determine the power of any study: (1) the sample size, (2) the level of statistical significance, (3) the size of the effect.

Inherent in any power analysis is a level of discretion given to the researcher. In this study I chose the power to be .80 (which is the conventional level). Although there are reasons that larger effect sizes should be chosen when appropriate I chose to consider a small to medium effect size based upon the historically modest relationships between personality and the criterion of interest (r = .25). The benefits of choosing a larger effect size is a decrease in the number of required subjects in a power analysis. Following convention, I chose to establish the power requirements using an alpha of .05.

The analysis was conducted using multiple linear regressions. However, instead of conducting a single regression comprising all variables of interest I chose to run parallel regressions of the tripartite traits and their broad trait (see Judge & Bono, 2001). In order to find the minimum sample size to satisfy the power requirements, the following formula is appropriate:

$$n = L/f^2 + K + 1$$

Where $f^2 = sr^2/ 1-R^2$, L is based upon Table E.2 in Cohen & Cohen (1983) where $K_B = 1$, sr^2 represents the semi-partial effect size estimate, and K = the number of independent variables (K = 5). In this study $sr^2 = .0625$, $R^2 = .3125$ (5 independent variables x .0625). If $L/f^2 = (7.85/(.0625/1 - .3125))$ alpha = .05, and power = .80, L = 7.85, the minimum number of individuals needed is 87.

Measures. The measures used in this study are established in the literature. At the broad level the personality measures were taken from the 240-item Costa

and McCrae (1992) NEO PI-R. Each of the four broad traits was comprised of 48 items representing 6 facets of 8 items each. Table 1 depicts of the reliabilities of the broad traits and the facets of interest in this study. Each participant completed the Wonderlic cognitive ability test approximately 1-3 months prior to participating in the lab project.

Table 1.

Internal consistency of measures of the NEO PI-R scales

NEO PI-R Scale	coefficient alpha
Domains	
Neuroticism	.92
Extraversion	.89
Agreeableness	.86
Conscientiousness	.90
Neuroticism facets	
Anxiety	.78
Depression	.81
Extraversion facets	
Warmth	.73
Excitement-seeking	.65
Agreeableness facets	
Straight-forwardness	.71
Altruism	.75
Conscientiousness facets	
Dutifulness	.62
Achievement-striving	.67

The theory that self and other facets underlie the broad traits was argued along two specific facets. For example, duty and achievement striving were argued to be the other and self-centered facets comprising the broad factor conscientiousness. However, the facets duty and achievement striving represent only 16 of the 48 total items comprising conscientiousness. Perhaps items related to other facets of conscientiousness

such as self-discipline, order and competency also indicate self or other-centeredness. Therefore, I decided to investigate self and other-centered facets at the item level. I first considered each of the 240 items with the purpose to determine if there was potential for self or other-centered tendencies to embedded in that item. Items that were deemed to contain no self or other-centered information were excluded. For scale construction purposes I attempted to maintain as equal number of items per facet as possible. In the end 96 of the 240 original items were deemed to contain some reference to self or other-centered tendencies based on the author's evaluation of the items (Note: Openness to experience did not receive attention in the theory section, therefore I did not consider any of the facet items in my analysis. This is not to say the openness is not a viable personality construct but that I did not see a theoretical tie between openness and OCBs).

These items were then given to 4 independent subject matter experts (characteristics are: average number of years holding degree = 20, average number of publications = 31, 2 have been editors of major journals, average number of editorial boards = 4) to determine if the raters would agree on the 96 items in terms of their reflecting self or other-centeredness. A scale was constructed wherein each item could be categorized as self, "?", or other-centered (see Appendix A for a sample of the item rating scale). One additional independent subject matter expert reported no experience whatsoever with the personality literature, thus those ratings were not used.

The four subject matter experts and the author then rated the items to determine the degree to which the items in the factor analysis tapped self versus other dimensions. These ratings were correlated among each other, as well as with the ratings made by the author. Indeed, a significant level of agreement was shown in that the average inter-rater

correlation (ave $r = .57$) was significant at $p < .01$. Table 2 specifies the average correlation of each of the SMEs with the self or other-centered construct.

Table 2.

Intercorrelations between subject matter experts and their determination of self and other-tendencies in NEO-PIR items.

		Author	Rater 1	Rater 2	Rater 3	Rater 4
Author	Pearson Correlation	1.000				
Rater 1	Pearson Correlation	.34**	1.000			
Rater 2	Pearson Correlation	.45**	.65**	1.000		
Rater 3	Pearson Correlation	.51**	.66**	.57**	1.000	
Rater 4	Pearson Correlation	.55**	.66**	.65**	.61**	1.000

$N = 122$ ** $p < .01$.

Although, the subject matter experts were able to demonstrate agreement in distinguishing self versus other tendencies across the factors, it was also important to determine the degree to which the SMEs could establish self versus other tendencies within *each* factor of interest. All four factors of interest (Neuroticism, Extraversion, Agreeableness and Conscientiousness) demonstrated a significant level of rater agreement. Tables 3 through 6 display the correlations between the raters and self versus other-centeredness for Neuroticism (ave. $r = .57$, $p < .01$), Extraversion (ave. $r = .59$, $p < .01$), Agreeableness (ave. $r = .52$, $p < .01$) and Conscientiousness (ave. $r = .60$, $p < .01$) respectively.

Table 3.

Intercorrelations between subject matter experts and their determination of self and other-

tendencies within the Neuroticism factor.

		Author	Rater 1	Rater 2	Rater 3	Rater 4
Author	Pearson Correlation	1.000				
Rater 1	Pearson Correlation	.40*	1.000			
Rater 2	Pearson Correlation	.52**	.54**	1.000		
Rater 3	Pearson Correlation	.28	.82**	.70**	1.000	
Rater 4	Pearson Correlation	.77**	.62**	.56**	.51**	1.000

N = 26   *$p < .05$; **$p < .01$.

Table 4.

Intercorrelations between subject matter experts and their determination of self and other-

tendencies within the Extraversion factor.

		Author	Rater 1	Rater 2	Rater 3	Rater 4
Author	Pearson Correlation	1.000				
Rater 1	Pearson Correlation	.47*	1.000			
Rater 2	Pearson Correlation	.59**	.57**	1.000		
Rater 3	Pearson Correlation	1.00**	.47*	.59**	1.000	
Rater 4	Pearson Correlation	.53**	.65**	.48*	.53**	1.000

N = 24   *$p < .05$; **$p < .01$.

Table 5.

Intercorrelations between subject matter experts and their determination of self and other-

tendencies within the Agreeableness factor.

		Author 1.000	Rater 1	Rater 2	Rater 3	Rater 4
Author	Pearson Correlation	1.000				
Rater 1	Pearson Correlation	.40*	1.000			
Rater 2	Pearson Correlation	.73**	.29**	1.000		
Rater 3	Pearson Correlation	.60**	.63**	.24	1.000	
Rater 4	Pearson Correlation	.47**	.64**	.64**	.53**	1.000

N = 27   *$p < .05$; **$p < .01$.

Table 6.

Intercorrelations between subject matter experts and their determination of self and other-

tendencies within the Conscientiousness factor.

		Author 1.000	Rater 1	Rater 2	Rater 3	Rater 4
Author	Pearson Correlation	1.000				
Rater 1	Pearson Correlation	.37	1.000			
Rater 2	Pearson Correlation	.46*	.79**	1.000		
Rater 3	Pearson Correlation	.55*	.67**	.84**	1.000	
Rater 4	Pearson Correlation	.60**	.45**	.57**	.68**	1.000

N = 20   *$p < .05$; **$p < .01$.

A significant level of agreement was obtained both across the factors and within

each factor related to differences in self or other-centered orientations embedded within

items of the NEO. Self and other-centered facets were determined by a majority rule.

That is, a minimum agreement of 3 or more on any one item would place that item on

either the self or other-centered dimension of the five-factor model. This led to a model

consisting of the following items related to the eight facets of interest in this study (parentheses represent the observed coefficient alpha of the scale and/or the NEO facet that the item was taken from).

Depression (alpha = .77)

1. I am not a worrier ® (anxiety).

2. I rarely feel lonely or blue ® (depression).

3. I tend to overindulge in things (impulsiveness).

4. I am easily frightened (anxiety).

5. Sometimes I feel completely worthless (depression).

6. I am often sad or depressed (depression).

7. I am often apprehensive about the future (anxiety).

8. I tend to blame myself when anything goes wrong (depression).

9. I often worry about things that might go wrong (anxiety).

10. I have a low opinion of myself (depression).

11. I sometimes eat myself sick (impulsiveness).

12. Sometimes things look pretty bleak or hopeless to me (depression).

13. Frightening thoughts sometimes come into my head (anxiety).

14. Even minor annoyances can be frustrating to me (angry hostility).

15. Too often, when things go wrong, I feel like giving up (depression).

Anxiety (alpha = .56)

1. I often get angry with the way people treat me (angry hostility).

2. In dealing with people, I always dread making a social blunder (self-conscious).

3. I often feel self-conscious when I am around people (self-conscious).

4. I often feel fearful or anxious (anxiety).

5. I get embarrassed if people ridicule and tease me (self-consciousness).

6. I often feel inferior to others (self-consciousness).

7. I do not feel comfortable in the presence of my bosses or authorities (self-consciousness).

8. I have more fears than most people (anxiety).

9. If I have said or done the wrong thing to someone, I can hardly bear to face them again (self-consciousness).

Surgency (alpha = .65)

1. I am attracted to crowds of people (gregariousness).

2. I often crave excitement (excitement seeking).

3. I have no trouble asserting myself (assertiveness).

4. I have sometimes done things just for "kicks or thrills (excitement seeking).

5. I often feel as if I'm bursting with energy (activity).

6. Other people often look to me to make decisions (assertiveness).

7. I like to be where the action is (excitement seeking).

8. I love the excitement of roller coasters (excitement seeking).

9. In conversations, I tend to do most of the talking (assertiveness).

10. I find it easy to take charge of a situation (assertiveness).

Sociability (alpha = .81)

1. I really like most people I meet (warmth).

2. I am dominant forceful and assertive (assertiveness).

3. I like to have a lot of people around me (gregariousness).

4. I am known as a warm and friendly person (warmth).

5. I have often been a leader of groups I have belonged to (assertiveness).

6. In meetings, I usually do the talking (assertiveness).

7. I really enjoy talking to people (warmth).

8. I find it easy to smile and be outgoing with strangers (warmth).

9. I would rather be a leader than go my own way (assertiveness).

10. I have strong emotional attachments to my friends (warmth).

11. I take a personal interest in the people I work with (warmth).

12. I enjoy parties with lots of people (excitement seeking).

13. I like being part of a crowd at sporting events (excitement seeking).

Straightforwardness (alpha = .30)

1. I am not crafty or sly (straightforwardness).

2. I can be sarcastic and cutting when I need to be (compliance).

3. I am hard headed and tough minded in my attitudes (compliance).

4. How I feel about things is important to me (modesty).

5. I do not hesitate to express my anger when it is justified (compliance).

6. Being perfectly honest is the best way to do business (straightforwardness).

7. I am hardheaded and stubborn (compliance).

Altruism (alpha = .76)

1. I would rather cooperate with others than compete with them (compliance).

2. I try to be courteous to everyone I meet (altruism).

3. I could not deceive anyone even if I wanted to (straightforwardness).

4. We can never do too much for the poor and elderly (tender-mindedness).

5. I generally try to be thoughtful and considerate (altruism).

6. If I do not like people I let them know it (compliance).

7. I would hate to be thought of as a hypocrite (straightforwardness).

8. I am known for my generosity (altruism).

9. Human need should always take priority over economic considerations (tender-mindedness).

10. If someone starts a fight, I'm ready to fight back (compliance).

11. Most people I know like me (altruism).

12. If someone starts a fight, I'm ready to fight back (compliance).

13. I feel that all humans are worthy of respect (tender-mindedness).

14. I tend to assume the best about people (trust).

15. I think of myself as a charitable person (altruism).

16. I would rather praise others than be praised myself (modesty).

17. I have sympathy for others less fortunate than me (tender-mindedness).

18. I pride myself in my shrewdness in handling people (straightforwardness).

19. I would rather be known as merciful than just (tender-mindedness).

20. I go out of my way to help others if I can (altruism).

Achievement striving (alpha = .85)

1. Most times, I am dependable or reliable (duty).

2. I have a clear set of goals and work toward them in an orderly fashion (achievement striving).

3. I am a productive person who always gets the job done (self discipline).

4. I like to keep everything in its place just so I know where it is (order).

5. I work hard to achieve my goals (achievement striving).

6. Once I start a project, I almost always finish it (self-discipline).

7. I am often successful at things (achievement striving).

8. I adhere strictly to my ethical principles (duty).

9. I strive to achieve all I can (achievement striving).

10. I'm a very competent person (competency).

11. I try to do jobs carefully – so they wont have to be done again (methodicalness)

12. I strive for excellence in everything I do (achievement striving).

13. I plan ahead carefully when I go on a trip (deliberation).

14. I'd really have to be sick before I miss a day of work (duty).

15. I'm something of a workaholic (achievement striving).

16. I have a lot of self-discipline (self-discipline).

Duty (alpha = .41)

1. I try to perform all the tasks assigned to me conscientiously (duty).

2. I take civic duties like voting very seriously (duty).

3. I pay my debts promptly and in full (duty).

4. When I make a commitment I can always be counted on to follow through (duty).

Table 7 demonstrates the reliability of the initial facet scales, the reliabilities of the final facet scales (with number of items in parentheses) and the reliability of the facets as measured by the NEO PI-R all of which are based on eight item scales (Costa & McCrae, 1992).

Table 7.

Comparative alphas of initial scale, final scale and the NEO facets

NEO PI-R Scale			
	Adj. scale	Number of items	NEO facets
Neuroticism facets			
Anxiety	.56	(09)	.78
Depression	.77	(16)	.81
Extraversion facets			
Warmth	.81	(14)	.73
Excitement-seeking	.65	(10)	.65
Agreeableness facets			
Straight-forwardness	.30	(07)	.71
Altruism	.76	(20)	.75
Conscientiousness facets			
Duty	.41	(04)	.62
Achievement-striving	.85	(16)	.67

Task. The Distributed Dynamic Decision-making (DDD) simulation was employed, which was developed by the Department of Defense for research and training purposes. The generic version of this simulation is a networked realistic command and control simulator that can produce scenarios that range from high to low fidelity. The version of the simulation used in this manuscript utilizes a low fidelity structure based upon 4 person teams.

Each team worked together in a common room, and each team member was stationed at a separate computer (PC). These were situated so that people could not see their teammate's computer screens; however, each PC was networked to other team members. Participants controlled various military vehicles such as tanks, helicopters, jets, and scout planes via a mouse. The purpose of the game was to efficiently identify, and

react to, unknown targets (either friendly or unfriendly) that moved in and out of the game playing area.

A depiction of the game area is shown in Figure 6. The game-playing grid was partitioned in several ways. First, in terms of the team member's physical location, the grid was partitioned into four geographic quadrants of equal area and assigned to individual players (player 1, 2, 3, and 4).

The geographic region was also divided into three regions that varied in terms of the extent to which the areas needed to be protected from penetration by unfriendly targets. There were three separate regions in the game: neutral areas (all areas outside the boxes), restricted areas, and highly restricted areas. Each individual was instructed that they were in charge of keeping their area free of enemy targets. That is, they were directed to their own scoring bar indicating the extent to which they were able to monitor and keep clear their part of the overall grid. The players were also instructed that they were part of a 4-person team. The team's mission was to keep unfriendly vehicles from entering the restricted, and the highly restricted areas, while at the same time, allowing safe passage for all friendly vehicles. The overall task, therefore, was to monitor the game screen, identify targets as quickly as possible and determine their nature (friend or foe), and disable any unfriendly targets that entered restricted areas. At the same time, the teams were to avoid attacking any friendly targets. Each individual started out with a set number of points and were penalized a point for every second that an enemy target remained in a restricted area (the larger green box) and 2 points for every second an enemy target remained in a highly restricted area (the smaller red box). Individuals were penalized severely (300 points) for attacking any friendly target or unfriendly target in a

neutral zone. Players were also informed of the team scoring system and told that those teams who scored highest would receive a cash prize at the end of the semester.

Therefore, each individual had to keep track of two scoring systems. First, he or she could monitor his or her offensive score. Each time individual players successfully cleared an enemy target in either restricted zone they were rewarded with 5 personal offensive points. On the other hand, their team defensive score indicated how efficiently the team maintained the integrity of the restricted airspace.

Figure 6. Example of the DDD four person team game playing area.

In terms of monitoring the geographic area, each team member's base (see the Base DR and Base IR rings) had the same sight range as every other member. The DR
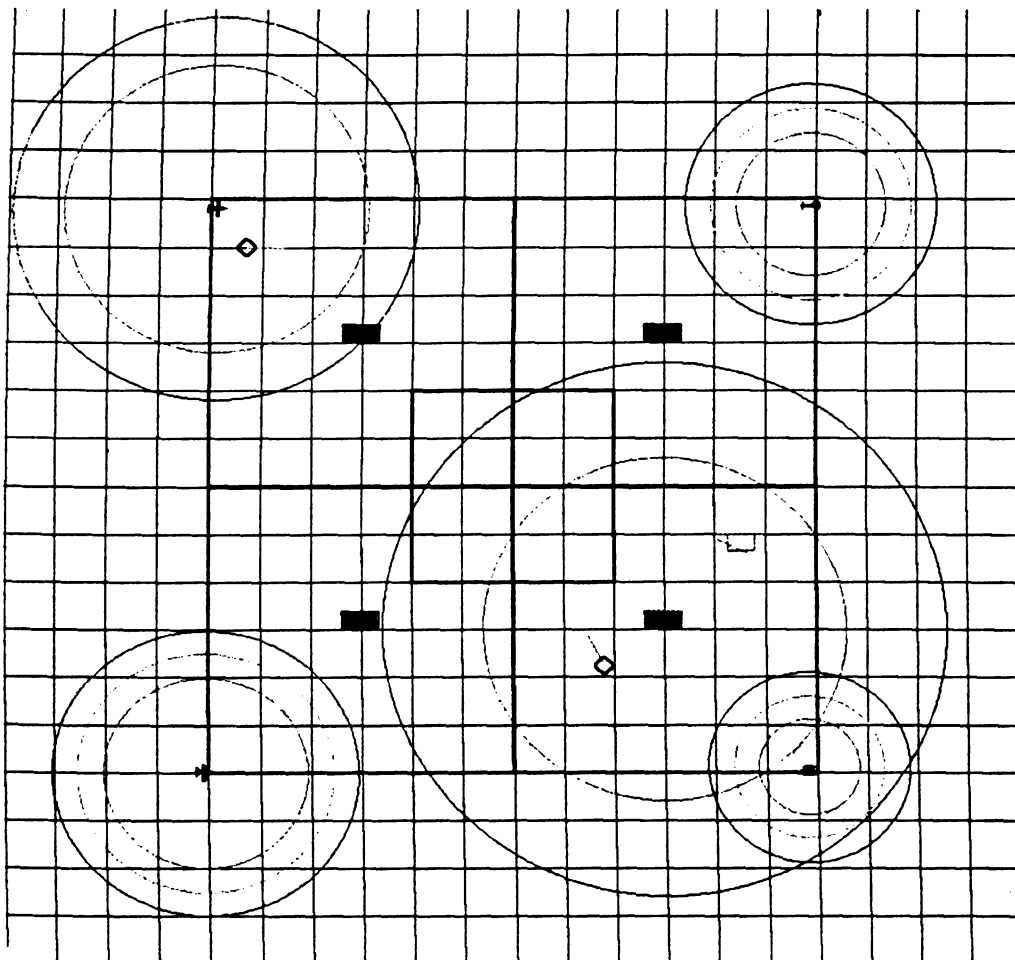
indicated the extent to which an individual could see a target moving on the screen while the IR indicated the extent to which an individual could identify an unknown target. Any target outside of an individual's rings (either base or vehicle) would be undetectable to that individual. What is clear in the figure is that although any individual was limited in what they could see from their base, their vehicles could extend their vision by moving into other areas of the game screen. Each individual controlled 4 vehicles that could be launched from the base and manually moved anywhere on the game screen. These vehicles had different abilities and unique characteristics.

Differences in the vehicles (scout plane, jets, tanks, and helicopters) were based upon (1) range of vision, (2) speed of movement, (3) duration of operability, (4) and weapons capability. Targets on the other hand varied by being (1) friend or enemy, (2) fast or slow, (3) easy or difficult to disable (4) easy or difficult to identify. Each individual had the same set of vehicles (one each of the helicopter, tanks, jets and AWACs scout planes).

All targets originated from outside the screen and proceeded inward. Table 8 depicts the specific attributes of all the vehicles and targets used in this game. These targets would start from random locations on the edge of the screen and pass through the various player's areas. Each individual player was tasked with the same number of targets throughout the game although the pattern of targets took on two distinct forms. Some of the targets would come in singularly from random locations, pass through and exit the game screen in another location. Other targets came in waves (8 targets entering one player's zone simultaneously). These targets would then stop in the red (highly restricted) zone. Prosecuting these wave targets required teamwork, or the help of other team

members. That is, occasionally targets would arrive in bunches and "flood" one particular

player's area. These would overload that individual's capacity to monitor their area. Each

individual encountered one wave of targets per game.

Table 8.

The attributes associated with the vehicles and targets.

Characteristics and Symbol Associated with Sub-Platforms and Tracks

		Sub-platform			Track		
	Dur-ation	Speed	Vision	Power	Nature	Speed	Need to Disable
Tank	8:00	slow	very limited	high (5)			
Helicopter	4:00	medium	limited	med. (3)			
Jet	2:00	very fast	far	low (1)			
AWACs	6:00	fast	very far	none			
A0					Friendly	Fast	T,H,J
A1					Enemy	Fast	T,H,J
A3					Enemy	Fast	T,H
A5					Enemy	Fast	T
G0					Friendly	Slow	T,H,J
G1					Enemy	Slow	T,H,J
G3					Enemy	Slow	T,H
G5					Enemy	Slow	T
U+ (A0)					Friendly	Fast	T,H,J
U- (A1)					Enemy	Fast	T,H,J
UX (A3)					Enemy	Fast	T,H
U# (A5)					Enemy	Fast	T

Notes: For subplatforms: duration = amount of time a vehicle may stay away from the base before needing to refuel, speed = how fast the sub-platform travels across the game screen, vision = refers to the range of vision the sub-platform has to both see and identify tracks, power = the ability of the sub-platform to engage enemy tracks. For tracks: nature = whether the track is an enemy or friend, speed = how fast the track travels across the game screen, need to disable = which of the sub-platforms can successfully engage the track.

To summarize, in this simulation, the team members were tasked with monitoring

a game screen consisting of a dynamic picture, filled with large numbers of vehicles,

rings, and targets that were moving at different speeds and different directions. With limited vision, they were employing a mouse to launch, move, and direct 4 vehicles in an effort to keep any restricted or highly restricted area clear. While engaging in this activity they were free to exchange information either verbally or electronically with other members of the team.

Procedures

The NEO-PIR was handed out to the subjects on the first week of class. At this time each individual was given a 12 minute timed ability test (Wonderlic). Subjects were then told to return the completed personality forms within one week. Subjects also signed-up for a 3-hour time slot. Consent forms were completed when the subjects showed up for a scheduled appointment. They were randomly placed into a 4-person team and randomly assigned to one of 3 different rooms where they were subsequently trained on the task.

Training consisted of two separate parts. The first part consisted of an explanation of the game and the task. The second part consisted of a hands-on practice session lasting a full hour. The total time for training was around 90 minutes. After training, individuals completed a 20-item quiz testing them on they declarative knowledge of the task. Teams were given a 30-minute break while a research assistant scored the exams. The research assistant gave individual feedback on the exam. Teams then played a 30-minute game.

Dependent variables

Public OCB. A requirement for a public OCB as explained earlier in the manuscript was that the public OCB be a helping behavior that was confounded with both a self-interested and an other-interested component. Public OCBs in this simulation are measured as the number of times a particular player directs one of his/her vehicles into another teams area to help clear an enemy target during an enemy wave attack. First, I focused on the wave targets because these were situations where, clearly, the individual who received a wave of targets (situation where 8 targets invade the airspace of a single individual simultaneously) was in need of help. There are two underlying reasons why the other members of the team would come to the aid of the individual who is confronting a wave.

On the one hand, they may have done it for altruistic reasons and focused on the team score. As the wave targets overwhelm another player they were instructed to ask for the help of their teammates. On the other hand, members may aid the overloaded teammate for more self-centered reasons such as making sure the target did not have a chance to enter their zone, or for impression management reasons. Moreover, because individuals also kept track of their individual offensive score, they may have sent help in order to seek opportunities to improve their personal offensive score. Also, helping another player attack a target in their zone was a high profile public action. Every vehicle launched by an individual was visible to all team members regardless of sight restrictions. Further, each team member's vehicles and base was color coded (either red, blue, green or purple) for easy identification and association. When help was requested, it was easy to track who was responding. When a target was destroyed a flashing fireball would appear on the screen that was easily visible to all members.

I was interested in "total attempted helps" not total successful helps. Attempted helps were defined as movement of an individual's vehicle to within one grid square of a teammates highly restricted zone during a wave attack. There are many reasons why an attempted public OCB might not result in an actual clearing of an enemy vehicle. The team-member might have sent a jet with low power and subsequently not found a target to destroy. Moreover, two team members might have sent the same vehicle in response to a need, but only one vehicle would be able to successfully engage the enemy target.

Public citizenship behaviors were coded by 3 investigators replaying each of the games used in this study and manually counting the number of times team members responded to a wave target by sending their vehicles. As a check on the reliability of the public citizenship behaviors each of the investigators independently counted the public citizenship behaviors of 16 individuals across 4 different teams. The average correlation between the three investigators was .97.

Private Citizenship behaviors. Unlike the case for public citizenship behaviors, private citizenship behaviors provided little opportunity for public recognition. Private citizenship was presented as a behavior more in line with the private nature of Organ's (1988) original conceptualization of OCBs. Within the team task, the extent to which an individual transferred the identity of targets for their teammates was used as the construct measuring private citizenship behaviors.

During training, participants were informed that one critical aspect of the game was the extent to which they shared the information of identified targets with their teammates. Once an individual identified a moving target, only the identifying individual knew the information regarding that target. As a result, if the target left that person's area,

it would be unidentified to any other teammate unless that individual would identify the target for him/herself. If the individual transferred the information concerning the target to the rest of the team, this saved the other team members from having to identify the target themselves. This took extra time to accomplish, but benefited the other members.

However, this specific type of helping behavior typically went unnoticed and unrewarded. This is due to the fact that targets where coming in from all directions and players would not know who initially transferred info on a target that came into their zone. Thus, the actual act of transferring information was not public, more importantly, there was no reward for transferring information. When helping other team members to clear enemy targets, individuals were rewarded with offensive points. However, when transferring information, there was no personal benefit or reward associated with this behavior.

Private citizenship behaviors were acquired via a computer generated output of the performance of each individual. Each transfer of info was recorded and stored electronically during the actual playing of the game.

Control variables

Cognitive ability. Cognitive ability has a rich history of construct validation and links to workplace performance (Hunter, 1986; Hunter and Hunter, 1984). Because the purpose of this study was to relate disposition to behaviors, I controlled for ability.

Roles. The specific role (or location) each team member was assigned to serve as another set of control variables. As stated previously, each individual encountered the same number of targets, however, the order of the wave targets was fixed. For example, DM1 received the first wave and DM2 received the last wave. To eliminate any effects

based upon the order that wave targets were encountered I controlled for the various roles that individuals played.

RESULTS

The experiment utilized a repeated measures design consisting of 160 participants by two conditions. There were a total of 198 initial participants who both played the game and had usable personality scores. However, for 38 of the participants both measures of OCBs could not be calculated, therefore 38 participants were not used. This resulted in 320 useable observations. The total variance in the total observations could be traced to two orthogonal sources: variance within each individual and variance across individuals. Using the guidelines provided by Cohen and Cohen (1983) I calculated the percentage of variance within subjects (30%). The percentage of variance between subjects was 70%. Table 9 provides the descriptive statistics associated with the individual-level variables and the criterion of interest.

Table 9.

Means standard deviations and correlations of variables of interest

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. WPT	24.30	6.00	(1.00)														
2. Neuroticism	2.85	.41	-.04	(.90)													
3. Extraversion	3.54	.41	-.01	-.41**	(.90)												
4. Agreeableness	3.29	.33	-.12	-.24**	.33**	(.84)											
5. Conscientious	3.48	.41	.04	-.35**	.28**	.27**	(.91)										
6. Anxiety	2.85	.52	-.05	.83**	-.43**	-.05	-.21**	(.56)									
7. Sociability	3.56	.52	-.05	-.38**	.90**	.38**	.25**	-.35**	(.81)								
8. Altruism	3.51	.38	-.09	-.13*	.47**	.84**	.35**	-.05	.46**	(.76)							
9. Duty	3.77	.59	.00	-.26**	.34**	.28**	.67**	-.18**	.27**	.33**	(.41)						
10. Depression	2.93	.49	.00	.91**	-.33**	-.17**	-.27**	.72**	-.31**	-.06	-.15**	(.77)					
11. Surgency	3.57	.48	.00	-.21**	.76**	.06	.05	-.34**	.59**	.24**	.12*	-.14*	(.65)				
12. S.forward	2.97	.45	-.13*	-.25**	.04	.64**	.14*	-.04	.08	.36**	.12*	-.18**	-.14**	(.30)			
13. Achievement	3.73	.50	-.01	-.31**	.39**	.26**	.92**	-.23**	.36**	.42**	.59**	-.22**	.21**	.08	(.85)		
14. private OCB	8.06	5.07	.07	.15**	-.03	-.01	-.13*	.16**	-.02	.00	-.02	.12*	.02	-.06	-.09	(1.00)	
15. public OCB	5.55	2.52	.12*	.08	.01	-.04	-.08	.10	-.04	-.03	-.06	.00	.12*	-.11	-.08	.55**	(1.00)

N = 160. * $p < .05$. ** $p < .01$

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Hypothesis 1a predicted that anxiety would be positively related to OCBs. The data supported this hypothesis ($t(7, 152) = 2.11$, $p = .03$). Hypothesis 1b predicted that anxiety would interact with type of OCB such that individuals high in anxiety would engage in significantly more private OCBs than public OCBs. Support for this interaction was not demonstrated ($t(9, 150) = -.32$, $p = .75$). Hypothesis 2a predicted that depression would be negatively related to OCBs. The data did not support a significant relationship ($t(7, 152) = -.06$, $p = .95$). Hypothesis 2b predicted an interaction such that individuals who were high in depression would engage in significantly more public OCBs than private OCBs. The data did not support this hypothesis ($t(9, 150) = -1.00$, $p = .32$). Hypothesis 3 predicted that neuroticism would be unrelated to OCBs. However, the data supported a relationship such that neuroticism was positively related to OCBs ($t(6, 153) = 2.70$, $p = .03$). Table 10 depicts a side-by-side comparison of the predictive ability of the facets and the broad factor comprising neuroticsm.

Table 10.

Hierarchical Regression results associated with comparative personality models neuroticism, anxiety and depression (changes in R^2)

Facet model			Factor model		
	B	ΔR^2 (step)		B	ΔR^2 (step)
1. Cognitive ability	.13		1. Cognitive ability	.13	
If DM1	.03	.11**	If DM1	.03	.11**
If DM2	-.20		If DM2	-.20	
If DM3	-.30		If DM3	-.30	
2. Type OCB	.01	.00	2. Type OCB	.01	.00
3. Depression	.01				
Anxiety	.16	.02*	3. Neuroticism	.16	.02*
4. Depression x OCB	-.51	.00			
Anxiety x OCB	.15				

Note: N = 320. The controls (cognitive ability and roles) explain 16% of the between subject variance. Depression and anxiety and neuroticism both explain 3% of between subject variance. *p < .05 ** p < .01.

Hypothesis 4a predicted that sociability would be positively related to OCBs. The data did not support this hypothesis (t(7, 152) = -1.00, p = .32). Hypothesis 4b predicted that an individual's level of sociability would interact with type of OCB such that individuals high in sociability would engage in significantly more private OCBs than public OCBs. The data did not support this hypothesis (t(9, 150) = -.86, p = .39). Hypothesis 5a asserted that an individual's level of surgency would be negatively related to OCBs. The data did not support the hypothesis (t(7, 152) = 1.66, p = .10). Hypothesis 5b proposed that surgency would interact with type of OCB such that individuals high in surgency would engage in significantly fewer private OCBs. An interaction was not supported (t(9, 150) = -1.28, p = .20). Hypothesis 6 predicted that extraversion would be unrelated to OCBs. This assertion was supported by the data (t(6, 153) = .04, p = .96). Table 11 depicts a side-by-side comparison of the predictive ability of the facets and the broad factor comprising extraversion.

Table 11.

Hierarchical Regression results associated with comparative personality models

sociability, surgency and extraversion (changes in R^2)

	Facet model			Factor model		
	B	ΔR^2 (step)			B	ΔR^2 (step)
2. Cognitive ability	.13		1. Cognitive ability		.13	
If DM1	.03	.11**	If DM1		.03	.11**
If DM2	-.20		If DM2		-.20	
If DM3	-.30		If DM3		-.30	
2. Type OCB	.01	.00	2. Type OCB		.01	.00
3. Surgency	.11					
Sociability	-.07	.01	3. Extraversion		.00	.00
4. Surgency x OCB	.68	.00				
Sociability x OCB	-.43					

Note: N = 320. The controls (cognitive ability and roles) explain 16% of the

between subject variance. *p < .05 ** p < .01.

Hypothesis 7a predicted that altruism would be positively related to OCBs. The

data did not support this hypothesis (t(6, 153) = .59, p = .55). Hypothesis 7b predicted

that altruism would interact with type of OCB such that individuals high in altruism

would engage in significantly more private OCBs. The data did not support this

hypothesis (t(7, 152) = -.13, p = .80). Hypothesis 8 predicted that agreeableness would

be positively related to OCBs. The data did not support this hypothesis (t(6, 153) = .64, p

= .53). Table 12 depicts a side-by-side comparison of the predictive ability of the facets

and the broad factor comprising agreeableness.

Table 12.

Hierarchical Regression results associated with comparative personality models

altruism and agreeableness (changes in R^2)

	Facet model			Factor model		
	B	ΔR^2 (step)			B	ΔR^2 (step)
3. Cognitive ability	.13		1. Cognitive ability	.13		
If DM1	.03	.11**	If DM1	.03	.11**	
If DM2	-.20		If DM2	-.20		
If DM3	-.30		If DM3	-.30		
2. Type OCB	.01	.00	2. Type OCB	.01	.00	
3. Altruism	.03	.00				
			3. Agreeableness	.04	.00	
4. Altruism x OCB	-.13	.00				

Note: N = 320. The controls (cognitive ability and roles) explain 16% of the

between subject variance. *p < .05 ** p < .01.

Hypothesis 9a predicted that duty would be positively related to OCBs. However,

the data did not support this hypothesis (t(7, 152) = .27, p = .79). Hypothesis 9b predicted

that duty would interact with type of OCB such that individuals high in anxiety would

engage in significantly more private OCBs than public OCBs. Support for this interaction

was not demonstrated (t(9, 150) = -.57, p = .57). Hypothesis 10a predicted that

achievement striving would be negatively related to OCBs. The data did not support

relationship (t(7, 152) = -1.30, p = .20). Hypothesis 10b predicted an interaction such that

individuals who were high in achievement striving would engage in significantly more

public OCBs than private OCBs. The data did not support this hypothesis (t(9, 150) =

.43, p = .67). Hypothesis 11 predicted that conscientiousness would be unrelated to OCBs

(t(6, 153) = -2.12, p = .06). Surprisingly, the data demonstrated partial support for a

negative relationship between conscientiousness and OCBs. Table 13 depicts a side-by-side comparison of the predictive ability of the facets and the broad factor comprising conscientiousness.

Table 13.

Hierarchical Regression results associated with comparative personality models conscientiousness, achievement striving and duty (changes in R^2)

Facet model			Factor model		
	B	ΔR^2 (step)		B	ΔR^2 (step)
4. Cognitive ability	.13		1. Cognitive ability	.13	
If DM1	.03	.11**	If DM1	.03	.11**
If DM2	-.20		If DM2	-.20	
If DM3	-.30		If DM3	-.30	
2. Type OCB	.01	.00	2. Type OCB	.01	.00
3. Achievement	-.09				
Duty	.02	.01	3. Conscientiousness	-.12	.01*
4. Achieve x OCB	.43	.00			
Duty x OCB	-.57				

Note: N = 320. The controls (cognitive ability and roles) explain 16% of the between subject variance. The broad factor conscientiousness explains 2% of the between subject variance. *p < .05 ** p < .01.

DISCUSSION

This dissertation was based on building a case that the five-factor model of personality might be better conceptualized by measuring personality via the facets that comprise the broad factors. The differential benefits of measuring personality either broadly or narrowly has been long established in the personality literature (Stewart, 1999). However, I noted that heretofore, there have been no theories based on the personality variables themselves that provide guidance to the researcher as to what facets might be relevant and why facets, in certain instances, might provide superior predictive ability over their broad trait. A recent article demonstrating a self (achievement striving) and other-centered (duty) aspect to the broad factor conscientiousness (Moon, 2001) was proposed to serve as a base from which all of the five factors could be similarly conceptualized. A review of the literature revealed that the other broad factors have been defined in ways that could be interpreted as "colored" by self and other-centered definitions.

Organizational citizenship behaviors were presented as a context in which the explanatory power of self or other-centered facets might be superior to those of the broad factors. This was based on the assertion made recently by Organ (1994) that the broad factors have proved to be weak predictors of OCBs and that traits across the broad factors might prove to be superior predictors. Unfortunately, the results found in this particular study were quite disappointing. Moreover, in the instances where empirical relationships between dispositions and OCBs were demonstrated, the relationships were in unexpected and dubious directions (for example, conscientiousness was found to be negatively

related to citizenship behaviors). Reflecting on the study post hoc, the lack of results of this study might have been due to faulty **design**, faulty **measurement**, or faulty **theory**.

Design

First, let us reflect upon the choice of dependent variable: organizational citizenship behaviors. The literature regarding OCBs has been replete with construct confusion (Organ, 1994). Researchers have been unclear as to what constitutes an OCB, how to effectively measure an OCB, and what organizational criterion of interest, exactly, OCBs are able to predict (Lepine et al.,2002). Moreover, Organ (1994) emphasized the trouble that researchers, in general, have had in linking OCBs to dispositional variables related to individual personality.

I suggested that OCBs could be conceptualized as either public or private in nature. Public OCBs were confounded with the potential to be engaged for either altruistic or self-serving reasons (Bolino, 1999). Private OCBs were thought to be more altruistic in nature. This assertion was based on the initial introduction of organizational citizenship behaviors as unrewarded and altruistic (Konovsky & Organ, 1996; Organ, 1988). Recently, Organ (1994) has allowed for the fact that OCBs could be both public in nature (Van Dyne, Graham & Dienesch, 1994) and rewarded (Bolino, 1999).

I noted that past OCB research was often restricted to public OCBs as a result of the use of survey-based designs. However, one constant during the development of the OCB literature regardless of any public or private distinction is that the behavior is discretionary. That is, OCBs are defined as behaviors engaged by individuals that are at the whim of individual rather than required by the individual. OCBs are, at their core, discretionary.

The context of this study was different than the majority of previous OCB research in that it was conducted via a laboratory experiment. Previous research in OCBs has been based almost exclusively on survey-based perceptions. Here, individuals were asked specifically the degree to which they engaged in "discretionary" behaviors such as compliance, helping and sportsmanship (Moorman, 1993; Moorman, Niehoff & Organ, 1993). Although the conceptual distinction between public and private helping behaviors as measured in this study may have been valid, the overall discretionary level of the behaviors may have, in retrospect, been faulty.

In a laboratory study wherein 4 individuals played a networked computer simulation, I argued that two specific behaviors would be used as indicators of organizational citizenship behaviors: transferring information and helping. Transferring information to your other team members was thought to be important to the extent that it would save other team members the inconvenience of having to re-identify targets that have already been identified once. Helping behaviors was thought to be important to the extent that it would help redistribute work requirements that were unbalanced (i.e. the wave targets, which were central to the helping construct, were instances wherein a large number of enemy targets "flooded" each team-members area at a different time).

However, in this context the four participants faced a novel task, integrated with new team members, and faced a situation in which they were constantly "flooded" or overwhelmed with duties that were both numerous and conflicting, it might be difficult to argue that the individual participants actually felt any level of personal discretion. That is, it may be more likely that individuals were just trying to stay afloat rather than considering whether to engage in "extra" behaviors.

Measurement

A critical shortcoming of the study was embedded in the personality measures. Scales were created to measure facets of interest using all available items comprising the broad factor of personality. Therefore, instead of using the established facets for each broad factor (totaling 16 items), all 48 items were considered in constructing the scales used in this study. Although the scales were developed with the aid of expert raters and demonstrated acceptable reliabilities, there are two major impediments that would give pause to future use of these scales. First, although inter-rater agreement among 4 subject matter experts was acceptably high, the actual reliabilities of the eight scales were not much better, and in some cases unacceptably worse, than that of the established facets. The average reliability of the facets used in the NEO is 71.5 while the average reliability of the hybrid scales is 63.8. This was in spite of the fact that the hybrid facets used in this study had an average of 3.4 more items per scale.

A related problem concomitant with the low reliability of measures is the high correlation between the scales developed, and used in this study, with the broad factors. For example, anxiety was correlated .83 with the broad trait of neuroticism. Correction for measurement error would bring the correlation beyond 1.00. Further examples include sociability correlated .90 with extraversion and achievement striving correlated .92 with conscientiousness. Therefore, any interpretation of results demonstrating differential predictive ability of the facets with their broad factors would be highly suspicious.

Theory

Finally, the theory proposed in this study is quite novel and somewhat controversial. The central argument underlying the author's theory is that a "method

bias" is embedded in the FFM structure such that facets across the five broad factors share commonality in either self or other-centered orientations. The author extends the observation made by Costa and McCrae (1992) that there were high levels of cross-loadings in the factor matrix of their 240-item NEO PIR such that the cross loadings were based on systematic error variance related to an individual's centeredness (either self or other-centered). The general pattern of this was not supported in this manuscript using OCB as the criterion of interest and employing a lab design. Perhaps future research can support this contention (although measurement issues would have to be addressed) exploring different **contexts**, relating personality to different **constructs**, or refining the **content** of the personality structure via measurement.

<u>Context</u>

The perceived importance of teams in organizations has increase dramatically over the past several decades (Sundstrum, De Meuse, & Futrell, 1990; Ilgen, 1999). Historically teams have been thought of as a "black box" from which a level of input is processed into a level of output (Hackman, 1987; McGrath, 1964). The "process" whereby input is transformed into an output via a team structure was initially thought of as a cost that needed to be minimized (Steiner, 1972). Recently, theorists have taken a more positive stance on the benefits of structuring work around teams and have proposed that indeed there may be synergies rather than costs (Ilgen & Sheppard, 2001; Tziner & Eden, 1985).

In an extensive review of personality and its impact upon team outcomes Mann (1959) noted that between 1900 and 1957 more than 500 measures of personality were investigated for potential relevance to group behavior. Further, less than a quarter of

these measures were used in more than a single study. In an update, Moreland and Levine (1992) offered that "even more traits have been added to the list, and there is still little agreement about which ones are the most important (pg. 263)." The difficulty in culling a definitive set of individual difference measures that are relevant to work in teams is also exacerbated by the fact that there are several dependent variables of output such as: conformity, cohesiveness, productivity, leadership emergence, satisfaction, and turnover. Recently, the FFM has been looked at as a potential vehicle through which personality impacts team performance. However, the findings have been equivocal.

For example, conscientiousness was determined to be the single most important global predictor of performance across all jobs and job criteria. Barrick, Stewart, Neubert, and Mount (1998) found that indeed a team's level of conscientiousness (operationalized as its mean) was positively related with the team's performance. However, Barry and Stewart (1997) looked at the impact of conscientiousness on self-managed work groups and found no effect.

Nonetheless, as evidenced by the Barrick et al (1998) piece, there is reason to believe that personality variables measured with the FFM construct are important to understanding team performance. However, there is reason to believe that the facets of focus in this study might provide superior predictive ability in team settings. This would be especially true to the extent that interdependence is a central component to team performance (Ilgen & Sheppard, 2001; Kiggundu, 1981; 1983).

Thompson (1967) assumes that organizations, at their core, are composed of interdependent parts. However, the degree of interdependence varies as a function of the work flow design. Interdependence has been central to a host of researchers examining

team structure and its implications to team-level outcomes (Hackman, 1988; Shiflett, 1979; Steiner, 1972; Tesluk, Mathieu, Zaccaro & Marks, 1997) and are thought to be a defining characteristic of what constitutes a work-group or team (Guzzo & Dickson, 1996). Ilgen & Sheppard (2001) suggest that performance at the team level introduces team level processes, related to interdependence, exclusive to the team level of analysis including constructs such as: coordination, cooperation, cohesiveness, and conflict. Fleishman & Zaccaro (1992) offer that although previous classification schemes offer insight into team performance they do not "specify the synchronized functions engaged in by team members as they perform different tasks (pg. 32)."

The premise behind the tripartite theory of personality is that it captures self and other centeredness not currently found in the FFM. It is asserted that these constructs become important within a team context where the level of interdependence varies. The basic assumption underlying the perceived benefits of viewing personality via self or other-centered facets is that individuals who are high in self-centered aspects of personality may not do will in situations where they are called upon to rely upon, and be relied upon, by others. Conversely, those individuals high in other-centeredness might do will in highly interdependent teams but less so when the team structure calls for independent behaviors. As a result, one would expect interactions between the various facets associated with the tripartite model and the level of interdependence within a team. The higher order factor structure of the FFM, containing elements of both self and other centeredness, would lead one to suspect that the FFM would do a poorer job of demonstrating sensitivity with team interdependence.

<u>Constructs</u>

In the organizational sciences the constructs individualism and collectivism are very close in their definitions to what the tripartite refers to as self or other centeredness. Wagner and Moch (1986) define individualism as the condition in which personal interests are given greater emphasis than are the needs of groups. Wagner (1995) states "individualists tend to look out for themselves and tend to ignore group interests if they conflict with personal desires (p. 153)." The opposite of an individualist would be a collectivist. These individuals tend to have concerns about the needs and interests of groups over that of themselves specifically and individuals in general. Historically, these constructs have been afforded the greatest amount of attention at higher levels of analysis including country (Hofstede, 1980) and group (Early, 1993; Wagner, 1995) levels of analysis. However, Triandis et al (1985) established the measurement of individualism and collectivism at the individual level of analysis.

Recent research has established that the constructs individualism and collectivism rather than being a simple dichotomy (Schwartz, 1990) are potentially complex constructs. For example, in Wagner's (1995) study on the influence of collectivism on group processes five separate factors associated with individualism and collectivism emerged from his scale.

Wagner (1995) looked at the impact of individualism and collectivism on the level of cooperation provided by individuals within a group task. He developed a scale of collectivism comprised of measures taken from several studies concerning the individualism/collectivism construct (Erez & Early, 1987; Hui, 1988; Triandis,

Bontempo, Villereal, Asai & Lucca, 1988; Wagner & Moch, 1986). Five distinguishable factors emerged and although Wagner (1995) refrained from providing the factors with a specific label; a content analysis of the items reveals three that have relevance to a tripartite model of personality.

Collectivism construct 1 consisted of questions related to self-reliance and independence. This construct included items such as: Only those who depend on themselves get ahead in life, If you want something done right, you've got to do it yourself. For purposes of this study this construct will be provided the label of "*individualism.*"

The collectivism construct 4 regarded the extent to which it was deemed important for an individual to subordinate personal needs to group interests. This construct included items such as: People in a group should realize that they sometimes are going to have to make sacrifices for the sake of the group as a whole, people in a group should be willing to make sacrifices for the sake of the group's well being.

The collectivism construct 3 evaluated the extent to which an individual placed value in working alone or with a group. This construct included items such as: I prefer to work with others in a group rather than working alone, given the choice I would rather do a job where I can work alone rather than doing a job where I have to work with others in a group. Factor 2 evaluated the achievement orientation of the individual and can be interpreted as the value the individual placed in competitive success. This contained items such as: winning is everything and success is the most important thing in life. It was determined that both the definition of this construct and the items themselves were too close to the definition and items associated with the facet "achievement-striving"

associated with the conscientiousness construct. The final factor collectivism construct 5 comprised the perceptions of personal pursuits on group productivity. This consisted of items including: a group is more productive when its members do what they want to do rather than what the group wants them to do, and a group is most efficient when its members do what they think is best rather than doing what the group wants them to do. Future studies can further explore the extent to which personality constructs are related to individualism and collectivism. Integrative studies can look for both conceptual and empirical links.

Content

If indeed, self and other-centeredness is embedded within the definitions of each of the five factors two final observations need to be made. The first observation is a determination of how many factors does the tripartite model call for? The present tone of the debate concerning personality among researchers would beg for a definitive single number. One can maintain an argument for the present five factor conceptualization, one can also argue that based upon the definitional differences and empirical findings concerning the tripartite facets outlined above that ten distinct factors provides a better picture of our personality. Yet again, one can conjecture that because self and other-centeredness serves as a systematic construct underlying the five factor model, it can be thought of as "systematic" error such that two additional factors exist parallel to the five factor model (the five broad factors, self-centeredness and other-centeredness), creating a seven factor model. Finally, one can argue that self and other-centeredness is in actually ends of a single continuum which then creates a sixth factor.

A definitive answer to the number of factors cannot be provided within the confines of this single manuscript. Certainly, whether self and other-centeredness is a single continuum or two distinct factors is also beyond the scope of this manuscript. In trying to determine the number of factors contained within the tripartite model I reflect upon the writings of Murray (1938) who wrote of the innate complexities of individuals and their personalities. The last couple of decades have seen personality researchers call for and demonstrate empirically models comprising from 2 to 20 *theoretically orthogonal* factors as properly capturing an individual's personality. The tripartite model I present provides 10 distinct facets in 5 distinct pairs. Therefore, instead of a single number of factors, the tripartite model allows for a more versatile conceptualization of personality at both a broad and narrow level of analysis. Versatility of measurement might provide a better match for the complexity of personality.

Therefore, perhaps the first step in future studies is to address the content of the items used to measure the tripartite facets. That is, using the theory provided within a tripartite model of personality, measures of facets can be developed with higher reliability of measurement and more internal consistency than what is presently validated via current instruments that are developed to measure broad traits first and narrow traits as only a byproduct.

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Address   _____

                        _____   Phone Number   _____

                        _____

DEMOGRAPHIC INFORMATION (please complete only if you have agreed to participate in the study):

What is your age? _____ What is your gender? _____ What is your GPA? _____

What is your ethnicity? White/Caucasian _____ African American _____ Hispanic _____ Native American _____ Asian _____

How skilled are you in using computers? (circle one)	1	2	3	4	5
	unskilled		somewhat skilled		very skilled

How skilled are you in using a mouse? (circle one)   1   2   3   4   5

How often do you play video games? (circle one)	1	2	3	4	5
	almost never		sometimes		very often

APPENDIX A

Question	Item#
1. I am a worrier. (I am not a worrier).	1
2. I really like most people I meet.	2
3. I have a very active imagination.	3
4. I often get angry at the way people treat me.	6
5. I am attracted to crowds of people. (I shy away from crowds of people)	7
6. Aesthetic and artistic concerns are very important to me. (Aesthetic and artistic concerns aren't very important to me)	8
7. I'm not crafty or sly.	9
8. I often feel lonely or blue. (I rarely feel lonely or blue)	11
9. I am dominant, forceful, and assertive.	12
10. I try to perform all the tasks assigned to me conscientiously.	15
11. In dealing with other people, I always dread making a social blunder.	16
12. I'm pretty set in my ways.	18
13. I would rather cooperate with others than compete with them.	19
14. I tend to overindulge in things. (I rarely overindulge in things)	21
15. I often crave excitement.	22
16. I often enjoy playing with theories or abstract ideas.	23
17. I am easily frightened.	31
18. I take civic duties like voting very seriously. (I don't take civic duties like voting very seriously)	35
19. I like to have a lot of people around me.	37
20. Sometimes I feel completely worthless.	41
21. I have no trouble asserting myself. (I sometimes fail to assert myself as much as I should)	42
22. I try to be courteous to everyone I meet.	44
23. Most times I am dependable or reliable. (Sometimes I'm not as dependable or reliable as I should be)	45
24. I often feel self-conscious when I'm around people. (I seldom feel self-conscious when I'm around people)	46
25. I think it is interesting to learn and develop new hobbies	48
26. I can be sarcastic and cutting when I need to be	49
27. I have a clear set of goals and work toward them in an orderly fasion.	50
28. I have trouble resisting my cravings.	51
29. I believe that laws and social policies should change to reflect the needs of a changing world.	58
30. I am hard headed and tough minded in my attitudes.	59
31. I often feel fearful or anxious. (I rarely feel fearful or anxious)	61
32. I am known as a warm and friendly person.	62
33. I have an active fantasy life.	63
34. I couldn't deceive anyone even if I wanted to.	69
35. I am often sad or depressed.	71
36. I have often been a leader of groups I have belonged to.	72
37. How I feel about things is important to me.	73
38. I pay my debts promptly and in full.	75
39. At times I have been so ashamed I just wanted to hide.	76
40. Once I find the right way to do something, I stick to it.	78
41. I do not hesitate to express my anger when it is justified.	79
42. I have sometimes done things just for "kicks" or "thrills	82
43. I enjoy solving problems or puzzles.	83

44.	I am a productive person who always gets the job done.	85
45.	We can never do too much for the poor and elderly	89
46.	I like to spend my time daydreaming. (I don't like to waste my time daydreaming)	93
47.	I really feel the need for other people if I am by myself for long.	97
48.	I am intrigued by the patterns I find in art and nature.	98
49.	Being perfectly honest is the best way to do business.	99
50.	I like to keep everything in its place just so I know where it is.	100
51.	In meetings, I usually do the talking. (In meetings, I usually let others do the talking)	102
52.	I generally try to be thoughtful and considerate.	104
53.	I get embarrassed if people ridicule and tease me. (It doesn't embarrass me too much if people ridicule and tease me)	106
54.	I often feel as if I'm bursting with energy.	107
55.	I often try new and foreign foods.	108
56.	If I don't like people I let them know it.	109
57.	I work hard to achieve my goals.	110
58.	I often have sympathy for the poor. (I seldom have sympathy for panhandlers)	119
59.	I am often apprehensive about the future. (I'm seldom apprehensive about the future)	121
60.	I really enjoy talking to people.	122
61.	I enjoy concentrating on a fantasy or daydream and exploring all its possibilities.	123
62.	I would hate to be thought of as a hypocrite.	129
63.	I tend to blame myself when anything goes wrong.	131
64.	Other people often look to me to make decisions.	132
65.	I am known for my generosity. (I'm not known for my generosity)	134
66.	When I make a commitment, I can always be counted on to follow through.	135
67.	I often feel inferior to others.	136
68.	I like to be where the action is.	142
69.	I enjoy working on "mind-twister" type puzzles.	143
70.	Once I start a project, I almost always finish it.	145
71.	I believe that loyalty to one's ideals is more important than "open-mindedness."	148
72.	Human need should always take priority over economic considerations.	149
73.	I often worry about things that might go wrong.	151
74.	I find it easy to smile and be outgoing with strangers.	152
75.	I am often successful at things.	155
76.	I have a low opinion of myself.	161
77.	I would rather be a leader than go my own way. (I would rather go my own way, than be a leader of others)	162
78.	I often notice the moods or feelings that different environments produce.	163
79.	Most people I know like me.	164
80.	I adhere strictly to my ethical principles.	165
81.	I do not feel comfortable in the presence of my bosses or other authorities.	166
82.	Sometimes I make changes around the house just to try something different.	168
83.	If someone starts a fight, I'm ready to fight back.	169
84.	I strive to achieve all I can.	170
85.	I sometimes eat myself sick.	171
86.	I love the excitement of roller coasters	172
87.	I have great interest in speculating on the universe and the human condition. (I have little interest in speculating on the nature of the universe or the human condition)	173
88.	I consider myself broad-minded and tolerant of other people's lifestyles.	178
89.	I feel that all humans are worthy of respect.	179

90. I have more fears than most people. (I have fewer fears than most people)	181
91. I have strong emotional attachments to my friends.	182
92. As a child I often played games of make believe.	183
93. I tend to assume the best about people.	184
94. I'm a very competent person.	185
95. In conversations, I tend to do most of the talking.	192
96. Sometimes when I am reading poetry or looking at a work of art, I feel chills/excitement.	188
97. Sometimes things look pretty bleak or hopeless to me.	191
98. In conversations, I tend to do most of the talking.	192
99. I find it easy to empathize – to feel myself what others are feeling.	193
100. I think of myself as a charitable person	194
101. I try to do jobs carefully – so they won't have to be done again	195
102. If I have said or done the wrong thing to someone, I can hardly bear to face them again.	196
103. I am hard-headed and stubborn.	199
104. I strive for excellence in everything I do.	200
105. I have a lot of intellectual curiosity.	203
106. I would rather praise others than be praised myself.	204
107. I have sympathy for others less fortunate than me.	209
108. I plan ahead carefully when I go on a trip.	210
109. Frightening thoughts sometimes come into my head.	211
110. I take a personal interest in the people I work with	212
111. Even minor annoyances can be frustrating to me.	216
112. I enjoy parties with lots of people.	217
113. I pride myself on my shrewdness in handling people.	219
114. Too often, when things go wrong, I get discouraged and feel like giving up	221
115. I find it easy to take charge of a situation. (I don't find it easy to take charge of a situation)	222
116. I go out of my way to help others if I can.	224
117. I'd really have to be sick before I'd miss a day of work.	225
118. I like to try different routes when I go someplace.	228
119. I'm something of a workaholic.	230
120. I like being part of a crowd at sporting events	232
121. I have a wide range of intellectual interests.	233
122. I have a lot of self-discipline.	235
123. I would rather be known as merciful than just.	239

APPENDIX B

BEFORE PARTICIPANTS ENTER:

- Put keyboards on top of monitors.
- Have paper ready to write their names.
- Make sure that the task bars are not accessible at the bottom of the screens. This just makes things easier in the long run.
- Set up the Training Game for the team leader.

At the dos prompt, type "con". A blue controller window appears. In this blue con window:

a. Select "Pilot02" from the Team Name section (can actually select any name)
b. Select "1Traindiv" from the Expt # section
c. Click on "Start New Game."
d. Click "OK to overwrite log file?" if necessary
e. Highlight the xterm window, you should see "Start Five Locals, Please."
f. Go to station DM1 and bring up the game playing screen by entering L1 at the command prompt.
g. Repeat at all consoles

ONCE PARTICIPANTS ENTER:

After four 302 subjects arrive in the teamlab, take them into one of the DDD rooms (long or square), seat them at DM1-DM4, and collect their consent forms.

Welcome to the teamlab. The first thing I need you to do is write your first name in big block letters on one of these small sheets of paper. (Point out the paper and markers). Since you will be working as a team, and you will be able to talk to each other as much as you want, it would be helpful to know who everyone is.

Post their names above their carrels, if they haven't done so already. Get all the participants started on the NEO.

THE BINDERS:

Page 1   "Welcome to the team effectiveness lab"

Please take the binder at your station and open it up to the first page. This page offers some background into the teamlab, so just follow along as I go through each point. Our purpose here is to improve individual and team performance in organizations. Who benefits? Society, MSU, and, most importantly, you the students. You get your course credit and experience in teams. Plus we award cash prizes to top performing teams. So if you guys do really well on the game you'll get a check for $10 at the end of the semester.

Page 2   "The Game"

The game you are going to be playing in called the DDD. It's on your screens right now, but nothing's going to happen until I start it up. Basically the game simulates a military command and control context, where you own and operate various vehicles, such as helicopters, jets, tanks, and radar planes. In fact, pilots in the Air Force actually play this game as part of their training. The object of the game is to monitor restricted airspace and prevent enemy vehicles from entering forbidden locations by detecting them, identifying them, and attacking them if necessary. However, you must not attack any friendly vehicles that are operating in the same locations. As a side note, only the vehicles get destroyed, not any of the people. Everyone escapes safely.

Page 3   "How you will be spending your time"

Your time here will be broken down into three parts. The first part is what we are doing now. I will give you a quick general overview of the game. Here I will explain the game screen, the scoring, the vehicles you will operate and the targets you will face. Next, we will give you an opportunity to practice the game for an hour or so. This is where you will really learn how to play the game and begin to interact as a team. Finally, you will play the actual game, which consists of 2 short 30-minute games. It is here that your performance will count, and will decide whether you receive a cash prize.

Pages 4-5   The Game Screen and Scoring

Take a look at the diagram of your game screen – that laminated page. You can also refer to your monitor screen if that's more clear for you. There are two sections of the screen: the game playing area which is the grid, and the report area which is shaded in blue. The first thing we're going to do is go over the game playing area.

The game playing area is basically one geographic area broken down into four separate quadrants. Each of you has a home base inside your quadrant – that base shows up in your binder as a black rectangle. If you look closely you will see your station's name inside, DM1, 2, 3, or 4. These names correspond to the ones posted above your names. Does everyone see where their base is?

Now, within the grid system is a large green square, this is a restricted area which I'll call "THE FORBIDDEN ZONE." This is the area that you must keep enemies from entering. Within the green Forbidden Zone is a red square. This is "THE REALLY FORBIDDEN ZONE." This is the area you DEFINITELY must keep free from enemies. The way the game is scored is that, if an enemy were to enter the Forbidden Zone – the green square – you will lose 1 point per second from your score. If an enemy were to enter the Really Forbidden Zone – the red square – you will lose 2 points per second from your score.

So you're going to want to destroy enemy targets as soon as they enter the Forbidden Zone. In fact, if you do that, you'll get 5 points. However, you have to be careful not to destroy them before they get into the Forbidden Zone – if you do that you'll actually lose 25 points. You'll also lose 25 points if you accidentally destroy a friendly target, no matter where it is on the screen.

You will have three different scores. One covering your own personal quadrant, one covering your pair (North or South), and one covering your team as a whole. Since you're a team, you need to worry about your team score in order to have a chance at the cash.

To reiterate the scoring, take a look at the page facing this one – How the Game is Scored. Again, your offensive score is affecting by attacking things. You can either Gain 5 points or Lose 25 points. Your defensive score is affected by having things in the green or red Forbidden Zones. You can either lose 1 point per second or 2 points per second. Finally, you have three separate scores, one individual, one group, and one team.

Now look at the report area – which is the blue part. You can see that the top of the report area tells you what station you are. Under that is the clock, which tells you how much time has expired during the game. Under the clock is what is most important- the scoring bars.

If you notice, you have six different scoring bars- three for offense and three for defense. Let's say that an enemy target enters the screen at the top left corner and makes its way into DM2's green zone. Since it is an enemy, DM2 will be losing 1 point per second on his/her individual defensive score, 1 point per second on the northern group's defensive score, and 1 point per second on the team's defensive score. However, no one else's individual defensive scoring bar will go down and the southern group's defensive scoring bar will not be going down. Do you notice how the bars are completely filled and a large number is in the box? That means defensive scores can ONLY go down. You can, however, gain offensive points. So if DM2 were to destroy that target he/she would get 5 points on their individual offensive score, the northern group would get 5 offensive points, and the team would get 5 offensive points. However, none of the other individual offensive scoring bars would go up and the southern group offensive score would not change. If one of you screws up and shoots down a friendly or shoots an enemy outside of the forbidden zone, your offensive score is the one that drops by 25 points.

Under the scoring bars is a black bar, which is called the busy signal. Basically, when you launch something, it indicates the length of time your base requires before it can launch again. Under the busy signal are a set of buttons. Again, when the practice game starts, I'll tell you what each of those buttons does. Under the buttons is the message box. You will be able to talk as much as you want during the game, so you will never need to use the message box. Let me just say that teams ALWAYS do MUCH better when they frequently talk amongst themselves during the game, so try and do it as often as possible. Finally, on the bottom of the screen are two long windows: the report and confirmation windows. Basically, if you were to attack something, the computer would write it down in text in one of those windows. You will not use either of the windows during the actual game, so don't worry about them.

Pages 6-7   Locating and Identifying Targets

Now we're going to talk about playing the game. Specifically, how to locate and identify targets.

There are two different rings around your base. The outer black ring is your detection ring. This ring shows you how far you can see. You will not be able to see targets that are outside of this ring, even if it is in one of your teammates detection rings. When it enters your detection ring, you will be able to see it but you won't know whether it is a friend or foe. For that, you have to wait until it gets within your blue ring, which is your identification ring. This ring enables you to identify whether the target is a friend or foe. Does anyone see a potential problem with the size of your identification ring? (Wait....). If you notice, the identification ring does not cover all of your green forbidden zone. So a target could come into the corner of your forbidden zone and, although you will be able to see it in your black ring, you will not be able to identify it and you will start losing points if it's an enemy. That's why you have jets, helicopters, tanks, and radar planes. You can launch them to go identify the target and attack it if necessary.

Pages 8-9   The Vehicles

As you can see, there are four different types of vehicles. You each will have a certain combination of these vehicles. The vehicle on the left is the jet, on the top is the tank, on the bottom is the helicopter, and on the right is the radar plane, which is called an AWACS. If you notice, the AWACS has two rings that look similar to the ones around your base. That's because it is a radar plane and only has the capability to detect and identify targets at points on the screen that aren't covered by your base.
You cannot attack any enemies with the AWACS. However, if you have one of the other three vehicles, you will be able to attack enemies. Notice that each has three rings instead of two. Now there is a third red ring. That is your attack ring. So now you can see the targets when they get within the black ring, id targets when they get within the blue, and attack when they get inside the red ring.

However, there are differences between the various vehicles. You can see that the ring diameter is different for the various vehicles. Also notice the red line coming out of each of the vehicles. That denotes the speed of the vehicle. The tank is the slowest, while the jet is the fastest. If you look at the page facing this one, you can see that, although the tank is the slowest, it also has the most power. It can destroy enemy targets with a power of 1, 3, or 5. The helicopter, with a power of 3 can destroy enemies with a power of 1 or 3. Finally, the jet, although fast, can only destroy enemies with a power of 1. The AWACS, as I said before, is a radar plane so it doesn't have any power to destroy enemies.

One thing you must remember is that you only get one shot with each vehicle, then you are out of ammunition and you must return that vehicle to the base to reload. Even if you attack an enemy with a power of 1 with a tank, which has a power of 5, you still get one shot. After attacking, you MUST return your vehicle to your base in order to reload. I'll explain how to do that once the practice game starts.

The last thing you see regarding the vehicles is fuel time. The chart shows you how much time you have to move each vehicle around the screen until they run out of gas. For example, you have 8 minutes to move the tank around the screen. After the 8 minutes is up, the tank will turn into an X and it will automatically return to its base. As soon as it gets back to the base you can launch it again for another 8 minutes. So if you see your vehicle X out during the game for no reason, you probably just ran out of gas.

Pages 10-11   The Targets

This is what the targets are going to look like on your screens. When they first enter your detection ring, which is the black ring, they are going to show up looking like #201 in your notebook- a diamond with a question mark in the middle. They will always look that way no matter if they are a friend or foe. You have to manually identify them as friend or foe once they enter your blue ring. As you can see, #200 has entered the blue ring of DM2 and DM2 has manually identified it. When targets are identified, they show up as a box. Inside that box is what type of target it is. So you can see that #200 is a G3, which means it is a ground target with a power of 3. #202 also has been identified by DM2 because it too turned into a box on the screen. But notice where it is. It is outside of the blue ring of DM2's base, but it is inside the blue ring of DM2's AWACS radar plane. As long as it is inside ONE of the blue rings that correspond to your base, you can identify the target.

As you can see on the page facing this one, there are eight different targets. There are both ground and air targets. The air targets move faster than the ground targets. And each type also has power 0, 1, 3, and 5, which corresponds to the power levels of your vehicles. So you can only destroy an enemy with a power of 5 with a tank. An enemy with a power of 3 can be destroyed by both the helicopter and tank and an enemy with a power of 1 can be destroyed by the jet, helicopter, and tank. What you have to watch out for are the A0 and the G0. Both of these are friendly targets and, like I said before, you NEVER want to destroy those targets no matter where they are on the screen.

Also notice that there are four U targets, or unidentified targets: a U+, a U-, a U#, and a U*. These targets will only appear during the actual game. Each one corresponds to either an A0, an A1, an A3, or an A5 and their power level will remain constant through the entire game. Unfortunately, you won't know which is which when the game starts. As a team, you must figure out what the unidentifieds are in order to score well in the game. If you are wrong, you could start losing a lot of points if you are destroying the A0. So how do you figure that out? I'll give you a couple of hints. If a U target enters your green zone, and you look to your score and see that it is going down, you would know what? . . . . (that it's an enemy) On the other hand, if you were to attack the U target in the forbidden zone with a helicopter, and you did not destroy it, what would that mean? . . . . (you didn't have enough power- it was the A5).

Pages 12   A Quick Quiz

Go ahead and turn to the next page, which shows you how the screen looks with a lot of targets on it. Everyone find target #211. Since #211 has entered DM2's detection ring, DM2 can see it. Can he/she identify it? . . . . . . (No) How about #210, which is right next to DM2's base, can he/she identify that? . . . . (Yes) Now #202 is right in the middle of the screen. It is behind another target, but you can see that it has a power of 3. Are you losing points as a team? . . . . . . (Yes) How many? . . . . . (2 points per second) Can you attack #202 with the vehicle that is right next to it? . . . . . . (No) Why not? . . . . (Because it's the AWACS and it has no power)

Page 13   A Successful Attack

So just to reinforce what we have been talking about so far, I want to reiterate what constitutes a successful and an unsuccessful attack. To get five points you must attack an ENEMY target ANYWHERE inside the big green box. Plus, it has to be within the RED ring of your vehicle and you MUST have enough power. Remember that, if you do shoot something, you must always return the vehicle to your base before attacking again, because you lose all of your power after one attack.

If you look at your score and you lost 25 points, that means that you either attacked something OUTSIDE of the forbidden zone or you attacked a FRIENDLY. If the enemy is too far away or you don't have enough power, you will be unsuccessful, but your points will remain the same. You will only be losing time.

Hands-On Training:

Alright, let's begin. Using the mouse, click on the start button on the right hand side of the screen in the report area. It should say refresh if you clicked correctly.

(Click "start" on DM0's computer).

Ok, so now you can see that the clock has started. The practice targets don't come up for a while yet, so we're going to practice a few basic things. The first thing we are going to practice is zooming in- BUT DON'T DO ANYTHING YET. If there are a lot of targets in one portion of the screen, you will find it difficult to specify which one you want to identify and which you want to attack. So you can zoom in on that portion of the screen. Ok, everyone go ahead and click the "zoom in" button and move your cursor back onto the game playing area- DON'T CLICK AGAIN UNTIL I TELL YOU WHAT TO DO. So you can see that your cursors have changed into a weird shape.

If you click on something, and your cursor changes, but you wanted to click something else, you can go over to the cancel button next to the refresh button. Everyone go ahead and click cancel. Your cursors are now back to normal.

Ok, go ahead and click on zoom in again and move the strange cursor to the exact center of the grid, where the four Forbidden Zones meet. Now click on that point, and KEEP THE BUTTON CLICKED DOWN. Keeping the button down, drag your mouse to the opposite corner of your Forbidden Zone. You should be creating a box around your Forbidden Zone. Now let go.

(Make sure that each person does it correctly)

Ok, to zoom out you just have to click on the "zoom out" button in the report area. Once you've done that, I want you to practice zooming in one more time. This time zoom in on your portion of the red box in the center of the screen.

(Make sure each person does it correctly)

Remember the zoom in function during the game. Most people forget about it and it makes the game much more difficult.

Now take a look at the mouse-chart thumb-tacked up at your station. You will be using the right and left buttons of your mouse today, and sometimes it can get a little confusing. Everyone is used to using the left mouse button to click on things. The only difference here is that sometimes you will also use the right mouse button. In DDD, you first use the right mouse button to open up a menu, then you use the left mouse button to select specific menu choices. Which menu you open up depends on what you right-click on. As you see on your mouse-chart, if you right-click on your base you get a menu with options like "Info on Asset." If you right-click on one of your vehicles you get a menu with options like move, attack, return to base, etc. If you right-click on a target, you get a menu with options like identify or transfer identity. We'll go over all of these choices, but if at any point you forget how to do something, just refer to that mouse-chart.

The first thing we are going to do is launch something from your base. To do that you have to open up a menu from your base. So put your cursor right on top of your base and RIGHT click. You'll see a long menu. Go all the way to the bottom and click on "Info on Asset." When you do that a window will pop up.

(Make sure they have the correct window up).

Before I talk about what's inside this box, I want to explain a couple of things about these windows. This is UNIX, not Windows, so you CANNOT close the windows using one of the little buttons in the upper right hand corner. If you do, it will exit you out of the system and I will have to restart the game. The only way to close one of these windows is to click on the "cancel" or "ok" buttons on the bottom. Also, sometimes these windows may pop up and the buttons will appear below the screen. To move them up, just use the dark blue bar at the top of the window to drag it up a bit. Everyone just go ahead and drag this window up about an inch or so.

(Make sure they drag it up properly).

Ok, so now we're going to launch something. See where it says "Sub"? That stands for "Sub-Platform," which is what the vehicles in DDD are called. So the Sub column tells you which vehicles you have available for launch at your base. Next to that it says whether they're aboard or not. Since we haven't launched anything yet, all the vehicles are aboard. Next to that is the launch column with arrows pointing right and left. The left arrow does NOT do anything. ALWAYS click the right pointing arrow next to the vehicle that you want to launch. Go ahead and click one of the right pointing arrows so it becomes highlighted in black. Then go down and click on ok.

(Make sure everyone launches their vehicle correctly).

Once you've done that, look at the busy signal in the report area. When that white line reaches the bottom, your vehicle will appear next to your base. When it does appear, you are going to practice moving the vehicles. If you look at your mouse-chart, you can find the Move option by right-clicking on your vehicle. So everyone right click on whatever vehicle you just launched, then go down and click on Move Fast. Now your cursor looks like a plus sign. Now take that plus sign and click it wherever you want that vehicle to move to. The vehicle will move to the exact spot you just clicked on.

(Make sure that they move their vehicles correctly).

Ok, now remember when I was talking about how much time and power each vehicle has? Well, you can check the status of that time and power by right clicking on your vehicle and going down to "Info on Asset." This window tells you two important things. It tells you how much time your vehicle has left before it's going to return to your base and it tells you how much power you have left. So if you weren't sure whether you used one of your vehicles to attack, you could check use Info on Asset to check. If it had zero power, either it is an AWACS or you already used it to attack something. Go ahead and click on "ok" to close this window.

I want you to practice moving your vehicles, so go ahead and move them a couple more times.

(Watch to make sure they know what they're doing).

Let's pretend that you attacked a target with your vehicle, so you used your one shot. That means that you have to return that vehicle to your base. To do that, you have to right click on your vehicle again. This time go about half way down in this box to where it says "Return." Go ahead and click on "Return" and then click on "ok" when the next box comes up. You'll see that your vehicle automatically returns to your base when you do that. You MUST use the "Return" option to return your vehicle. You CANNOT just move your vehicle near your base.

Ok, now I want you to practice what we have been doing. I want you to launch all four of your vehicles and then I want you to move each one to a different corner of

your Forbidden Zone. Remember, you can only launch one at a time. So launch one and move it to one corner. Then, while the first one is moving, go back and launch another from your base. When you launch everything, pay attention to the different ring radiuses and the different vehicles speeds.

(Again, make sure they are doing everything correctly and wait for everyone to deploy all their vehicles).

Ok, now go ahead and return your vehicles to your base.

(Make sure everything returns correctly).

13:00	Identifying a Friendly	
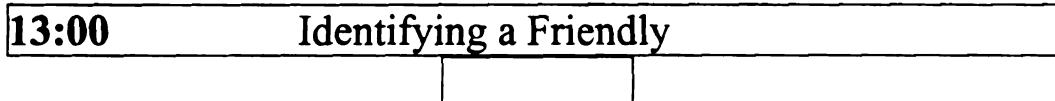
Four ground targets will enter at the corners of the screen. Before they do, please launch your Jet. Once it is launched, move it toward the target once you see it.

(Wait until they get their vehicles close to the target).

Once the target gets within the blue rings of EITHER your base or your vehicle, you will be allowed to identify it as either a friend or foe. If you look at your mouse-chart, you can see that you can Identify things by right-clicking on the target, then choosing the Identify option. Everyone go ahead and do that – right click on the target then choose Identify. Now another window will pop up. This window will appear every time you want to identify a target.

(Make sure they have the identify window on their screens).

You always do the same thing to identify a target using this window- first click on "Fused" and then go down and click on "ok."

Now you can see that the target has a G0 in the middle of its box, so you know that it's a ground target, because of the G, and a friendly target, because of the 0. Look at your defensive score – it's NOT going down. So that's another way to determine whether the target is a friendly or an enemy without having to manually identify it.

Another option you have is to transfer the identity of that target to your teammates. To do that, you right click on the target again and go down to "Transfer Info." Then click on "all linked DMs" in the next box that appears. You just transferred the identity of that target to the rest of your team. So now when that target enters your teammates DETECTION RING, it will appear as a G0 and not a question mark.

Go ahead and return your Jet to your base and launch your Helicopter to prepare for the next target.

(Make sure they return and launch everything ok).

Now move this vehicle to the same corner the last target came from.

16:00 Practicing Identifying and Transferring Info

Another set of friendly targets, this time air targets, will come into the corners of the screen. Practice identifying and transferring that identity to your teammates. Watch your defensive scores again.

(Make sure they do everything ok.).

Now return your Helicopter and launch your Jet. Again, move it to the corner of your Forbidden Zone.

18:00 Attacking Some A1's

The next air targets will be coming in quickly from the corners again. They are A1s. When they enter the Forbidden Zone, watch your defensive score. When you see it going down, move your vehicle toward it so the target is in your red attack ring.

(Make sure they are following ok)

As you can see on your mouse-chart, you attack something by right-clicking on your vehicle and choosing Attack. Once you choose Attack your cursor will turn into a big black "X." Put it directly over the target and click. Your Jet and the target will then X-out and you will see a red explosion and it will say "hit- +5 points."

(Make sure everyone is following along. If they missed the first target, they may be able to catch one coming from another quadrant).

Always look for the fire. If you don't see the fire and the hit sign, you did something wrong. Now look at your offensive scores. Each individual score went up 5, the groups' went up 10, and the team offensive score went up 25. Since you attacked with your Jet you have to ALWAYS remember to return it to your base. So go ahead and do that now.

20:00 Attacking Something Outside the Forbidden Zone

The next targets are going to enter at the corners again, but this time they are going to stop just outside your forbidden zone. So launch your Helicopter and move it close to the target so you can identify it.

(Wait for everyone to identify it as an enemy).

Ok, do you want to attack this target right now? .... No you don't because it's outside your Forbidden Zone, but you do want to watch it because it could come in at anytime. However, just to show you what happens when you make a mistake, go ahead and attack the target outside the Forbidden Zone. And watch what happens.

(Make sure they all do it correctly).

So when you attack an enemy outside of the Forbidden Zone, or you attack a friendly anywhere on the screen, you'll get an X and it will say "error -25 points." Make sure you always look for the fire when you attack something or you'll start losing a lot of points. Now that you used up your Helicopter's power, you have to return it to your base, so go ahead and do that before the next targets come onto the screen.

23:00	Attacking enemies inside the Forbidden Zone

Four enemies are going to come in from the corners again, but this time they are going to sit just inside of your forbidden zone and you will be losing points off your defensive score. So, just like before, launch your Jet and go destroy the enemy target.

(Make sure they do everything ok).

Since you used your Jet to attack the target, what do you have to do with it now? . . . Right, return it to your base.

25:00	DM2 gets bombarded

Ok, now one person is going to get bombarded with 8 targets at once in their quadrant. When that happens, you have to let your teammates know what is going on.

(Have everyone come and look at DM2's screen).

Remember, they can only see what's in their own detection rings. Anything outside of those rings cannot be seen without the help of a vehicle. So tell people that you need help if you get bombarded. You can identify all the targets for your teammates, you can tell them what they are (as in enemy or friendly), and you can tell them where they are. To tell people where targets are, you can say something like "number 200 is a G1 and it is at .40 and .40." Use the coordinates at the right and at the top of the game playing area. First use the top coordinates and then use the side coordinates. Or you can say "there are four enemies to the north of my base." Whatever works best for you as a team.

(Make sure they destroy all 8 targets).

Practice Time

For the next half hour I'm going to let you play the game on your own for practice. But I'll be here to answer any questions that you might have.

DDD QUESTIONNAIRES:

(When there are 10 minutes left, give them the DDD questionnaire).

Ok, while you are playing the last 10 minutes of the practice game, please fill out BOTH sides of this questionnaire. You can use the mouse to help you if you want. Just circle the answer you think is correct.

SHORT BREAK:

(At 60 min., pull the game playing area on DDD's screen down so you can see the controller window. Click "terminate experiment" to end the practice game).

Before the actual game starts, you can take a short break. So if you need to use the bathroom or get a drink of water, please do so now.

THE FIRST 30 MINUTE GAME:

1. At the dos prompt, type "con". A blue controller window appears. In this blue con window:
2. Select any Team Name listed in the "Team" box. Highlight that name, then hit Backspace to erase it. Now type in the Team Name listed in the log book. It will either be:

    Drfp_a
    Dpfr_a   where _ is filled in with the team number
    Fpdr_a
    Frdp_a

3. Select the Expt # listed in the log book. It will either be:

    1divr30
    1divp30
    1funr30
    1divr30

4. Click on "Start New Game."
5. Highlight the xterm window, you should see "Start Five Locals, Please."
6. Type "l0" (el - zero)
7. Type "l1" "l2" "l3" "l4" at DM 1 through 4, respectively

We are ready to start the actual game. Before we do, there are two things I need to go over. The first is the unidentified targets. Remember that unidentified targets are targets that, even after you identify them, you still don't know what they are. They're the UX, U-, U+, U#. They correspond to A0, A1, A3, and A5, so you'll have to figure out which is which. You're going to want to help each other out with that – if you figure out what a UX is, for example, make sure you tell your teammates.

The other thing I want to go over is the Team Structure sheet thumb-tacked up in your station. In a divisional structure everyone has one of everything. That is the kind of structure you were each trained in. In a functional structure, everyone has 4 of one specific thing. Specifically, DM1 has only AWACS, DM2 has only Tanks, DM3 has only Helicopters, and DM4 has only Jets. You guys will play 2 30 minute games, one under each of these structures.

(At the thirty minute mark, the game automatically ends. You will get a blue "quit" box. TELL PLAYERS AT THE 29 MIN. MARK NOT TO CLICK ON THE QUIT BOX).

(Write down everyone's score -- ind, group, team. Note you need four ind. scores, two group scores, and one team score. Check to make sure all team scores match. Write down both offensive and defensive scores. Now quit each station, and hit "terminate experiment" in the controller window.)

(If someone quits their screen, note it in the log book under comments. Try to get an idea of at least the team score, in case there is a crash at the 30 min. mark. If a crash occurs, email Jeff (daniel15@pilot.msu.edu) the room, time, team name, and exp. condition).

THE SECOND 30 MINUTE GAME:

1. At the dos prompt, type "con". A blue controller window appears. In this blue con window:
2. Select any Team Name listed in the "Team" box. Highlight that name, then hit Backspace to erase it. Now type in the Team Name listed in the log book. It will either be:
   Drfp_b
   Dpfr_b   where _ is filled in with the team number
   Fpdr_b
   Frdp_b
3. Select the Expt # listed in the log book. It will either be:
   1divr30
   1divp30
   1funr30
   1divr30
4. Click on "Start New Game."
5. Highlight the xterm window, you should see "Start Five Locals, Please."
6. Type "l0" (el - zero)

7. Type "11" "12" "13" "14" at DM 1 through 4, respectively
(Again, at the thirty minute mark, write down scores).

POST-GAME STUFF:
1. Give them the U questionnaire.
2. Encourage them to sign up for an experienced DDD session at the bottom of the U questionnaire.
3. Thank them, ask them not to talk with anyone about the experiment.
4. After players leave, again, check to make sure you have scores, quit each station, and terminate experiment.
5. File everything.
6. After the night session, turn off the monitors. DO NOT SHUT DOWN COMPUTERS.
7. CHECKLIST:

Did you:
-put DM stations and team name on questionnaires?
-file consent forms and questionnaires?
-take down old names and straighten up the stations?
Thanks!!!

TEAM PERFORMANCE STUDY CONSENT FORM

This study is designed to investigate team performance. If you choose to participate in this study, you will be asked to learn a computer simulated target identification task, operate the simulation task with other individuals, complete a series of questionnaire items while in the laboratory, and listen to a short debriefing at the end of the study. In addition, if you choose to participate in this study, you authorize the researchers to have access to the questionnaires that you completed in your Management 315 section.

Your participation in the simulation should take approximately three hours. In exchange for your participation in this study, you will receive miscellaneous credit for your Management 315 class requirement to participate in a research project. Other research projects or alternatives are available from your instructor if you decide not to participate in this study. If you do participate, you have the opportunity to earn a cash bonus up to $20.00. This bonus will take the form of a check given to you in one of the final class meetings. This will be explained more fully during the study. Not all get a cash bonus; the bonus is based on how well you and/or your team performs.

Your participation in this research is completely voluntary. You are free to decline to answer any questions or to terminate your participation at any time without penalty. Your participation in this study will be kept confidential to the maximum extent allowable by law. Your data will be included in a summary report along with the data from others. The report will **not** include any information that will allows anyone to identify any of your individual responses.

If you have any questions or concerns regarding this study, you may contact Daniel R. Ilgen in the Management Department at 432-3513. You may also contact David E. Wright of the University Committee on Research Involving Human Subjects at 355-2180 for further information about your role and rights as a participant in this study.

Participant's Statement

I agree to participate in the Team Performance Study. I understand that I will learn to operate a computer simulation, perform the simulation with other individuals, and fill out a series of questionnaires. I authorize the researchers to use questionnaire that I already completed in my Management 315 section. It is my understanding that these materials will be kept confidential and will not be seen by anyone other than the research team. I consent to having these materials used for research purposes. I understand that the top performing teams will be eligible for cash prizes.

I understand that my participation is voluntary, that I may discontinue participation at any time without penalty, that all of my individual responses will be kept strictly confidential, and that I will not be identified in any report of this study.

Signature _____   Date _____

Printed Name _____

The following information is used for no other purpose than for us to insure proper class credit is awarded for participation in the research or to locate individuals to pay those in high performing teams if the persons are absent from class the day payments are made.

PID (MSU ID Number) _____

My MGT 315 instructor's name _____   My MGT 315 Section number _____ (if unsure see bulletin board)