

PSYCHOPATHY AND COOPERATION: PERSONALITY TRAITS AS  
PREDICTORS OF COOPERATION AND SUCCESS IN A PRISONER'S  
DILEMMA

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## Abstract

### PSYCHOPATHY AND COOPERATION: PERSONALITY TRAITS AS PREDICTORS OF COOPERATION AND SUCCESS IN A PRISONER'S DILEMMA

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Psychopaths are often violent, aggressive, and manipulative. They pose a serious threat to our social structures, and it is essential that we better understand the nature and origins of psychopathy. The present study examined the relationship between certain personality traits highly correlated with self-report measures of psychopathy (Payne, 2004) and the strategies individuals use when playing a prisoner's dilemma. The purpose of this study was to identify relationships between the levels of cooperation used and success in a prisoner's dilemma with both broad personality domains and lower-level facets of the Five-Factor Model, as well as to explore new ways to conceptualize the psychopathic personality, and the possibility that it could be an adaptive and viable life-strategy. A prisoner's dilemma is a non-zero sum game where participants face a hypothetical friend in a decision making scenario. Participants receive points based on choice of cooperating or competing with a friend on a given trial. The goal is to earn the most number of points possible. The M5 Questionnaire, the Levenson Self-Report Psychopathy Scale, and the prisoner's dilemma were administered to students enrolled in

introductory psychology courses. Each measure was computerized and was presented as part of a three-fold program.

Pearson correlations were conducted at the domain and facet level to analyze the relationship between personality characteristics and overall average choice scores and overall average point totals in a prisoner's dilemma. There were few significant relationships between the M5 psychopathy profile and cooperation level, but it was observed that a cooperative style of play is not any more effective than a competitive style. Finally, there were a number of significant correlations found between the M5 and the LSRP replicating previous research.

## CHAPTER ONE

### Introduction

Psychopathy is both an important and pressing issue in the field of psychology. Each year, psychopathic individuals are directly to blame for great monetary and emotional costs to society. Hare (1993) suggests that psychopathy is composed of a set of emotional and behavioral traits including superficiality, a lack of guilt, a need for excitement, and adult antisocial behaviors. The mass media always reports the sensationalized stories of individuals who cheat people out of large amounts of money, murder people in “cold blood,” and show no emotion as they stand trial for brutal crimes they have committed. It would not be unlikely at one point or another in daily life to come into contact with people like this who lead a predatory-like existence, using one person after another with little thought or feeling. It is unlikely that all these individuals are psychopaths, but certainly a subset of these people do meet the criteria for psychopathy.

Understanding personality as a theoretical construct may help us better understand and conceptualize psychopathy, as psychopathy is primarily a personality based condition. One perspective that has grown in popularity over the last 10 years is the Five-Factor Model (FFM) of personality (Digman, 1990). There are a number of reasons for the acceptance of this model, including an abundant amount of supportive research and a variety of instruments available to measure the FFM (Costa & Widiger, 2002). Costa and

Widiger suggests that there is a fundamental need for a measure of personality because, while the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders IV Text Revision* (DSM-IV-TR: APA, 2000) does provide diagnostic criteria for the diagnosis of personality disorders, it provides no basis for assessing personality. They believe that the FFM fills this void as it provides a number of well-validated personality measures that could be of substantial utility to the field of personality disorder research (Costa & Widiger).

Sociobiologists and evolutionary psychologists (Lalumiere, Harris, & Rice, 2001; Mealey, 1995) have suggested that psychopathy may not be a disorder or impairment, but rather a frequency-dependent life strategy or even an adaptation. Harpending and Sibus (1987) suggests that psychopaths, or sociopaths, from an evolutionary perspective, look very much like "human cheaters." Human cheaters are individuals who choose not to cooperate with other individuals and would rather deceive, manipulate, and cheat in order to receive the short-term benefits of these actions.

Game Theory was once primarily utilized by the field of economics until Maynard Smith applied the concepts to behavioral evolution (Dugatkin, 1992). Game Theory provides an interesting context within which to study the construct of psychopathy. One non-zero sum game that could be used in the study psychopathy is the prisoner's dilemma. It is a game that has been widely used in the study of social interaction and cooperation (Axelrod, 1984) and the prisoner's dilemma has been used in research on psychopathy (Widom, 1976). Widom (1976) conducted a repeated prisoner's dilemma to

explore the possibility that psychopaths may be fundamentally different than normal individuals in their approach to social decision making and competitive situations that could be captured through playing this game. While her findings suggested that psychopaths were just as likely to cooperate as were normal individuals, there was evidence that individual differences exist, as is seen in the variation among personality traits, and that these traits may have evolved and developed in a variety of ways to fulfill the specific needs of each individual. Further studies using the prisoner's dilemma as a model for studying psychopathy could provide interesting information on the variability and adaptability of psychopathic personality traits. The present study is designed to determine if these individual differences have an effect on the levels of cooperation individuals use when playing an iterated, or repeated, prisoner's dilemma and also the success they have in the game.



## Chapter Two

### Literature Review

#### *Defining Psychopathy*

The psychopathic personality is not a new phenomenon. As early as the 19<sup>th</sup> century Philippe Pinel suggested a personality and behavior set that was characterized by the same lack of guilt and remorse that is seen in psychopathy. He called this condition “insanity without delirium” (Pitchford, 2001). Henry Maudsley used the terms “moral imbecility” and “criminal psychosis” to describe what today would be labeled psychopathy, while Pritchard called the condition “moral insanity” (Toch, 1998). In 1941, Howard Cleckley (1988) was one of the first individuals to give a thorough definition and description of what we now know as psychopathy. He listed 16 traits that characterized most psychopaths:

Superficial charm and good intelligence, the absence of delusion and other signs of irrational thinking, the absence of nervousness or psychoneurotic manifestations, unreliability, untruthfulness and insincerity, lack of remorse and shame, inadequately motivated antisocial behavior, poor judgment and failure to learn by experience, pathologic egocentricity and incapacity for love, general poverty in major affective reactions, specific loss of insight, unresponsiveness in general interpersonal relationships, fantastic

and uninviting behavior, with and without drink, suicide rarely carried out, sex life impersonal, trivial, and poorly integrated, and a failure to follow any life plan (Cleckley, pp. 337-338).

Robert Hare has worked since the 1960s to form an accurate picture of psychopaths. He found that they were very adept at persuasion and had an innate ability to present themselves in a positive light. The psychopaths that Hare came into contact with even had the intelligence and cunning to use and misuse instruments like the Minnesota Multiphasic Personality Inventory for their own benefit (Hare, 1993). In an effort to better understand psychopathy he created a “Psychopathy Checklist” (Hare, 1993). The traits that this “Checklist” measure include,

Glibness, grandiose sense of self-worth, need for stimulation, pathological lying, conning/manipulative, lack of remorse or guilt, shallow affect, callous/lack of empathy, parasitic lifestyle, poor behavioral controls, promiscuous sexual behavior, early behavior problems, lack of realistic, long-term goals, impulsivity, irresponsibility, failure to accept responsibility, many short marital relationships, juvenile delinquency, revocation of conditional release, and criminal versatility (Hare, 1993, pp. 34-82).

Many of these personality traits and behaviors are very similar to Cleckley’s 1941 list. It is of importance to note that roughly half of these traits are personality based. However, the closest conceptualization to psychopathy in the DSM-IV-TR is Antisocial Personality



Disorder. Hare (1996) suggests that Antisocial Personality Disorder is supposed to also conceptualize and encompass what is known as psychopathy; however, the diagnosis of this disorder lies primarily in the presence of deviant behaviors, criminal acts, and violations of social norms.

Psychopathy is much more than just the acting out of antisocial behaviors; there is an important emotional aspect of this construct that makes it fundamentally different than antisocial personality disorder. The importance of this differentiation is that 65% of prison inmates meet the criteria for the diagnosis Antisocial Personality Disorder, while psychopaths make up only about 25% of the prison population (Hare, 1993). Further, psychopathic offenders are far more likely to commit further crimes when released from prison, while little can be inferred about individuals who meet the diagnostic criteria for Antisocial Personality Disorder (Hare, 1996). Williamson, Hare, and Wong (1987) suggest that psychopaths commit far more crimes of violence and exhibit much more violent and aggressive behavior in prison than do other inmates. They found that psychopaths were far more likely to commit crimes against males that they did not know, whereas other non-psychopathic criminals often committed crimes only during times of intense emotional arousal and were more likely to commit crimes against women (Williamson et al., 1987). While both groups seemingly meet the diagnostic criteria for antisocial personality disorder, the crimes of psychopaths are seemingly more emotionally removed and callous.

A number of theorists have argued that there should be distinctions made between what is and what is not “true” psychopathy. Karpman said that “primary” psychopaths were truly deceptive con artists, who lied and cheated, while “secondary” psychopaths only engaged in socially deviant behavior due to the effects of another disorder like a mood or anxiety disorder (Levenson et al., 1995). Robert Hare lists both the emotional characteristics that would be appropriate to primary psychopaths, and the behavioral traits that would be close to antisocial personality disorder, as it is seen in the DSM-IV-TR and Karpman’s secondary psychopathy (Levenson et al., 1995). Levenson, et al. (1995) examined psychopathic traits among student volunteers. The researchers created scales to measure both primary and secondary psychopathy. They found that men scored significantly higher than women on measures of primary psychopathy, but only slightly higher on measures of secondary psychopathy. Also, their results showed that primary and secondary psychopathy were both predictors of socially deviant behavior; however, secondary psychopathy was correlated with anxiety measures, while primary psychopathy was not (Levenson et al., 1995). These findings support the hypothesis that physiological differences exist between primary and secondary psychopaths. Specifically, primary psychopaths may actually lack certain sets of normal emotional responses that secondary psychopaths, along with normal individuals, possess. Finally, the researchers found that the student endorsement of both primary and secondary personality traits was normally distributed. They suggest that this shows support for the

argument that psychopathy can be best understood through a dimensional model, rather than a categorical model, much like the construct of personality (Levenson et al., 1995).

Cooke, Michie, Hart, and Clark (2004) suggest the possibility that antisocial behaviors may not be central features of psychopathy at all, but rather may be the consequences or the acting out of the psychopathic personality. This suggestion provides more evidence for a difference between primary and secondary psychopathy. According to Cooke et al., the antisocial behaviors of primary psychopaths are the result of a specific set of personality traits, like deceitfulness, impulsiveness, and lack of remorse, while other disorders or outside social and environmental forces may be the driving force for antisocial behaviors in secondary psychopaths. It seems then that there are a number of different conceptualizations of psychopathy and most seem to discuss, in some sense, a personality based component and a behavioral component. Further, these studies suggest that primary psychopathy is a mix of both the emotional and behavioral characteristics, while secondary sociopathy involves merely the presence of antisocial, criminal, or socially deviant behaviors.

Psychopaths may process information differently and have different physiological responses to stimuli when compared to normal individuals. Based on an assumption that psychopaths do not experience the same emotional arousal as normal individuals, Williamson, Harpur, and Hare (1991) hypothesized that psychopaths would process affective words differently and less effectively than normal individuals. The participants were asked to respond by quickly differentiating words from nonwords as they appeared

on a computer screen. Event-related brain potentials (ERPs) were also monitored for all participants. The words were defined as positive, negative, or neutral. The clinically diagnosed psychopaths, as predicted, responded just as accurately and quickly to neutral words, but responded far more slowly to the emotionally laden words than did the control group. Further, there was no difference between the ERPs for neutral and emotional words for psychopaths, whereas there were for the control group (Williamson, 1991). This fundamental inability to quickly and efficiently process affective material supports the description of psychopaths as having a fundamental, biological deficit in emotionality.

Another issue central to the discussion of psychopathy is the fact that most of what we know today about psychopathy we have learned from incarcerated psychopaths. Widom (1977) suggested that there may be key differences between institutionalized and non-institutionalized psychopaths that have yet to be discovered due to the lack of time spent studying those psychopaths not in legal, psychiatric, or drug rehabilitation settings. Further, Widom (1977) questions how widely we can generalize the results of empirical studies of psychopathy if the psychopaths in prison are actually the “unsuccessful” psychopaths, the individuals lacking some of the essential skills and traits that have enabled the “successful” psychopaths to avoid incarceration. As a response to these questions Widom (1977) actually devised a method for recruiting non-institutionalized psychopaths. By using the definitions of psychopathy put forth by Hare (1993) and Cleckley (1988) Widom developed an advertisement which incorporated psychopathic



personality traits within its content. The add read, “Wanted: charming, aggressive, carefree people who are impulsively irresponsible but are good at handling people and at looking after number one, Send name, address... (Widom, 1977, p. 675).” The advertisement was successful and she was able to solicit responses from a number of individuals who scored highly on multiple measures of psychopathy (Widom, 1977).

In 1985, Widom again attempted to create an advertisement that would solicit the responses of non-institutionalized psychopaths much like she had in a previous study (Widom, 1977). She also added that along with again studying “successful” psychopaths she was also interested in studying the construct of psychopathy void of confounding variables like the effects of institutionalization and labels. She wanted to study individuals from all socioeconomic and ethnic groups because she had found that the participants in most psychopathy studies were primarily ethnic minorities and individuals from lower socioeconomic groups (Widom & Newman, 1985). Widom and Newman (1985) found that a large proportion of the individuals in her study had significant financial problems, had engaged in deviant sexual behaviors, had a history of heavy drinking and drug abuse, and also possessed a number of the personality traits associated with psychopathy. Almost half had been arrested while only three individuals had ever been incarcerated. Finally, she found that the participants had significantly higher scores on multiple measures of psychopathy than did the control group (Widom & Newman, 1985). The implications of her research suggest that it may be possible to learn about the differences between incarcerated and non-incarcerated psychopaths through the study of

individuals in the normal population. It seems essential to conduct more studies of psychopathy on normal populations. Further, there seems to be some lingering doubts as to how much we actually know about psychopathy because we have only examined the construct by studying labeled psychopaths (Widom & Newman, 1985).

### *The Five-Factor Model of Personality*

Understanding personality as a theoretical construct may help us better conceptualize psychopathy, as it is primarily a personality based condition. However, to study it as a personality based condition there must be a reliable, over-arching model of personality. The Five-Factor model of personality has grown in acceptance over the last few decades, and its robust and comprehensive nature may allow it to fill just this role (Digman, 2002). Wiggins and Pincus (1992) agree that the Five-Factor model is the most complete theory of personality to date. McCrae and Costa (1996) admit that the purpose of the FFM is not to replace all of the former historical theories of personality, but they do say that the FFM can serve as a theoretical framework for all empirically tested models of personality. It is even believed by many leading personality theorists that any study of individual differences should at least mention the relevance of these five domains of personality, also known as the “Big Five” (Digman, 1990).

McDougall and Thurstone were the first to acknowledge and provide empirical evidence for a model of personality that included five factors (Digman, 2002). In his 1933 address to the American Psychological Association, Thurstone reported that he

could find evidence for only five factors of personality. He conducted a factor analysis on a set of 60 adjectives and he found that all the adjectives could be adequately described by these five factors (Thurstone, 1934). After his address, however, this model received little attention due in part to the complexity and difficulty of factor analysis in the early 1900s and also because of the pursuit of other interests by researchers (Digman, 1990).

Over a decade later, Fiske confirmed the findings of Thurstone and McDougall (Fiske, 1949). Fiske asked Veterans Administration trainees to rate themselves and fellow colleagues using 22 of Raymond Cattell's temperament rating scales. He also obtained ratings of the trainees by their superiors using the same scales. He factor analyzed the three sets of correlational data and each time he found that only five factors of personality seemed to emerge. He called these factors Social Adaptability, Conformity, Emotional Control, Inquiring Intellect, and Confident Self-Expression (Fiske). Tupes and Christal (1961) used 30 of Cattell's Temperament Scales to collect data from U.S. Air Force Trainees. Once again, factor analysis of the correlational data seemed to support just five factors of personality. Tupes and Christal were also interested to see how their findings would compare to the previous studies conducted by Cattell (1947) and Fiske. Using this data they found overwhelming support, once again, for just five factors.

For the next 20 years a few researchers replicated the results of Cattell, Fiske, Tupes, and Christal, and they consistently found five factors of personality (Borgatta, 1964; Norman, 1963a; Smith, 1967). Further, Digman (1990) comments that a number of

studies have supported the FFM and have even shown that the historical theories of Cattell, Guilford, and Eysenck all seem to fit well within the FFM (Digman, 1990). However, there was not much interest again in the field of personality research until the 1980s, a time that Digman (1996) calls the rebirth of the FFM. At the 1980 Western Psychological Association Convention, Goldberg, Takemoto-Chock, Comrey and Digman debated the topic of personality and they agreed that there were only five independent factors of personality (Digman, 1996). Goldberg later presented these five independent factors of personality at a convention hosted by Paul Costa. Costa and Robert McCrae had developed their own model of personality, but were struck by Goldberg's five factors and quickly adopted his model (Digman, 1996). Soon after, Costa and McCrae (1985) combined their factors, Neuroticism, Extraversion, and Openness with two more factors Agreeableness and Conscientiousness and created an inventory to assess the factors. Costa and McCrae (1992b, p. 657) add, "Openness, Agreeableness, and Conscientiousness - like Neuroticism and Extraversion - are basic themes that have recurred in innumerable forms throughout the history of personality psychology. Each of them is indispensable."

Currently, the five factors or "domains" of personality are still called Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness, just as they were 20 years ago (Costa & McCrae, 1992a). The Neuroticism domain measures an individual's emotional adjustment vs. maladjustment and it explores an individual's likelihood to experience emotional distress, to have symptoms of anxiety and depression, and also to



have unfavorable reactions to daily stressors (Costa & McCrae, 1992a). The Extraversion domain measures an individual's level of amiability, gregariousness, and energy. Often individuals who lack many of these traits and tend to be more shy and timid are referred to as introverts (Costa & McCrae, 1992a). The Openness domain assesses an individual's level of curiosity and interest in exploring the "unknown." It has also been shown that there is some overlap between the Openness domain and both one's intelligence and their level of education (Costa & McCrae, 1992a). However, Costa and McCrae (1992a) clarify this statement by pointing out that intelligence and the Openness domain are definitely independent of one another and are only slightly related. Fiske (1949) called the Openness domain "Inquiring Intellect." The Agreeableness domain measures an individual's likelihood to be amiable and helpful towards others (Costa & McCrae, 1992a). The Agreeableness domain is also referred to as an individual's level of agreeableness vs. antagonism (Widiger & Lynam, 1998). The Conscientiousness domain measures an individual's ability to be task-oriented, methodical, and organized in their daily lives (Costa & McCrae, 1992a).

### *Measurement of the Five-Factor Model of Personality*

Measurement of the five domains of personality, Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness, has been an emphasis for a number of reasons. Accurately measuring personality has widespread implications, including understanding human behavior, learning about individual differences, and specifically

conceptualizing constructs like psychopathy. Instruments designed to assess the traits of the FFM have been in existence for over 20 years (Digman, 1990). One of the most well-known instruments that measures these traits is the NEO Personality Inventory-Revised (NEO-PI-R; Costa & McCrae, 1995). Its validity and applicability in both research and clinical practice have made this 240-item questionnaire a widely used measure of the FFM of personality (Costa & Widiger, 2002). Costa and McCrae have also used their NEO-PI as a way to further the evidence in support of the FFM (Digman, 1990).

Another very important reason for the relative popularity of the NEO-PI-R is its ability to measure not only the five basic personality traits, but also to measure six very narrow facets for each domain (Costa & McCrae, 1995). These facets are trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness in the agreeableness domain, competence, order, dutifulness, achievement striving, self-discipline, and deliberation in the conscientiousness domain, anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability in the neuroticism domain, warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotions in the extraversion domain, and fantasy, aesthetics, feelings, actions, ideas, and values in the openness to experience domain. Costa and McCrae (1995, p. 47) explain this advantage when they say, “The interpretation of a hierarchical profile can facilitate understanding of the client. The five NEO-PI-R domain scores quickly sketch the outline of the client’s personality; facet scales fill in the details.” Costa and McCrae (1995) also present evidence suggesting excellent validity for each of the facet scales.

With all its benefits there are still some major drawbacks to NEO-PI-R. Most importantly the NEO-PI-R, along with other measures of personality like the MMPI, is an instrument designed to be bought and sold. It is copyrighted and researchers and clinicians must pay for its use (Goldberg, 1999). This discourages many from using the instrument. Also, because it is copyrighted, only the authors can further develop and improve the instrument, which means that revisions of the instrument are solely up to its authors (Goldberg). This leaves much to be desired as to the validation of the instrument's psychometric property, or its effectiveness when compared to instruments that purport to measure similar constructs (Goldberg). Goldberg wanted to create a list of free items that would be available to researchers around the world, so he created the International Personality Item Pool Collaboratory website (IPIP, 2003). Now there are 2,036 public-domain items, which provide scales that measure constructs similar to those measured by traditional personality measurement instruments like the NEO-PI-R (Goldberg).

Researchers can take individual items from the item pool in order to form their own personality measures. One such measure that is open to public use is the M5 Questionnaire developed by McCord (2002). The M5 Questionnaire is made up of 336 items that are very similar to the items in NEO-PI-R (1992a) and are also considered excellent measures of Costa and McCrae's (1995) 30 facets and five domains. Goldberg (1999) reports that the items from the IPIP Scientific Collaboratory website (IPIP, 2003) correlate highly with the facets of the NEO-PI-R. He reports significant internal

reliability coefficients between the IPIP items and the facets of the NEO-PI-R. These results are illustrated in Appendix A. Some early validation studies of three domains of the M5, Neuroticism, Extraversion, and Openness to Experience, have shown early support for the measure. Significant positive relationships were reported in a validity study of the Neuroticism domain (Rosnov, Pickup, & McCord, 2003), the State Trait Anxiety Inventory (Spielberg, 1983), and the Self-Esteem Scale (Rosenberg, 1965). A validity study of the Extraversion domain (Kitt, Wegener, & McCord, 2003) reported significant negative relationships with the Personal Report of Communication Apprehension 24 (Richmond & McCroskey) and the Shyness Scale (Richmond & McCroskey, 1998). A significant positive relationship was found between the Openness to Experience domain (Kelly, Mims, & McCord, 2003) and the Sensation Seeking Scale (Zuckerman, 1979).

### *Psychopathy and the Five-Factor Model of Personality*

The FFM has been used to explore relationships between normal personality and specific personality disorders, like psychopathy. Hart and Hare (1994) conducted a study to determine if a relationship existed between psychopathy and normal personality. The researchers used 24 men (12 university students and 12 prisoners) as subjects. Each subject was administered the Psychopathy Checklist Screening Version (PCL: SV). The researchers then asked two women to rate each of the 24 men using the Interpersonal Adjective Scales-Big 5 version (IASR-B5). The interrater reliability between the two



women was reported as adequate (Hart & Hare). Significant correlations were found between the PCL:SV and the IASR-B5. Specifically, there were significant negative correlations between the PCL:SV and Agreeableness, Openness, Conscientiousness, and Neuroticism.

Ross, Lutz, and Bailey (2004) also examined the relationship between psychopathy and normal personality. They administered the Levenson Self-Report of Psychopathy (LSRP) and the NEO-PI-R to a sample of 463 adults. The researchers found significant negative correlations between the primary psychopathy scales of the LSRP and Openness and Agreeableness in men, while they only found significant negative correlations between Agreeableness and primary psychopathy in women (Ross et al.). Significant negative correlations were found between secondary psychopathy and Neuroticism, Agreeableness, and Conscientiousness for both men and women (Ross et al.). It was found that the five factors of the NEO-PI-R accounted for 50% of the variance in primary psychopathy and 58% of the variance in secondary psychopathy. In the first step of the multiple regression they found that primary psychopathy was significantly predicted by Openness, and further, that Agreeableness, Conscientiousness, and Neuroticism were significant negative predictors. The researchers also found that Neuroticism significantly predicted secondary psychopathy, and that Agreeableness and Conscientiousness were significant negative predictors. The interaction between sex differences and the five factors was not significant for primary or secondary psychopathy (Ross et al.).

There were also a number of facets across multiple domains that were significant predictors of both primary and secondary psychopathy. Excitement seeking, a facet of the Extraversion domain, was a significant predictor of primary psychopathy. Feelings and Ideas, facets of the Openness domain, were negative predictors of primary psychopathy. Straightforwardness, Altruism, and Modesty, all facets of the Agreeableness domain, were negatively related to primary psychopathy (Ross et al.). It was also found that Hostility, Depression, and Impulsivity, of the Neuroticism domain, were significant predictors of secondary psychopathy. Further, Trust, Altruism, and Modesty, of the Agreeableness domain, and Competence, Order, and Deliberation, of the Openness domain, were all significant negative predictors of secondary psychopathy (Ross et al.). This study suggests that the traits of both primary and secondary psychopathy are closely related to the traits of normal personality. Also, it seems that they may represent extreme variations of normal personality profiles.

In another study relating psychopathy to the FFM of personality, Miller, Lynam, Widiger, and Leukfeld (2001) administered the NEO-PI-R, a psychopathy inventory based on the FFM, and the LSRP to 481 participants. Before the study they sent a 30 item questionnaire to experts in psychopathy. Each question covered a different facet of the FFM. One of the goals of the study was to create a psychopathy inventory based specifically on the 30 facets of the FFM. Once they formulated their own psychopathy inventory, they compared it to the NEO-PI-R. The researchers were interested in discovering which of the facets of the NEO-PI-R were most closely correlated with the

created inventory. Miller et al. found that most experts believe that psychopathy is related to low scores on all facets of Agreeableness, the Feelings facet of the Openness to Experience domain, almost all facets of the Conscientiousness domain, most facets of the Neuroticism domain, and the Warmth facet of the Extraversion domain. Experts suggested that psychopathy is related to high scores on the Impulsiveness facet of Neuroticism, the Assertiveness and Excitement Seeking facets of Extraversion, and the Actions facet of Openness (Miller et al.). Further, as validation of their instrument, they looked at the relationship between subjects LSRP scores and their scores on the newly created psychopathy inventory. Significant positive correlations were found between all three scales of LSRP and their inventory (Miller et al.). They found overwhelming support for their attempt to use normal personality traits as descriptors of a psychopathic personality type as can be seen by the general agreement between experts as to which traits match psychopathy most closely, and in the positive correlations found between a measure of psychopathy and their newly created measure (Miller et al.).

Payne (2004) studied the relationship between two psychopathy inventories, the Psychopathic Personality Inventory (PPI) and the LSRP, and the FFM of personality. He administered the PPI, the LSRP, and the M5, a measure of normal personality based upon the FFM, to 183 participants. He was interested not only in the relationship between psychopathy and normal personality, but also he wanted to see if differences existed between the PPI and the LSRP and their individual relationships to normal personality (Payne). Significant negative correlations were found between the PPI and the



Agreeableness and Conscientiousness domains. Also, a significant positive correlation was found between the PPI and the Extraversion domain. With regards to the LSRP, significant negative correlations were found between it and the Agreeableness, Conscientiousness, and Openness to Experience domains. A positive correlation was found between the LSRP and the Neuroticism domain (Payne). In analyzing differences between the PPI and the LSRP it was found that there were significant differences for the following domains, Conscientiousness, Neuroticism, Extraversion, and Openness to Experience. The results of this study provided support for the idea that the construct of psychopathy is related to a specific profile arrangement of personality traits of the FFM. Also, it seems that the PPI and the LSRP may be different in the measurement of personality traits as they are related to the FFM (Payne).

### *Psychopathy as an Evolutionary Adaptation*

Authors use the term sociopathy frequently in the literature, which is considered to be synonymous with the term psychopathy (Pitchford, 2001). Hare (1993, p. 23) states that, “Many researchers, clinicians, and writers use the terms psychopath and sociopath interchangeably. Sometimes the term sociopathy is used because it is less likely than psychopathy to be confused with psychoticism or insanity.” Evolutionary psychologists and sociobiologists take a different approach to the explanation of sociopathy. Mealey (1995) believes that sociopaths may be exceptionally astute at the deception of others. She claims that their lack of normal emotional responses, and the cold, calculating



manner in which they manipulate interpersonal relationships, may actually be an adaptation and successful life-strategy. She suggests that there may be more than one type of sociopath. Mealey says,

There is a genetic predisposition underlying sociopathy which is normally distributed in the population; as the result of selection to fill a small, frequency-dependent, evolutionary niche, a small, fixed percentage of individuals, those at the extreme of this continuum, will be deemed “morally insane” in any culture; a varying percentage of individuals who are less extreme on the continuum will sometimes, in a response to environmental conditions during their early development, pursue a life-history strategy that is similar to that of their “morally insane” colleagues; and a subclinical manifestation of this underlying genetic continuum is evident in many of us, becoming apparent only at those times when immediate environmental circumstances make an antisocial strategy more profitable than a prosocial one (Mealey, p. 524).

This may pose a solution to lingering questions about the differences between psychopathy and Antisocial Personality Disorder and provide more evidence for Karpman’s differentiation between primary and secondary psychopathy. Mealey implies that primary sociopaths are “contraprepared” to learn traits like kindness, guilt, and remorse, and actually begin to exhibit antisocial behaviors in childhood, while a

combination of social, environmental, and biological factors may create the secondary sociopath.

Lalumiere et al. (2001) also explored the notion that psychopathy is an adaptation. They examined two important etiological models of psychopathy, including psychopathy as a psychological disorder and psychopathy as a “special design.” They agreed that if psychopathy is a psychological disorder then individuals would be more likely to have experienced developmental instabilities and obstetrical problems (Lalumiere et al., 2001). However, if psychopathy was viewed as a “special design,” psychopaths would have less developmental instability and other related problems than non-psychopathic offenders and would have roughly the same amount of problems as nonoffenders. In one study they sampled 800 patients from a psychiatric hospital over a 13 year period. Each participant was given the Psychopathy Checklist-Revised (PCL-R; Hare, 1991) and the researchers measured the number of obstetrical problems for each participant. There was no evidence that body asymmetry, problems during pregnancy or post delivery, or basic developmental instabilities are the cause of psychopathy. Psychopaths actually had a very low number of obstetrical problems when compared to those not meeting the criteria for psychopathy.

The second study was on 38 violent offenders and 31 individuals who had not committed a crime. Lalumiere et al. (2001) measured fluctuating asymmetry, which has been directly related to mental illness, mental retardation, and developmental delay. It was found that psychopaths were less likely than nonpsychopathic offenders to have high

levels of fluctuating asymmetry, while nonoffenders had the lowest levels of fluctuating asymmetry. There was no evidence that psychopathy is a result of pathology, and there was partial evidence that psychopathy was actually a “special design,” as psychopaths had lower amounts of obstetrical problems and fluctuating asymmetry than other offenders, but higher levels of fluctuating asymmetry than did nonoffenders.

Wiebe (2004) also suggests that psychopathy could actually be an adaptive strategy. From a rational standpoint the author suggests that the behaviors elicited by the psychopath cause him or her very little distress and are only harmful to a society at large. Therefore, the likelihood that they will be maintained is high. The author also points out that certain physiological features often seen in psychopaths may be adaptations as well. Some of these adaptations are low anxiety levels, a weakened startle response, and a lack of a normal automatic response to distress. Of these traits, Wiebe suggests that these physiological traits have a great potential to produce what he calls a “coercive sexual strategy,” and it is this complete emotional void and insistence on the pursuit of goal-directed behavior that may allow the psychopath reproductive success even in the face of an unwilling victim. Further, Wiebe (p. 27) points out that, “A strategy that does not result in fitness, either through personal reproductive success or the success of one’s kin is, by definition, not adaptive and would not persist within the species.” In agreement with this thought, Mealey (1995) suggested that because of the strain that sociopaths place on a society, the percentage of these individuals in a society remains low; however, this percentage also remains fairly stable.

### *Game Theory, the Prisoner's Dilemma, and Psychopathy*

Game theory is a mathematical model that uses hypothetical games to study complex social interactions (Mealey, 1995). A fundamental belief in game theory is that all organisms have evolved in such a way that they are guided by their own self-interests when in competition, but at the same time they do not always act rationally (Maynard Smith, 1974). Game theory was primarily used in the field of economics until Richard Lewontin, an evolutionary biologist, used the concepts of game theory to understand issues like extinction. Ten years later, John Maynard Smith applied the same concepts to human interaction (Dugatkin, 1992). John Maynard Smith first introduced the term “evolutionary stable strategy,” which Axelrod (1984) describes as, “A strategy which, if most members of a population adopt it, cannot be bettered by an alternative strategy.” John Maynard Smith also developed the concept of “hawks and doves” as a way to explain this strategy. He described “hawks” as the dominant aggressors in a society, while he saw “doves” as being perpetually passive. His belief was that there was an optimal ratio of “hawks” to “doves,” and this was the “evolutionary stable strategy” (Maynard Smith, 1978).

Robert Axelrod (1984) focused on the prisoner’s dilemma. The prisoner’s dilemma is a non-zero sum game, meaning there is no universally accepted solution, which pits two competitors against one another. They must each make a choice to “cooperate” or “defect,” without knowing what decision their partner has made. There are payoffs to the



games and mutual cooperation is the best result for both competitors. However, if one partner decides to defect and the other cooperates, the defector gets the very best payoff and their partner the very worst. If both defect they get a fairly poor payoff (Axelrod). The game is made more interesting by the fact that the reward for cooperating each time the game is played is better than the average of the very best and worst payoffs.

It is obvious that all organisms face a dilemma when they come into competition with one another. Kiesler, Sproull, and Waters (1996) suggest that in a variety of settings most individuals are more likely to cooperate than they are to compete when presented with this scenario. However, Maynard Smith's (1978) notion of an "evolutionary stable strategy" suggests there is always room for a certain number of "hawks," which would seemingly also mean there is room for a certain number of competitors or defectors. Mealey (1995) suggests that there can actually be mixed "evolutionary stable strategies." Two ways in which she says this can be accomplished are one, through genetic-based individual differences that cause an individual to use the same strategy in every situation, the permanent "defector," and secondly, through individual differences caused by the environment, which create a limited set of responses. She relates these two strategies to the notions of primary sociopathy and secondary sociopathy.

Harpending and Sobus (1987) believe that there could actually be a small number of human cheaters, who continually compete rather than cooperate, seeing only the immediate benefit of selling out their partner. Further, the authors suggest that this cheating strategy can be a stable strategy if the cheaters are able to limit repeated

interactions with others (Harpending & Sobus). Axelrod (1984) did find that cooperators do better than cheaters if they have a perfect memory, but Harpending and Sobus argue that humans do not have perfect memories; in their study the probability that the competitors would forget was about 10% and, as a result, then the human cheaters can be very successful. Harpending and Sobus (1987) say that these individuals, in order to live successfully as cheaters, must be able to blend in well among non-cheaters, they have to stay mobile and avoid repeated interactions, and must have exceptional verbal skills in order to allure possible females with whom they could copulate. Harpending and Sobus believe the set of skills and strategy of the human cheater very much matches those emotional and interpersonal personality traits seen in male sociopaths.

Colman and Wilson (1997) agree that there have been a small proportion of individuals with the antisocial personality disorder over time, around 2% of the population. They also suggest that there is evidence that this disorder is a naturally occurring frequency-dependent life strategy and that there will always be some individuals with very psychopathic personality traits in any population (Colman & Wilson). In an attempt to explain this phenomenon, the authors built a model based on Game Theory mathematics that replicated the occurrence of this disorder. They suggest that the game of chicken or as it is also known, the Hawk-Dove Game (Maynard Smith, 1978), is a perfect game to model the occurrence of antisocial behavior because it involves an element of dangerousness and aggression which is often seen in antisocial behavior (Colman & Wilson). The game is set up very much like the prisoner's dilemma;

however, the payoffs are slightly different. If both competitors cooperate they each receive three points, if one cooperates and the other chooses a dangerous strategy then the payoffs are two points and four points, respectively, and if both competitors choose a dangerous strategy they both receive the worst payoff of one point. The authors say that the game can then be taken from a two-person game to a game where every individual plays every other individual. Further, they found that their model, when payoffs were calculated, possessed a stable evolutionary equilibrium where the average payoff for cooperating and defecting was equal. This stable equilibrium existed at the point where 98% of a hypothetical portion of the population chose a cooperative strategy and 2% chose a defective, dangerous strategy (Colman & Wilson). Even more interesting, Colman and Wilson add that different communities, inner cities versus rural communities, may have different payoffs for cooperation and defection. Because there may be a greater possibility to stay undetected in a larger city, then the payoff might be better for defectors, which in turn would make the stable proportion of defectors higher. Whatever the case, it seems that this model may prove very effective in the understanding and more specifically the study of antisocial behaviors and psychopathic personality traits.

### *Statement of the Problem*

A number of studies have shown that FFM has been successful in adequately modeling the construct of psychopathy (Hart & Hare, 1994; Miller et al., 2001; Payne,

2004; Ross et al., 2004). This provides support for the hypothesis that psychopathic personality traits may be best understood as extreme variants of normal personality traits. It also suggests that measures of the FFM, like the M5 questionnaire, may be very useful in both the measurement of psychopathic personality traits and in further research on psychopathy.

There has also been widespread support for the idea that psychopaths are physiologically different than normal individuals, with lower levels of trait anxiety, relative deficits in the processing of emotionally laden words, weakened startle responses, and a lack of automatic response to distress (Levenson et al., 1995; Wiebe, 2004; Williamson et al., 1991). Sociobiologists and evolutionary psychologists (Lalumiere, Harris, & Rice, 2001; Mealey, 1995; Wiebe, 2004) argue that there are biological differences between psychopaths and normal individuals, but they suggest that these differences may be adaptive in the sense that they are viable reproductive strategies. Other researchers agree that as long as the number of psychopaths in a given population stays fairly small, around 2% of the population, then this is a very permanent, successful strategy and is what Maynard Smith (1974, 1978) refers to as evolutionary stable (Mealey; Colman & Wilson, 1997). Harpending and Sobus (1987) say that psychopaths very much resemble human cheaters and they agree that if the cheaters can stay mobile, are able to blend in well among non-cheaters, and avoid repeated interactions, then they can be very successful in a given population.



One way to study social interaction is through games like the iterated prisoner's dilemma (Axelrod, 1984). Colman and Wilson (1997) agree that non-zero sum games that incorporate decision making, social interaction, and relative payoffs are excellent models at differentiating those individuals that Harpending and Sobus (1987) refer to as "human cheaters" from individuals who are likely to cooperate with one another. By administering an iterated prisoner's dilemma and the M5, direct comparisons can be made between specific domains and facets of the FFM and levels of cooperation individuals use while playing the game and also the relative success individuals have in the game.

### *Testable Hypotheses*

Research has shown that there are significant relationships between the domains and facets of the FFM and psychopathy. Specifically, a number of studies have found that the FFM domains of Agreeableness, Conscientiousness, and Openness to Experience are negatively correlated with psychopathy, while the Extraversion has little relationship with psychopathy, and a mildly positive correlation exists between the Neuroticism domain and psychopathy (Hart & Hare, 1994; Miller et al., 2001; Payne, 2004; Ross et al., 2004). Therefore, the FFM may be a very useful model of psychopathy. Further, research has found fundamental differences between psychopaths and normal individuals in physiological functioning and personality traits. However, many suggest that these differences may not be dysfunctional and rather they may be quite adaptive. The use of a

repeated prisoner's dilemma should serve as an adequate model for studying these individual differences. Based upon prior significant findings and the theory that psychopathy may be an adaptation the following hypotheses have been proposed.

\*Note – In each trial of the repeated prisoner's dilemma the participant may choose to cooperate or compete with a hypothetical friend. Based on his or her choice and the choice of the hypothetical friend the participant receives points. The term overall average point total is the average number of points the individual receives per trial. The term overall average choice score refers to the average likelihood that the participant chooses to compete over the twenty trials of the repeated prisoner's dilemma, meaning the higher the average score the greater the frequency with which the individual chooses to compete over cooperating.

### Testable Hypothesis #1

1a. Pearson  $r$  correlation between the overall average choice score and the M5 Agreeableness domain will be significant and negative.

1b. Pearson  $r$  correlations between the overall average choice score and all five facets of M5 Agreeableness domain will be significant and negative.

### Testable Hypothesis #2

2a. Pearson  $r$  correlation between the overall average choice score and the M5 Conscientiousness domain will be significant and negative.

2b. Pearson  $r$  correlations between the overall average choice score and the Dutifulness and Deliberation facets of the M5 Conscientiousness domain will be significant and negative.

Testable Hypothesis #3

Pearson  $r$  correlation between the overall average choice score and the Anger facet of the M5 Neuroticism domain will be significant and positive.

Testable Hypothesis #4

4a. Pearson  $r$  correlations between the overall average choice score and the M5 Extraversion domain will not be significant.

4b. Pearson  $r$  correlations between the overall average choice score and the Friendliness facet of the M5 Extraversion domain will be significant and negative.

Testable Hypothesis #5

5a. Pearson  $r$  correlation between the overall average choice score and the M5 Openness to Experience domain will not be significant.

5b. Pearson  $r$  correlations between the overall average choice score and the Emotionality facet of the M5 Openness to Experience domain will be significant and negative.

Testable Hypothesis #6

6a. Pearson  $r$  correlation between the overall average point total and the M5 Agreeableness domain will not be significant.

6b. Pearson  $r$  correlation between the overall average point total average and the M5 Conscientiousness domain will not be significant.

6c. Pearson  $r$  correlation between the overall average point total and the M5 Neuroticism domain will not be significant.

6d. Pearson  $r$  correlation between the overall average point total average and the M5 Extraversion domain will not be significant.

6e. Pearson  $r$  correlation between the overall average point total and the M5 Openness to Experience domain will not be significant.

## Chapter Three

### Method

#### *Participants*

This study consisted of seventy-five college students enrolled in introductory psychology classes at Western Carolina University. Each student received 2 hours of research credit for his or her participation in the study (undergraduate students are required to perform two hours of research credit in addition to their coursework). Twelve participants were excluded from statistical analyses due to obvious deviant response patterns (defined in this study as skipping more than 36 items on the M5 questionnaire, or skipping more than 14 items on the LSRP). This resulted in a final sample that consisted of 63 participants, 44 were male and 19 were female. Participants' ages ranged from 17 to 22, except for two participants who were 54 and 25 years old. The average age of the participants in this study was 19.07, with a standard deviation of 5.86.

#### *Measures*

The following measures described below were administered to all participants in this study.

*Repeated prisoner's dilemma.* The prisoner's dilemma is a non-zero sum game where an individual is presented with a scenario. In the scenario, the individual is told they are playing a game with a friend that they will neither hear nor see. During each trial of the



game, they are asked to choose whether they wish to cooperate or compete with their hypothetical friend. They are also told that their friend is making a choice as to whether he or she is going to cooperate or compete with the participant. The participant receives a certain number of points based on their choice and the choice of the hypothetical friend. They can receive 5 points if they compete and the friend cooperates, 3 points if both they and the friend cooperate, 1 point if they both compete, and they will receive 0 points if they cooperate and the friend competes. The goal of the game is to earn the most number of points over the course of twenty trials of the game. An overall average number of points is obtained over the twenty trials with a higher score indicating greater success in the prisoner's dilemma game. An overall average choice score is also calculated. This is the average likelihood that the participant chose to compete over the twenty trials, meaning the higher the average score the greater the frequency with which the individual chose to compete over cooperating. To view the prisoner's dilemma see Appendix H.

*M5 Questionnaire (M5).* The M5 questionnaire (McCord, 2002) is a measure of normal personality based upon the FFM of personality. It consists of 336 items, which are scored on a 5 point Likert scale based on how much an individual agrees or disagrees with each statement, 1 (Inaccurate) and 5 (Accurate). The M5 provides scores at both the domain and facet level. The five domains measured are Neuroticism, Extroversion, Openness to Experience, Conscientiousness, and Agreeableness. Adequate validity has been reported for the Neuroticism, Extroversion, and Openness to Experience domains in previous studies (Kelly et al., 2003; Kitt et al., 2003; Owings, Ulrich, & McCord, 2004;

Payne, Shelton, Bradley, & McCord, 2004; Rosnov et al., 2003; Shelton, Payne, McCord, & Acheson, 2004). To view the M5 Questionnaire see Appendix F.

*Levenson Self-Report Psychopathy Scale (LSRP)*. The LSRP (Levenson et al., 1995) is a 26-item self-report questionnaire designed to measure both social deviance and psychopathic personality traits. More specifically, it measures personality traits like glibness, lack of remorse, and manipulateness, as well as more behaviorally based characteristics like impulsivity and failure to learn from one's mistakes. Examples of questions one would see on the LSRP would be, "Before I do anything I carefully consider the consequences," and "I enjoy manipulating the feelings of others." Individuals reply to statements such as these on a 5 point Likert scale by selecting scores from 1 (Strongly Disagree) to 5 (Strongly Agree) with the scores reflecting their personal opinion about each statement. To view the LSRP see Appendix G.

### *Procedure*

Administration of the M5, LSRP, and the prisoner's dilemma game was performed during one appointment. Each measure was computerized and was presented as part of a three-fold program. The study gave an option for the participant to click a button and move to the next questionnaire, if they chose not to participate. The M5 was presented to each participant first, with items in a random order, followed by the LSRP, also with items in a random order, and finally, the repeated prisoner's dilemma. Administration of the M5, LSRP, and the prisoner's dilemma game averaged 30-50 minutes.

*Statistical Procedures*

Relationships between the overall average choice scores and the M5 domain and facet scales were calculated using Pearson  $r$  correlations. Relationships between the overall average point totals and the M5 domain and facet scales were also calculated using Pearson  $r$  correlations.

## CHAPTER FOUR

### Results

The Pearson Product Moment Correlation Coefficient statistical formula was utilized to calculate all the hypothesized correlations for overall average point totals, and overall average choice scores with M5 average scores. The resulting analyses are presented as correlations, with an “*r*” score that represents that direction of the relationship and the strength of the relationship between the variables; the M5 scores and the overall average point totals/overall average choice scores. These results are presented in Table 1.

Although not hypothesized, a number of significant correlations between the M5 and the LSRP, as well as between the LSRP and overall average point totals and overall average choice scores were found. The significant correlations found between the M5 and the LSRP are very similar to results found in the Payne study. The results of the present study and the Payne et al. (2004) study are presented side by side in Appendix A.

#### *Hypotheses Analyses*

##### *Analysis of Hypothesis #1*

**1a.** Pearson *r* correlation between the overall average choice score and the M5 Agreeableness domain was found to be negative but not significant ( $r = -.211, p < .097$ ). This was not in agreement with the prior hypothesis stating that the correlation found

Table 1

*Correlations between M5 Domains and Facets and LSRP Average Scores, Overall Average Point Totals, and Overall Average Choice Scores.*

M5	LSRP Total	Overall Average Choice Scores	Overall Average Point Total
Agreeableness	-.668**	<b>-.211</b>	<b>-.134</b>
Trust	-.298*	<b>-.216</b>	-.331*
Morality	-.711**	<b>-.045</b>	.074
Altruism	-.406**	<b>-.144</b>	-.236
Cooperation	-.562**	<b>-.091</b>	.064
Modesty	-.386**	<b>-.122</b>	.043
Sympathy	-.367**	<b>-.203</b>	-.065
Conscientiousness	-.615**	<b>.012</b>	<b>-.104</b>
Self-Efficacy	-.415**	-.098	-.213
Orderliness	-.404**	.055	-.053
Dutifulness	-.568**	<b>.049</b>	-.041
Achievement-Striving	-.515**	.028	-.048
Self-Discipline	-.441**	.062	-.071
Cautiousness	-.540**	<b>-.075</b>	-.080
Neuroticism	.468**	<b>.038</b>	<b>.278*</b>
Anxiety	.246	.056	<b>.258*</b>
Anger	.442**	<b>-.008</b>	.179
Depression	.428**	-.055	.210
Self-Consciousness	.311*	.161	.292*
Immoderation	.267*	.069	.078
Vulnerability	.330**	-.037	.202
Extraversion	-.143	<b>.023</b>	<b>-.182</b>
Friendliness	-.239	<b>-.085</b>	-.228
Gregariousness	-.018	.097	-.106
Assertiveness	-.101	-.010	-.162
Activity-Level	-.455**	-.028	-.120
Excitement-Seeking	.241	.079	-.073
Cheerfulness	-.135	.045	-.110
Openness	-.270*	<b>-.206</b>	<b>-.043</b>
Imagination	.114	-.018	.051



Artistic-Interests	-.440**	-.232	-.077
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Table 1 Continued

M5	LSRP Total	Overall Average Choice Scores	Overall Average Point Total
Emotionality	-.107	<b>.074</b>	.175
Adventurousness	-.205	-.130	-.097
Intellect	-.305	-.273*	-.147.
Liberalism	.005	-.147	-.021

**- Hypothesized Correlations in Bold**

\*\* Correlation is significant at the  $p < .01$  level (2-tailed).

\* Correlation is significant at the  $p < .05$  level (2-tailed).

between the overall average choice score and the M5 Agreeableness domain would be both negative and significant.

*1b.* Pearson  $r$  correlation between the overall average choice score and the M5 Trust facet of the Agreeableness domain was found to be negative but not significant ( $r = -.216$ ,  $p < .088$ ). This was not in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Trust facet of the Agreeableness domain would be both negative and significant.

*1c.* Pearson  $r$  correlation between the overall average choice score and the M5 Morality facet of the Agreeableness domain was found to be negative but not significant ( $r = -.045$ ,  $p < .728$ ). This was not in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Morality facet of the Agreeableness domain would be both negative and significant.

*Id.* Pearson  $r$  correlation between the overall average choice score and the M5 Altruism facet of the Agreeableness domain was found to be negative but not significant ( $r=-.144$ ,  $p<.261$ ). This was not in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Altruism facet of the Agreeableness domain would be both negative and significant.

*Ie.* Pearson  $r$  correlation between the overall average choice score and the M5 Cooperation facet of the Agreeableness domain was found to be negative but not significant ( $r=-.091$ ,  $p<.477$ ). This was not in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Cooperation facet of the Agreeableness domain would be both negative and significant.

*If.* Pearson  $r$  correlation between the overall average choice score and the M5 Modesty facet of the Agreeableness domain was found to be negative but not significant ( $r=-.122$ ,  $p<.340$ ). This was not in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Modesty facet of the Agreeableness domain would be both negative and significant.

*Ig.* Pearson  $r$  correlation between the overall average choice score and the M5 Sympathy facet of the Agreeableness domain was found to be negative but not significant ( $r=-.203$ ,  $p<.111$ ). This was not in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Sympathy facet of the Agreeableness domain would be both negative and significant.

*Analysis of Hypothesis #2*

**2a.** Pearson  $r$  correlation between the overall average choice score and the M5 Conscientiousness domain was found to be positive and not significant ( $r=.012, p<.923$ ). This was not in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Conscientiousness domain would be both negative and significant.

**2b.** Pearson  $r$  correlations between the overall average choice score and the Dutifulness facet of the M5 Conscientiousness domain was found to be positive and not significant ( $r=.049, p<.703$ ). This was not in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Dutifulness facet of the Conscientiousness domain would be both negative and significant.

**2c.** Pearson  $r$  correlations between the overall average choice score and the Cautiousness facet of the M5 Conscientiousness domain was found to be negative but not significant ( $r=-.075, p<.560$ ). This was not in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Cautiousness facet of the Conscientiousness domain would be both negative and significant.

#### Analysis of Hypothesis #3

Pearson  $r$  correlation between the overall average choice score and the Anger facet of the M5 Neuroticism domain was found to be negative and not significant ( $r=-.008, p<.953$ ). This was not in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Anger facet of the Neuroticism domain would be positive and significant.

#### Analysis of Hypothesis #4

**4a.** No significant difference was found between the correlation reported for the overall average choice score and the M5 Extraversion domain ( $r=.023, p<.856$ ). This was in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Extraversion domain would not be significant.

**4b.** Pearson  $r$  correlation between the overall average choice score and the Friendliness facet of the M5 Extraversion domain was found to be negative but not significant ( $r=-.085, p<.506$ ). This was not in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Friendliness facet of the Extraversion domain would be both negative and significant.

#### Analysis of Hypothesis #5

**5a.** No significant difference was found between the correlation reported for the overall average choice score and the M5 Openness to Experience domain ( $r=-.206, p<.106$ ). This was in agreement with the prior hypothesis stating that the correlation found between the overall average choice score and the M5 Openness to Experience domain would not be significant.

**5b.** Pearson  $r$  correlation between the overall average choice score and the Emotionality Facet of the M5 Openness to Experience domain was found to be both positive and not significant ( $r=.074, p<.567$ ). This is not in agreement with the hypothesis stating that the correlation found between the overall average choice score and the M5 Openness to Experience domain would be both negative and significant.

#### Analysis of Hypothesis #6



**6a.** No significant difference was found between the correlation reported for the overall average point total and the M5 Agreeableness domain ( $r=-.134, p<.297$ ). This is in agreement with the hypothesis stating that the correlation found between the overall average total score and the M5 Agreeableness domain would not be significant.

**6b.** No significant difference was found between the correlation reported for the overall average point total and the M5 Conscientiousness domain ( $r=-.104, p<.419$ ). This is in agreement with the hypothesis stating that the correlation found between the overall average point total and the M5 Conscientiousness domain would not be significant.

**6c.** A significant difference was found between the correlation reported for the overall average point total and the M5 Neuroticism domain ( $r=.278, p<.028$ ). This is not in agreement with the hypothesis stating that the correlation found between the overall average point total and the M5 Neuroticism domain would not be significant.

**6d.** No significant difference was found between the correlation reported for the overall average point total and the M5 Extraversion domain ( $r=-.182, p<.153$ ). This is in agreement with the hypothesis stating that the correlation found between the overall average choice score and the M5 Extraversion domain would not be significant.

**6e.** No significant difference was found between the correlation reported for the overall average point total and the M5 Openness to Experience domain ( $r=-.043, p<.737$ ). This is in agreement with the hypothesis stating that the correlation found between the overall average point total and the M5 Openness to Experience domain would not be significant.



## Chapter Five

### Discussion

#### *Correlations between Prisoner's Dilemma Scores and the FFM*

The Pearson correlations between overall average choice score and the M5 domains and facets revealed results that were inconsistent with the predicted hypotheses of this study. The results do not support the first hypothesis for the Agreeableness domain and its six facets. It was predicted that the correlations between the Agreeableness domain and its six facets would be negative and significant. However, all correlations were in the predicted direction with correlations between the Agreeableness domain and the overall average choice score, as well as the Trust facet and the overall average score approaching significance.

The results do not support the second hypothesis for the Conscientiousness domain and the Dutifulness and Cautiousness facets. It was predicted that the correlations between the Conscientiousness domain and the Dutifulness and Cautiousness facets and the overall average choice score would be negative and significant. None of the correlations were significant and only the correlation between the Cautiousness facet and the overall average choice score was in the predicted direction.

Results from the correlations do not support the third hypothesis for the Anger facet of the Neuroticism domain. It was hypothesized that the relationships between the Anger

facet and the overall average choice score would be positive and significant, however the correlation was neither significant nor in the predicted direction.

The results from the correlations support the fourth hypothesis for the Extraversion domain, but not for the Friendliness facet. It was predicted that correlations between the Extraversion domain and the overall average choice score would not be significant. There was no significant relationship between the Friendliness facet and the overall choice score although the correlation was in the predicted, negative direction.

The fifth hypothesis for the Openness to Experience domain was supported by the results from the correlations. It was predicted that there would not be a significant relationship between Openness to Experience and the overall average choice score. However, the results do not support the fifth hypothesis regarding the Emotionality facet. It was predicted that the correlations between the Emotionality facet and the overall choice score would be negative and significant.

The results show little support for significant relationships between the overall average choice score and the M5 domains and facets. The FFM conception of psychopathy suggests that the Agreeableness, Conscientiousness, and Openness to Experience domains should be negatively correlated with psychopathy, while the Extraversion has little relationship with psychopathy, and a mildly positive correlation should exist between the Neuroticism domain and psychopathy (Hart & Hare, 1994; Miller et al., 2001; Payne, 2004; Ross et al., 2004). These findings were shown in previous research correlating the M5 and NEO-PI-R, both measures of normal

personality and with the LSRP, the PCL-R, and the PPI, all measures of psychopathy (Hart & Hare; Miller et al.; Payne, 2004; Ross et al.).

It was hypothesized that one could find meaningful correlations between this FFM conceptualization of psychopathy and an alternative view of psychopathy as an adaptation. The methodology used to study this alternative view was the prisoner's dilemma game. It seemed that individuals who chose to compete at a higher frequency would more closely resemble the psychopath. One who possesses traits, as identified by Hare (1993) and Cleckley (1988), like glibness, pathological lying, conning, manipulativeness, lack of remorse or guilt, and a parasitic lifestyle seem to fit with the notion of the human cheater. The human cheater, who consistently and effectively competes rather than cooperating, sees only the immediate benefit of selling out his or her partner, friend, or acquaintance (Colman & Wilson, 1997; Harpending & Sobus, 1987; Mealey, 1995). It seems, however, that individuals' choice of whether to cooperate or compete with a hypothetical friend in this prisoner's dilemma game is not as closely related with psychopathy personality traits as expected.

Pearson correlations reported between overall average point total and the M5 domains revealed results that were mostly consistent with the predicted hypotheses of this study. The Agreeableness, Conscientiousness, Extraversion, and Openness to Experience domains were all not significantly correlated with the overall average point total. The Neuroticism domain was, however, significantly correlated with the overall average point total, which goes against the predicted hypothesis.

As can be seen, there was very little relationship between four of the five domains of the M5 with the overall average point total. This is in support of the predicted hypothesis that an individual's personality constellation would not be closely related to their relative success in the prisoner's dilemma game. The rationale for this hypothesis is based on assumption that psychopathy can be conceptualized as an adaptation and also the belief that a friendlier strategy is no more effective than a more competitive strategy.

Researchers suggest that psychopaths may have a basic lack of normal emotional responses, which allows them to remove themselves from situations, operating in a cold, calculating manner where they manipulate interpersonal relationships. This adaptation may actually be a rather viable adaptation leading to an alternative, yet successful, life-strategy (Mealey, 1995). Research has suggested that these individuals who choose alternative life-strategies, human cheaters, do exist in the population at a fairly consistent rate and as long as they avoid repeated interactions with those they cheat they can lead a very successful life in normal population (Colman & Wilson, 1997; Harpending & Sobus, 1987). It seems, however, that with the lack of a significant relationship between those more inclined to compete and a psychopathic personality profile, these findings may be less important.

One rather interesting finding was that the Neuroticism domain was significantly correlated with overall average total points. Further, though not hypothesized, correlations between the Anxiety and Self-Consciousness facets of the Neuroticism domain and overall average total points were positive and significant. It seems that

higher levels of anxiety and self-consciousness somehow worked in the favor of individuals participating in this game.

#### *Correlations between the LSRP and the FFM*

While not hypothesized, a number of significant results were found when correlating the domains and facets of the M5 with the LSRP. Results of correlations suggest that there is a negative and significant relationship between Agreeableness, Conscientiousness, and Openness to Experience and the LSRP and a positive and significant relationship between the Neuroticism domain and the LSRP. The M5, a measure of normal personality, seems to be an effective measure of psychopathy. The M5 psychopathy profile, as it is viewed through the LSRP framework, would be one that is low in agreeableness, conscientiousness, and openness to new experiences, and high in neuroticism. These findings are similar to previous studies, which have found that FFM psychopathy profiles are consistently low in Agreeableness and Conscientiousness, with some suggesting low, rather than high Neuroticism scores (Hart & Hare, 1994; Miller et al., 2001; Payne, 2004; Ross et al., 2004). The findings in this study virtually replicate the findings in the Payne study even at the facet level. Again, similarities between these studies can be seen in Appendix B.

#### *Limitations of the Present Study*

There are several limitations of this study that need to be addressed. First and foremost, the use of self-report measures is limiting in itself. It is hard to ensure that the



answers that participants give to the questionnaires are a true reflection of themselves. It is hard to say with what degree of honesty and objectivity that an individual approaches self-report measures of personality. It is far more valid and reliable to get a cross section of data from self-report measures, personal interviews, behavioral observations, and objective testing. However, due to time constraints this is an unrealistic goal. Further, with specific regards to the LSRP, because of the nature of this questionnaire it is uncertain the degree of truth and honesty that participants respond to this measure. With questions like, "I have been in a lot of shouting matches with other people," and "I enjoy manipulating other people's feelings" there is always the possibility that participants would wish to give the most socially desirable answers possible. A final concern is the seriousness with which the students approach self-report measures. It is always a real concern that participants in the study merely answer in a random response pattern in order to finish the study as quickly as possible to receive their necessary research credit.

Second, the use of a prisoner's dilemma as the model by which to study individuals' psychopathic styles of social interaction and decision making may not be the best way to measure this variable. Essentially, the prisoner's dilemma simply measured whether a participant would cooperate or compete in an unrealistic game situation on a computer. This may not get to the central issue of this deceptive, yet potentially adaptive strategy of social interaction which the researcher is intending to measure. By calling it a game the researcher might also lead the participant to play the game in an overly competitive or overly cooperative style. A final issue with the prisoner's dilemma is the fact that it was seen that there was significant, positive correlation between a more competitive style of

play and the overall average point total. This random happening may have clouded the data and pushed participants to compete more frequently than normal.

Third, the sample used for this study was limited in a few different ways. The sample was comprised solely of Western Carolina University students, and a majority of those students were freshmen. This is clearly not a representative sample, even if it is that the researcher is exploring psychopathy among a normal population. Further, because of the limited number of available subjects the researcher used both males and females. It may have strengthened the results if the study were limited only to male participants. Another sampling issue is the generalizability to other races and individuals of varying socioeconomic groups. It seems that the results could potentially look quite different if the participants were from strictly urban or rural areas.

### *Future Research*

While the results of this study were largely negative, the idea of psychopathy as an adaptation is a viable area of research. It would be ideal if researchers could design a better measure of the parasitic, conning, “me” first lifestyle. It would be interesting to see if the study of psychopathy could in some way move beyond self-report measures or interviews, at least for research purposes. The idea of social decision making scenarios still seems like a fruitful path of research to pursue. One of the limitations of the present study was how removed the participant was from a real situation. They took the self-report measure on the computer and never had the chance to interact with another person; they merely played the game against a hypothetical friend. It would be fascinating to see

an experiment designed where individuals were actually presented with a real-life scenario, in the presence of others, within the contexts of a non-zero sum game.

Second, it seems that the FFM model could be used even more widely in the research of more personality disorders. It would be fascinating to see this research extend to borderline personality disorder or other similar disorders. While at the same time it seems worthwhile for researchers to look more closely at the facet level analysis of personality disorders. In some ways, domain level analyses seem too broad to essentially pick apart the characteristics of psychopathy and other personality disorders. The FFM seems to be both a broad and precise measure of both normal and clinical personality and its continued use in the field seems fully warranted.

Finally, I would like to see more research conducted via computers and the internet. The wide range of the internet, just in terms of the sheer number of participants one could secure for a study, would be incredible. Also, researchers could reach different cross sections of people, and potentially move away from simply a college sample. Also, the use of computers to conduct research greatly limits that amount of administration time of study. Decreased administration time leads to more reliable and valid data. The use of computers in this study cut the administration time of the M5 in half. Finally, in an age where most individuals, particularly students, are somewhat computer savvy, using computers to collect data may also maximize the appeal and legitimacy of the study to participants. Increasing participant interest seems like it would increase the quality of the data, which is essential to all research.

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## Appendices

## APPENDIX A

*Coefficient Alpha's for the Item Pool (IPIP) and the Revised NEO Personality Inventory Facets and Correlations between the Item Pool (IPIP) and the Revised NEO Personality Inventory Facets.*

IPIP item	NEO-PI-R facet	Coefficient Alpha		Correlation
		IPIP	NEO	IPIP vs. NEO
Trust	Trust (A1)	.83	.83	.90
Morality	Straightforwardness (A2)	.88	.80	.91
Altruism	Altruism (A3)	.88	.85	.92
Cooperation	Compliance (A4)	.80	.74	.94
Modesty	Modesty (A5)	.77	.72	.98
Sympathy	Tender-mindedness (A6)	.82	.79	.96
Self-efficacy	Competence (C1)	.87	.80	.91
Orderliness	Order (C2)	.79	.80	.98
Dutifulness	Dutifulness (C3)	.84	.80	.99
Achievement striving	Achievement striving (C4)	.71	.72	.98
Self-discipline	Self-discipline (C5)	.78	.64	.95
Cautiousness	Deliberation (C6)	.81	.81	.95
Anxiety	Anxiety (N1)	.83	.82	.90
Anger	Angry hostility (N2)	.84	.84	.95
Depression	Depression (N3)	.81	.75	.90
Self-consciousness	Self-consciousness (N4)	.77	.64	.99
Immoderation	Impulsiveness (N5)	.86	.82	.95
Vulnerability	Vulnerability (N6)	.86	.78	.86
Friendliness	Warmth (E1)	.82	.84	.95
Gregariousness	Gregariousness (E2)	.75	.74	.86
Assertiveness	Assertiveness (E3)	.77	.72	.90
Activity level	Activity (E4)	.73	.73	.97
Excitement seeking	Excitement seeking (E5)	.77	.75	.95
Cheerfulness	Positive emotions (E6)	.75	.61	.90
Imagination	Fantasy (O1)	.78	.70	.89
Artistic Expression	Aesthetics (O2)	.82	.74	.99
Emotionality	Feelings (O3)	.71	.67	.87
Adventurousness	Actions (O4)	.78	.67	.97
Intellect	Ideas (O5)	.85	.80	.92
Liberalism	Values (O6)	.76	.70	.95

## APPENDIX A Continued

IPIP item	NEO-PI-R facet	Coefficient Alpha		Correlation
		IPIP	NEO	IPIP vs. NEO
<b>TOTAL</b>		<b>.80</b>	<b>.75</b>	<b>.94</b>

*Note.* IPIP vs. NEO Values are correlations corrected for unreliability; these may be underestimates, given that the reliabilities of the factor markers were assumed to be the same as those of their corresponding IPIP scales.



## APPENDIX B

*A Comparison of the Bewsey (2006) Study and the Payne (2004) Study of Correlations between M5 Domain and Facet Level Scores and LSRP Scores*

M5	Bewsey (2006) Study LSRP Total	Payne et al. (2004) Study LSRP Total
Agreeableness	-.668**	-.543**
Trust	-.298*	-.449**
Morality	-.711**	-.561**
Altruism	-.406**	-.428**
Cooperation	-.562**	-.488**
Modesty	-.386**	-.124
Sympathy	-.367**	-.228**
Conscientiousness	-.615**	-.661**
Self-Efficacy	-.415**	-.586**
Orderliness	-.404**	-.382**
Dutifulness	-.568**	-.579**
Achievement-Striving	-.515**	-.531**
Self-Discipline	-.441**	-.589**
Cautiousness	-.540**	-.457**
Neuroticism	.468**	.619**
Anxiety	.246	.451**
Anger	.442**	.561**
Depression	.428**	.535**
Self-Consciousness	.311*	.357**
Immoderation	.267*	.464**
Vulnerability	.330**	.505**
Extraversion	-.143	-.204**
Friendliness	-.239	-.329**
Gregariousness	-.018	-.131
Assertiveness	-.101	-.170*
Activity-Level	-.455**	-.170*
Excitement-Seeking	.241	.154*
Cheerfulness	-.135	-.254**

## APPENDIX B Continued

M5	Bewsey (2006) Study LSRP Total	Payne et al. (2004) Study LSPR Total
Openness	-.270*	-.025
Imagination	.114	.059
Artistic-Interests	-.440**	-.032
Emotionality	-.107	.068
Adventurousness	-.205	-.133
Intellect	-.305	-.089
Liberalism	.005	-.271**

\*\* Correlation is significant at the  $p < .01$  level (2-tailed).

\* Correlation is significant at the  $p < .05$  level (2-tailed).

## APPENDIX C

*Correlations between the LSRP Average Scores and Overall Average Choice Scores and Overall Average Point Totals*

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	LSRP Average Scores
Overall Average Choice Scores	.248
Overall Average Point Totals	.189

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## APPENDIX D

*Correlation between Overall Average Choice Scores and Overall Average Point Totals*

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Overall Average  
Choice Scores

---

Overall Average  
Point Totals

---

.539\*\*

\*\* Correlation is significant at the  $p < .01$  level (2-tailed).

## APPENDIX E

### Consent Form

You are being asked to participate in a research study on personality and social decision making. Your participation in this study is voluntary. If you agree to participate you will be asked to complete two surveys. One is related to specific personality traits and the other concerns general aspects of personality. You will also complete 20 trials of a prisoner's dilemma where you will be asked to choose to either cooperate or defect with a computer competitor. Your participation should take no longer than 1 hour and 20 minutes to complete.

There are no risks associated with participating in this study. Even so, you are under no obligation to participate if you do not wish to do so. You may withdraw from this study at any time without penalty. The information you provide in this study will be treated as privileged and confidential.

Please feel free to ask any questions you may have regarding the study. If you have any questions about this study after leaving, you may contact Dr. David McCord, Department Head of Psychology, Western Carolina University (227-7361) or Dr. James Goodwin, Psychology Department Representative for WCU Institutional Review Board (227-3358).

Your signature below indicates that you have read the above description of this study and that you freely agree to participate. Your signature also verifies that you are 18 years of age or older.

Thank you!!!

---

Printed Name

---

Signature

---

Date



## APPENDIX F

### M5-336 Questionnaire

# M5-336 Questionnaire

David M. McCord, Ph.D., Western Carolina University

Name: \_\_\_\_\_ Age: \_\_\_\_\_ M F Date:  
\_\_\_\_\_

### Optional Fields

Phone: \_\_\_\_\_ Email: \_\_\_\_\_ Ethnic identity: \_\_\_\_\_

Custom Field #1: \_\_\_\_\_

Custom Field #2: \_\_\_\_\_

Custom Field #3: \_\_\_\_\_

This is a personality questionnaire, which should take about 10 minutes. There are no right or wrong answers to these questions; you simply respond with the choice that describes you best.

If you feel that you cannot see the questions appropriately because of sight difficulties, cannot use a pencil well because of hand-motor problems, or know of any other physical, emotional, or environmental issues which would affect your performance on this test, please notify the testing administrator now.

If you feel extremely nervous about this testing process and feel that your nervousness will affect your performance, please notify the testing administrator so that they can answer any questions about this process and alleviate any fears. Please recognize that a degree of nervousness is normal for most testing.

The *M5 Questionnaire* is used primarily for research purposes, though in certain cases individual results may be shared with the test-taker through a professional consultation. In general, results are treated anonymously and are combined with other data in order to develop norms, establish psychometric properties of these scales and items, and to study various theoretical and practical issues within the field of personality psychology.

By proceeding with the process and responding to these questionnaire items, you are expressing your understanding of these terms and your consent for your data to be used for research purposes. You are also agreeing to release and forever discharge *Western Carolina University* and *David M. McCord, Ph.D.*, from any and all claims of any kind or nature whatsoever arising from the assessment process.

- Without spending too much time dwelling on any one item, just give the first reaction that comes to mind.
- In order to score this test accurately, it is very important that you answer *every* item, without skipping any. You may change an answer if you wish.
- It is ultimately in your best interest to respond as honestly as possible. Mark the response that best shows how you really feel or see yourself, not responses that you think might be desirable or ideal.

**Turn the page over now**

M5-336 Questionnaire						Page 2
		Innaccurate	Moderately Innaccurate	Neither	Moderately Accurate	Accurate
1	Worry about things	0	0	0	0	0
2	Am hard to get to know	0	0	0	0	0
3	Have a vivid imagination	0	0	0	0	0
4	Distrust people	0	0	0	0	0
5	Complete tasks successfully	0	0	0	0	0
6	Get angry easily	0	0	0	0	0
7	Prefer to be alone	0	0	0	0	0
8	Believe in the importance of art	0	0	0	0	0
9	Use flattery to get ahead	0	0	0	0	0
10	Like order	0	0	0	0	0
11	Seldom feel blue	0	0	0	0	0
12	Take charge	0	0	0	0	0
13	Seldom get emotional	0	0	0	0	0
14	Make people feel welcome	0	0	0	0	0
15	Break rules	0	0	0	0	0
16	Am easily intimidated	0	0	0	0	0
17	Like to take it easy	0	0	0	0	0
18	Prefer variety to routine	0	0	0	0	0
19	Have a sharp tongue	0	0	0	0	0
20	Go straight for the goal	0	0	0	0	0
21	Rarely overindulge	0	0	0	0	0
22	Love excitement	0	0	0	0	0
23	Am not interested in abstract ideas	0	0	0	0	0
24	Dislike being the center of attention	0	0	0	0	0
25	Find it difficult to get down to work	0	0	0	0	0
26	Panic easily	0	0	0	0	0
27	Am not easily amused	0	0	0	0	0
28	Tend to vote for liberal political candidates	0	0	0	0	0
29	Am not interested in other people's problems	0	0	0	0	0
30	Avoid mistakes	0	0	0	0	0
31	Am not easily bothered by things	0	0	0	0	0
32	Make friends easily	0	0	0	0	0
33	Seldom daydream	0	0	0	0	0
34	Trust others	0	0	0	0	0
35	Misjudge situations	0	0	0	0	0
36	Get irritated easily	0	0	0	0	0
37	Want to be left alone	0	0	0	0	0
38	Like music	0	0	0	0	0
39	Use others for my own ends	0	0	0	0	0
40	Like to tidy up	0	0	0	0	0
41	Often feel blue	0	0	0	0	0
		Innaccurate	Moderately Innaccurate	Neither	Moderately Accurate	Accurate

M5-336 Questionnaire						Page 3
		Innacurate	Moderately Innacurate	Neither	Moderately Accurate	Accurate
42	Wait for others to lead the way	0	0	0	0	0
43	Experience my emotions intensely	0	0	0	0	0
44	Look down on others	0	0	0	0	0
45	Try to follow the rules	0	0	0	0	0
46	Am not embarrassed easily	0	0	0	0	0
47	Am always busy	0	0	0	0	0
48	Prefer to stick with things that I know	0	0	0	0	0
49	Am easy to satisfy	0	0	0	0	0
50	Am not highly motivated to succeed	0	0	0	0	0
51	Often eat too much	0	0	0	0	0
52	Would never go hang gliding or bungee jumping	0	0	0	0	0
53	Like to solve problems	0	0	0	0	0
54	Believe that I am better than others	0	0	0	0	0
55	Get chores done right away	0	0	0	0	0
56	Remain calm under pressure	0	0	0	0	0
57	Radiate joy	0	0	0	0	0
58	Believe in one true religion	0	0	0	0	0
59	Sympathize with the homeless	0	0	0	0	0
60	Jump into things without thinking	0	0	0	0	0
61	Fear the worst	0	0	0	0	0
62	Often feel uncomfortable around others	0	0	0	0	0
63	Enjoy wild flights of fancy	0	0	0	0	0
64	Suspect hidden motives in others	0	0	0	0	0
65	Excel in what I do	0	0	0	0	0
66	Rarely get irritated	0	0	0	0	0
67	Love large parties	0	0	0	0	0
68	Do not like art	0	0	0	0	0
69	Would never cheat on my taxes	0	0	0	0	0
70	Often forget to put things back in their proper place	0	0	0	0	0
71	Dislike myself	0	0	0	0	0
72	Keep in the background	0	0	0	0	0
73	Feel others' emotions	0	0	0	0	0
74	Am indifferent to the feelings of others	0	0	0	0	0
75	Keep my promises	0	0	0	0	0
76	Am comfortable in unfamiliar situations	0	0	0	0	0
77	Am always on the go	0	0	0	0	0
78	Dislike changes	0	0	0	0	0
79	Can't stand confrontations	0	0	0	0	0
80	Do just enough work to get by	0	0	0	0	0
81	Don't know why I do some of the things I do	0	0	0	0	0
82	Dislike loud music	0	0	0	0	0
		Innacurate	Moderately Innacurate	Neither	Moderately Accurate	Accurate



M5-336 Questionnaire						Page 4
		Innacurate	Moderately Innacurate	Neither	Moderately Accurate	Accurate
83	Love to read challenging material	0	0	0	0	0
84	Think highly of myself	0	0	0	0	0
85	Am always prepared	0	0	0	0	0
86	Can handle complex problems	0	0	0	0	0
87	Have a lot of fun	0	0	0	0	0
88	Tend to vote for conservative political candidates	0	0	0	0	0
89	Feel sympathy for those who are worse off than myself	0	0	0	0	0
90	Make rash decisions	0	0	0	0	0
91	Am afraid of many things	0	0	0	0	0
92	Avoid contacts with others	0	0	0	0	0
93	Love to daydream	0	0	0	0	0
94	Am wary of others	0	0	0	0	0
95	Handle tasks smoothly	0	0	0	0	0
96	Seldom get mad	0	0	0	0	0
97	Talk to a lot of different people at parties	0	0	0	0	0
98	Do not like poetry	0	0	0	0	0
99	Stick to the rules	0	0	0	0	0
100	Leave a mess in my room	0	0	0	0	0
101	Feel comfortable with myself	0	0	0	0	0
102	Try to lead others	0	0	0	0	0
103	Am not easily affected by my emotions	0	0	0	0	0
104	Anticipate the needs of others	0	0	0	0	0
105	Break my promises	0	0	0	0	0
106	Am afraid that I will do the wrong thing	0	0	0	0	0
107	Like to take my time	0	0	0	0	0
108	Like to visit new places	0	0	0	0	0
109	Contradict others	0	0	0	0	0
110	Work hard	0	0	0	0	0
111	Easily resist temptations	0	0	0	0	0
112	Seek adventure	0	0	0	0	0
113	Avoid philosophical discussions	0	0	0	0	0
114	Dislike talking about myself	0	0	0	0	0
115	Waste my time	0	0	0	0	0
116	Become overwhelmed by events	0	0	0	0	0
117	Express childlike joy	0	0	0	0	0
118	Believe that too much tax money goes to support artists	0	0	0	0	0
119	Tend to dislike soft-hearted people	0	0	0	0	0
120	Like to act on a whim	0	0	0	0	0
121	Am relaxed most of the time	0	0	0	0	0
122	Warm up quickly to others	0	0	0	0	0
123	Do not have a good imagination	0	0	0	0	0
		Innacurate	Moderately Innacurate	Neither	Moderately Accurate	Accurate



M5-336 Questionnaire						Page 5
		Innaccurate	Moderately Innaccurate	Neither	Moderately Accurate	Accurate
124	Believe that others have good intentions	0	0	0	0	0
125	Don't understand things	0	0	0	0	0
126	Get upset easily	0	0	0	0	0
127	Don't like crowded events	0	0	0	0	0
128	See beauty in things that others might not notice	0	0	0	0	0
129	Know how to get around the rules	0	0	0	0	0
130	Want everything to be "just right"	0	0	0	0	0
131	Am very pleased with myself	0	0	0	0	0
132	Have little to say	0	0	0	0	0
133	Am passionate about causes	0	0	0	0	0
134	Make people feel uncomfortable	0	0	0	0	0
135	Pay my bills on time	0	0	0	0	0
136	Find it difficult to approach others	0	0	0	0	0
137	Do a lot in my spare time	0	0	0	0	0
138	Don't like the idea of change	0	0	0	0	0
139	Love a good fight	0	0	0	0	0
140	Turn plans into actions	0	0	0	0	0
141	Do things I regret later	0	0	0	0	0
142	Love action	0	0	0	0	0
143	Have difficulty understanding abstract ideas	0	0	0	0	0
144	Have a high opinion of myself	0	0	0	0	0
145	Need a push to get started	0	0	0	0	0
146	Feel that I'm unable to deal with things	0	0	0	0	0
147	Laugh my through life	0	0	0	0	0
148	Believe that there is no absolute right or wrong	0	0	0	0	0
149	Believe in an eye for an eye	0	0	0	0	0
150	Choose my words with care	0	0	0	0	0
151	Am not easily disturbed by events	0	0	0	0	0
152	Feel comfortable around other people	0	0	0	0	0
153	Seldom get lost in thought	0	0	0	0	0
154	Trust what people say	0	0	0	0	0
155	Have little to contribute	0	0	0	0	0
156	Am often in a bad mood	0	0	0	0	0
157	Avoid crowds	0	0	0	0	0
158	Love flowers	0	0	0	0	0
159	Cheat to get ahead	0	0	0	0	0
160	Love order and regularity	0	0	0	0	0
161	Am often down in the dumps	0	0	0	0	0
162	Can talk others into doing things	0	0	0	0	0
163	Rarely notice my emotional reactions	0	0	0	0	0
164	Love to help others	0	0	0	0	0
		Innaccurate	Moderately Innaccurate	Neither	Moderately Accurate	Accurate

M5-336 Questionnaire						Page 6
		Innacurate	Moderately Innacurate	Neither	Moderately Accurate	Accurate
165	Get others to do my duties	0	0	0	0	0
166	Am afraid to draw attention to myself	0	0	0	0	0
167	Like a leisurely lifestyle	0	0	0	0	0
168	Am a creature of habit	0	0	0	0	0
169	Yell at people	0	0	0	0	0
170	Plunge into tasks with all my heart	0	0	0	0	0
171	Am able to control my cravings	0	0	0	0	0
172	Enjoy being part of a loud crowd	0	0	0	0	0
173	Have a rich vocabulary	0	0	0	0	0
174	Know the answers to many questions	0	0	0	0	0
175	Start tasks right away	0	0	0	0	0
176	Know how to cope	0	0	0	0	0
177	Seldom joke around	0	0	0	0	0
178	Believe laws should be strictly enforced	0	0	0	0	0
179	Try not to think about the needy	0	0	0	0	0
180	Rush into things	0	0	0	0	0
181	Get stressed out easily	0	0	0	0	0
182	Act comfortably with others	0	0	0	0	0
183	Like to get lost in thought	0	0	0	0	0
184	Believe that people are basically moral	0	0	0	0	0
185	Am sure of my ground	0	0	0	0	0
186	Am not easily annoyed	0	0	0	0	0
187	Enjoy being part of a large group	0	0	0	0	0
188	Do not enjoy going to art museums	0	0	0	0	0
189	Put people under pressure	0	0	0	0	0
190	Leave my belongings around	0	0	0	0	0
191	Have a low opinion of myself	0	0	0	0	0
192	Seek to influence others	0	0	0	0	0
193	Enjoy examining myself and my life	0	0	0	0	0
194	Am concerned about others	0	0	0	0	0
195	Tell the truth	0	0	0	0	0
196	Am not bothered by difficult social situations	0	0	0	0	0
197	Can manage many things at the same time	0	0	0	0	0
198	Interested in many things	0	0	0	0	0
199	Hate to seem pushy	0	0	0	0	0
200	Put little time and effort into my work	0	0	0	0	0
201	Go on binges	0	0	0	0	0
202	Enjoy being reckless	0	0	0	0	0
203	Can handle a lot of information	0	0	0	0	0
204	Consider myself an average person	0	0	0	0	0
205	Get to work at once	0	0	0	0	0
		Innacurate	Moderately Innacurate	Neither	Moderately Accurate	Accurate

M5-336 Questionnaire						Page 7
		Innaccurate	Moderately Innaccurate	Neither	Moderately Accurate	Accurate
206	Can't make up my mind	0	0	0	0	0
207	Love life	0	0	0	0	0
208	Believe that we coddle criminals too much	0	0	0	0	0
209	Value cooperation over competition	0	0	0	0	0
210	Do crazy things	0	0	0	0	0
211	Don't worry about things that have already happened	0	0	0	0	0
212	Am not really interested in others	0	0	0	0	0
213	Indulge in my fantasies	0	0	0	0	0
214	Believe in human goodness	0	0	0	0	0
215	Come up with good solutions	0	0	0	0	0
216	Keep my cool	0	0	0	0	0
217	Involve others in what I am doing	0	0	0	0	0
218	Do not like concerts	0	0	0	0	0
219	Pretend to be concerned for others	0	0	0	0	0
220	Am not bothered by messy people	0	0	0	0	0
221	Have frequent mood swings	0	0	0	0	0
222	Don't like to draw attention to myself	0	0	0	0	0
223	Experience very few emotional highs and lows	0	0	0	0	0
224	Turn my back on others	0	0	0	0	0
225	Do the opposite of what is asked	0	0	0	0	0
226	Only feel comfortable with friends	0	0	0	0	0
227	Let things proceed at their own pace	0	0	0	0	0
228	Dislike new foods	0	0	0	0	0
229	Insult people	0	0	0	0	0
230	Do more than what's expected of me	0	0	0	0	0
231	Never spend more than I can afford	0	0	0	0	0
232	Act wild and crazy	0	0	0	0	0
233	Am not interested in theoretical discussions	0	0	0	0	0
234	Boast about my virtues	0	0	0	0	0
235	Have difficulty starting tasks	0	0	0	0	0
236	Readily overcome setbacks	0	0	0	0	0
237	Look at the bright side of life	0	0	0	0	0
238	Believe that we should be tough on crime	0	0	0	0	0
239	Believe people should fend for themselves	0	0	0	0	0
240	Stick to my chosen path	0	0	0	0	0
241	Get caught up in my problems	0	0	0	0	0
242	Cheer people up	0	0	0	0	0
243	Spend time reflecting on things	0	0	0	0	0
244	Think that all will be well	0	0	0	0	0
245	Know how to get things done	0	0	0	0	0
246	Lose my temper	0	0	0	0	0
		Innaccurate	Moderately Innaccurate	Neither	Moderately Accurate	Accurate

M5-336 Questionnaire						Page 8
		Innaccurate	Moderately Innaccurate	Neither	Moderately Accurate	Accurate
247	Love surprise parties	0	0	0	0	0
248	Enjoy the beauty of nature	0	0	0	0	0
249	Take advantage of others	0	0	0	0	0
250	Do things according to a plan	0	0	0	0	0
251	Feel desperate	0	0	0	0	0
252	Take control of things	0	0	0	0	0
253	Try to understand myself	0	0	0	0	0
254	Have a good word for everyone	0	0	0	0	0
255	Listen to my conscience	0	0	0	0	0
256	Stumble over my words	0	0	0	0	0
257	React quickly	0	0	0	0	0
258	Like to begin new things	0	0	0	0	0
259	Get back at others	0	0	0	0	0
260	Set high standards for myself and others	0	0	0	0	0
261	Love to eat	0	0	0	0	0
262	Willing to try anything once	0	0	0	0	0
263	Enjoy thinking about things	0	0	0	0	0
264	Seldom toot my own horn	0	0	0	0	0
265	Carry out my plans	0	0	0	0	0
266	Get overwhelmed by emotions	0	0	0	0	0
267	Laugh aloud	0	0	0	0	0
268	Believe that criminals should receive help rather than punishment	0	0	0	0	0
269	Suffer from others' sorrows	0	0	0	0	0
270	Act without thinking	0	0	0	0	0
271	Adapt easily to new situations	0	0	0	0	0
272	Keep others at a distance	0	0	0	0	0
273	Have difficulty imagining things	0	0	0	0	0
274	Believe that people are essentially evil	0	0	0	0	0
275	Don't see the consequences of things	0	0	0	0	0
276	Rarely complain	0	0	0	0	0
277	Seek quiet	0	0	0	0	0
278	Do not enjoy watching dance performances	0	0	0	0	0
279	Obstruct others' plans	0	0	0	0	0
280	Am not bothered by disorder	0	0	0	0	0
281	Feel that my life lacks direction	0	0	0	0	0
282	Hold back my opinions	0	0	0	0	0
283	Don't understand people who get emotional	0	0	0	0	0
284	Take not time for others	0	0	0	0	0
285	Misrepresent the facts	0	0	0	0	0
286	Am able to stand up for myself	0	0	0	0	0
287	React slowly	0	0	0	0	0
		Innaccurate	Moderately Innaccurate	Neither	Moderately Accurate	Accurate

M5-336 Questionnaire						Page 9
		Innaccurate	Moderately Innaccurate	Neither	Moderately Accurate	Accurate
288	Am attached to conventional ways	0	0	0	0	0
289	Hold a grudge	0	0	0	0	0
290	Demand quality	0	0	0	0	0
291	Never splurge	0	0	0	0	0
292	Seek danger	0	0	0	0	0
293	Avoid reading difficult material	0	0	0	0	0
294	Make myself the center of attention	0	0	0	0	0
295	Postpone decisions	0	0	0	0	0
296	Am calm even in tense situations	0	0	0	0	0
297	Amuse my friends	0	0	0	0	0
298	Like to stand during the national anthem	0	0	0	0	0
299	Can't stand weak people	0	0	0	0	0
300	Often make last-minute plans	0	0	0	0	0
301	Am filled with doubts about things	0	0	0	0	0
302	Would describe my experiences as somewhat dull	0	0	0	0	0
303	Carry the conversation to a higher level	0	0	0	0	0
304	Sympathize with other's feelings	0	0	0	0	0
305	Don't see things through	0	0	0	0	0
306	Am not easily frustrated	0	0	0	0	0
307	AM skilled in handling social situations	0	0	0	0	0
308	Rarely look for a deeper meaning in things	0	0	0	0	0
309	Respect others	0	0	0	0	0
310	Pay attention to details	0	0	0	0	0
311	Feel threatened easily	0	0	0	0	0
312	AM the life of the party	0	0	0	0	0
313	Enjoy hearing new ideas	0	0	0	0	0
314	Accept people as they are	0	0	0	0	0
315	Mess things up	0	0	0	0	0
316	Rarely lose my composure	0	0	0	0	0
317	Don't talk a lot	0	0	0	0	0
318	Can say things beautifully	0	0	0	0	0
319	Cut others to pieces	0	0	0	0	0
320	Make plans and stick to them	0	0	0	0	0
321	Know how to captivate people	0	0	0	0	0
322	Get excited by new ideas	0	0	0	0	0
323	Make demands on others	0	0	0	0	0
324	Am exacting in my work	0	0	0	0	0
325	Start conversations	0	0	0	0	0
326	Make people feel at ease	0	0	0	0	0
327	Shirk my duties	0	0	0	0	0
328	Don't mind being the center of attention	0	0	0	0	0
		Innaccurate	Moderately Innaccurate	Neither	Moderately Accurate	Accurate



<b>M5-336 Questionnaire</b>						<b>Page 10</b>
		Innacurate	Moderately Innacurate	Neither	Moderately Accurate	Accurate
329	Treat all people equally	0	0	0	0	0
330	Finish what I start	0	0	0	0	0
331	Retreat from others	0	0	0	0	0
332	Am out for my own personal gain	0	0	0	0	0
333	Follow through with my plans	0	0	0	0	0
334	Leave things unfinished	0	0	0	0	0
335	Don't put my mind on the task at hand	0	0	0	0	0
336	Make a mess of things	0	0	0	0	0
		Innacurate	Moderately Innacurate	Neither	Moderately Accurate	Accurate

## Appendix G

### LSRP Questionnaire

#### Behavior Checklist

Listed below are a number of statements. Each represents a commonly held opinion and there are no right or wrong answers. You will probably disagree with some items and agree with others. Please read each statement carefully and circle the number which best describes the extent to which you agree or disagree with each statement, or the extent to which each statement applies to you.

1= Disagree strongly

2= Disagree somewhat

3= Agree somewhat

4= Agree strongly

- |   |   |   |   |   |
|---|---|---|---|---|
| 1. I am often bored.  | 1 | 2 | 3 | 4 |
| 2. In today's world, I feel justified in doing anything I can get away with to succeed. | 1 | 2 | 3 | 4 |
| 3. Before I do anything, I carefully consider the possible consequences.                | 1 | 2 | 3 | 4 |
| 4. My main purpose in life is getting as many goodies as I can.                         | 1 | 2 | 3 | 4 |
| 5. I quickly lose interest in tasks I start.  | 1 | 2 | 3 | 4 |
| 6. I have been in a lot of shouting matches with other people.                          | 1 | 2 | 3 | 4 |
| 7. Even if I were trying very hard to sell something, I wouldn't lie about it.          | 1 | 2 | 3 | 4 |
| 8. I find myself in the same kinds of trouble, time after time.                         | 1 | 2 | 3 | 4 |
| 9. I enjoy manipulating other people's feelings.  | 1 | 2 | 3 | 4 |

1= Disagree strongly  
2= Disagree somewhat

3= Agree somewhat  
4= Agree strongly

- |   |   |   |   |   |
|---|---|---|---|---|
| 10. I find that I am able to pursue one goal for a long time.                               | 1 | 2 | 3 | 4 |
| 11. Looking out for myself is my top priority.  | 1 | 2 | 3 | 4 |
| 12. I tell other people what they want to hear so that they will do what I want them to do. | 1 | 2 | 3 | 4 |
| 13. Cheating is not justifiable because it is unfair to others.                             | 1 | 2 | 3 | 4 |
| 14. Love is overrated.  | 1 | 2 | 3 | 4 |
| 15. I would be upset if my success came at someone else's expense.                          | 1 | 2 | 3 | 4 |
| 16. When I get frustrated, I often "let off steam" by blowing my top.                       | 1 | 2 | 3 | 4 |
| 17. For me, what's right is whatever I can get away with.                                   | 1 | 2 | 3 | 4 |
| 18. Most of my problems are due to the fact that other people just don't understand me.     | 1 | 2 | 3 | 4 |
| 19. Success is based on survival of the fittest; I am not concerned about the losers.       | 1 | 2 | 3 | 4 |
| 20. I don't plan anything very far in advance.  | 1 | 2 | 3 | 4 |
| 21. I feel bad if my words or actions cause someone else to feel emotional pain.            | 1 | 2 | 3 | 4 |
| 22. Making a lot of money is my most important goal.  | 1 | 2 | 3 | 4 |
| 23. I let others worry about higher values; my main concern is with the bottom line.        | 1 | 2 | 3 | 4 |
| 24. I often admire a really clever scam.  | 1 | 2 | 3 | 4 |

1= Disagree strongly  
2= Disagree somewhat

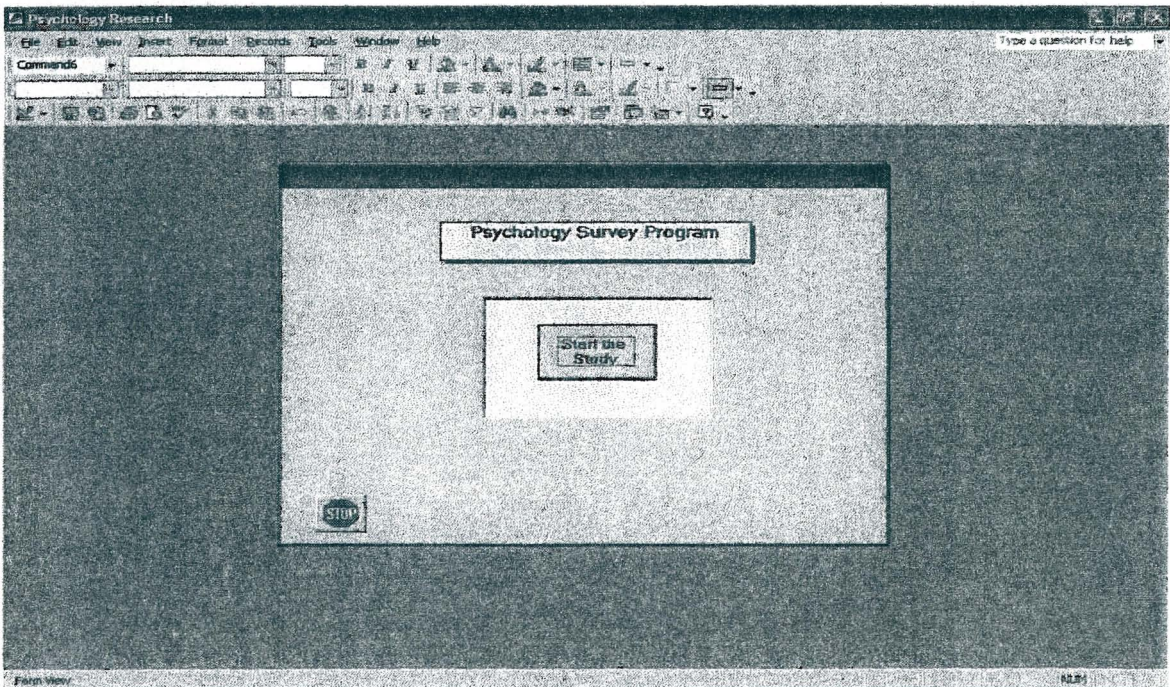
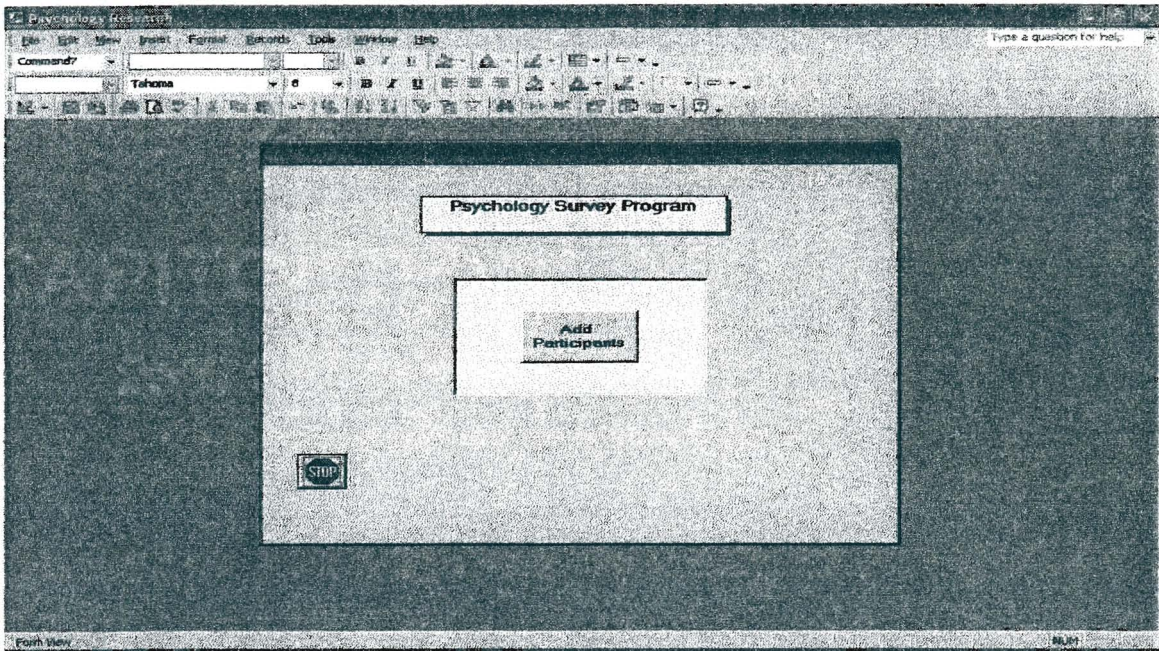
3= Agree somewhat  
4= Agree strongly

- |   |   |   |   |   |
|---|---|---|---|---|
| 25. People who are stupid enough to get ripped off usually deserve it.  | 1 | 2 | 3 | 4 |
| 26. I make a point of trying not to hurt others in pursuit of my goals. | 1 | 2 | 3 | 4 |



## APPENDIX H

### Prisoner's Dilemma





Psychology Research

File Edit View Insert Format Records Tools Window Help

Command11

MS Sans Serif 10

Prisoners Dilemma Game

You are being asked to participate in a computer simulated game with another individual, your "friend" that you will neither see nor hear. The game involves making choices and the goal of the game is to earn the highest number of points you possibly can. During each trial of the game, you will be asked to choose whether you wish to COOPERATE with your "friend" or whether you wish to COMPETE with your "friend". At the same time, your competitor will be choosing whether to COOPERATE or COMPETE. Based on your choice and the choice of your "friend" you will both receive a certain number of points. Remember, the goal of the game is to earn the most number of points you possibly can, so choose carefully. The breakdown of points is as follows:

You COMPETE and your "friend" COOPERATES You receive five (5) points  
 You COOPERATE and your "friend" COOPERATES You receive three (3) points  
 You COMPETE and your "friend" COMPETES You receive one (1) points  
 You COOPERATE and your "friend" COMPETES You receive zero (0) points

		Your "FRIEND"	
		Cooperate	Compete
YOU	Cooperate	3 points (You both cooperate)	0 points (You cooperate and your "friend" competes)
	Compete	5 points (You compete and your "friend" cooperates)	1 point (You both compete)

After each trial, you will be able to see the number of points you and your "friend" have accumulated, so pay close attention. Remember, you want to earn the most points. At the end of the game you will find out how many points you have earned.

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Participants: 1

Prisoners Dilemma Game

		Your "FRIEND"	
		Cooperate	Compete
YOU	Cooperate	3 points (You both cooperate)	0 points (You cooperate and your "friend" competes)
	Compete	5 points (You compete and your "friend" cooperates)	1 point (You both compete)

Your friend has already chosen his first move. Please make your move now by selecting "cooperate" or "compete", then press the "Play It" button.

Make your Move:  Cooperate  Compete

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Type a question for help

Command14

Prisoners Dilemma Game

		Your "FRIEND"	
		Cooperate	Compete
YOU	Cooperate	3 points (You both cooperate)	0 points (You cooperate and your "friend" competes)
	Compete	5 points (You compete and your "friend" cooperates)	1 points (You both compete)

Thank You! Here is the score so far:

You have  Gold coins,  
and your friend has  Gold coins; keep going

Your friend has already chosen his next move. Please make your move now by selecting 'cooperate' or 'compete' then press the 'Play It' button.

Make your Move:  Cooperate  Compete

Form View

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