Socially desirable responding on the Machiavellianism scale: Response bias or construct?

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SOCIALLY DESIRABLE RESPONDING ON THE MACHIAVELLIANISM SCALE: RESPONSE BIAS OR CONSTRUCT?

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ABSTRACT

Socially Desirable Responding on the Machiavellianism Scale: Response Bias or Construct?

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The Mach IV scale measures Machiavellianism, the propensity to be manipulatory in interpersonal relations. The Mach IV has been criticized for social desirability response bias, or the tendency to present oneself in an overly favorable light. Socially desirable responding, as measured by the Balanced Inventory of Desirable Responding, however, was postulated to reflect a facet of the Machiavellianism construct. A coalition-bargaining game was played with college students (N=126), using 21 groups each of sex-segregated triads in a 2 (sex) by 3 (high, medium, and low levels of Machiavellianism) between-subjects design. Game scores served as the dependent variable and were interpreted as a measure of manipulative success. Neither sex nor levels of Machiavellianism were significantly related to game performance. Machiavellianism was negatively related to overall social desirability and its two subtypes, impression management and self-deceptive enhancement.
TABLE OF CONTENTS

ABSTRACT........................................................................................................... iii

LIST OF TABLES................................................................................................. v

ACKNOWLEDGMENTS...................................................................................... vi

CHAPTER 1  INTRODUCTION.......................................................................... 1

CHAPTER 2  MACHIAVELLIANISM, THE MACH IV, AND SOCIAL DESIRABILITY............................................................................. 7
Machiavellianism........................................................................................ 7
The Mach IV Scale...................................................................................... 14
Social Desirability....................................................................................... 15
The Mach IV Scale and Social Desirability............................................... 16
The Mach IV Scale and Multidimensionality............................................ 20
Research Question and Hypotheses........................................................... 23

CHAPTER 3  METHOD......................................................................................... 29
Participants.................................................................................................. 29
Materials...................................................................................................... 31
Procedure..................................................................................................... 38

CHAPTER 4  RESULTS........................................................................................ 42

CHAPTER 5  DISCUSSION................................................................................... 47

APPENDIX I  CON GAME RULES AND DESCRIPTION................................. 53

APPENDIX II  SUPPLEMENTAL TABLES........................................................ 60

REFERENCES ....................................................................................................... 68

VITA ....................................................................................................................... 76
LIST OF TABLES

Table 1  Demographic Characteristics of the Subjects ........................................... 30
Table 2  Machiavellianism and Social Desirability: Pearson Correlations ........... 43
Table 3  Analysis of Variance for the Modified Con Game .................................. 46
Table 4  Descriptive Statistics of the MACH IV Scale and Scale Components ...... 61
Table 5  Descriptive Statistics of the Balanced Inventory of Desirable Responding (BIDR-6) and Scale Components ........................................ 62
Table 6  Internal Consistencies of the MACH IV and BIDR-6 Scales (Cronbach’s Alpha) ........................................................................................................... 63
Table 7  Machiavellianism, Social Desirability, Sex, and Game Score: Pearson Correlations ........................................................................................................... 64
Table 8  Descriptive Statistics of the MACH IV Experimental Groups .............. 66
Table 9  Modified Con Game Outcome Scores by Experimental Group ............ 67
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CHAPTER 1

INTRODUCTION

Machiavellianism, defined as the tendency to be manipulative in interpersonal interaction (Christie, 1970a), is an established personality trait variable represented by hundreds of published research articles since its inception in the mid-1950s. The construct of Machiavellianism arose when Christie and his colleagues noted that the writings of Machiavelli, a 16th century statesman, had "come to designate the use of guile, deceit, and opportunism in interpersonal relations" and then posed the question of whether "the person who agrees with Machiavelli's ideas behaves differently from the one who disagrees with him" (Christie, 1970a, p.1). In seeking to answer this question, Christie and his colleagues searched Machiavelli's writings for statements that reflected Machiavelli's "underlying assumptions about the nature of man" (Christie, 1970a, p. 8). Questionnaire items were then derived and classified a priori into three domains, "views of human nature," "the nature of an individual's interpersonal tactics," and "statements of abstract or generalized morality" (Christie, 1970b, p. 14).

The questionnaire resulting from these initial efforts, the MACH IV (Christie, 1970b), has become the predominant instrument for measuring Machiavellianism. The scale consists of 20 items, each measured in a Likert format, with nine items each
reflecting the domains of views and tactics and the remaining two items reflecting the
domain of morality. Machiavellianism as measured by the MACH IV is first scored as a
dimensional variable based upon the total sum of item scores. In experimental studies, it
is then usually the case that individuals are separated into groups high or low in
Machiavellianism by a simple median split of the obtained distribution of MACH IV
scores. Less frequently, the obtained distribution of scores is used to separate individuals
into groups that are high, medium, and low in Machiavellianism. Although data obtained
from the Machiavellianism scale becomes ordinal in these circumstances, the
presumption remains that the underlying Machiavellianism dimension is continuous.

Although it is customary in the Machiavellian literature to refer to individuals who obtain
higher scores on the dimension of Machiavellianism as “Machiavels” or
“Machiavellians,” in so doing, no violence to the underlying dimensionality of the
construct is intended.

Despite its frequent use in the study of manipulative behavior, the MACH IV
instrument has a long history of criticism for a social desirability bias in responses to
questionnaire items. More recently, on the basis of factor analytic studies, the MACH IV
has been criticized for a multidimensional character and evidence that the scores lack
construct validity (Fehr, Samson & Paulhus, 1992; Hunter, Gerbing, & Boster, 1982;
Panitz, 1989). The psychometric issues surrounding the scale’s characteristics remain
unresolved and center most notably on whether the two major theoretical components of
the construct of Machiavellianism, views and tactics, reflect two independent constructs
or different facets of one underlying dimension (Fehr et al., 1992).
The present study directly addresses the first concern, the nature of the relationship between socially desirable responding and Machiavellianism as measured by the MACH IV instrument. It indirectly addresses the second concern, through examination of whether the two major components of Machiavellianism, views and tactics, relate differentially to social desirability.

Social desirability responding is a common source of bias affecting the validity of research findings and refers to the tendency "to deny socially undesirable traits and to claim socially desirable ones, and the tendency to say things which place the speaker in a favorable light" (Nederhof, 1985, p. 264). Small to moderate negative correlations are typically found between the MACH IV instrument and measures of social desirability (Biberman, 1985; Christie, 1970b; Zook & Sipps, 1986), although one study using the Edwards Social Desirability Scale reported a correlation of -.75 in a female sample (Budner, 1962). These correlations have been interpreted as reflecting social desirability bias in responses to items comprising the measurement instrument (Biberman, 1985; Budner, 1962; Christie, 1970b; Zook & Sipps, 1986).

The research question to be addressed is whether the relationship between socially desirable responding and Machiavellianism reflects unwanted bias in responses to the items of the MACH IV instrument or, instead, whether such responses to the MACH IV items actually reflect real differences in how individuals higher in Machiavellianism behave. Such individuals may, in fact, hold more socially undesirable views, behave in more socially undesirable ways, and differentially endorse...
items on the MACH IV questionnaire that reflect those real attitudinal and behavioral differences. Moreover, socially desirable responding may be related to the two major theoretical components of Machiavellianism, views and tactics, in predictable ways that can serve to extend our understanding of both the Machiavellianism and social desirability constructs.

The research question will be examined by conducting a simplified and modified version of an early experiment exploring the circumstances in which individuals higher in Machiavellianism are successful at social influence (Geis, 1970). A simple board game was used in that experiment. Each game was played by a male triad of high, medium, and low scorers on Machiavellianism in a tournament setting. Winning the game required joining and breaking partnerships and bargaining for points. Machiavellianism scores in this early experiment correlated .71 with game points won (Geis, 1970). Geis's original experimental protocol was simplified and modified for this study and game trials were added that used female triads as well. A game patterned similarly to Geis's original game was used because of the original game's past success in demonstrating a relationship between Machiavellian orientation and game outcome. As such, the modified game used here was intended to provide a behavioral context in which to evaluate the role of social desirability and the manipulative success of the individual higher in Machiavellianism.

The study outcome will be evaluated by establishing the strength of the relationship between Machiavellianism and game outcome and then removing the
variance due to socially desirable responding. A finding that shows an increase in the strength of the original relationship would suggest that socially desirable responding on items of the MACH IV scale constitutes bias that interferes with clear measurement of the Machiavellianism construct and lessens the validity of scores obtained from the items comprising the MACH IV scale. On the other hand, a finding that shows a decrease in the strength of that original relationship would suggest that socially desirable responding on the MACH IV scale items constitutes construct measurement that increases the validity of scores obtained from the scale items.

The study outcome will be additionally evaluated within the context of a current two-component model of social desirability. The two-component model represents an extension of prior conceptualizations of socially desirable responding and is supported by recent research (Paulhus, 1984; 1994; 1999). One component refers to self-deceptive enhancement, in which the individual believes in socially desirable self-attributions and is not aware of the overly-positive character of the self-perceptions. The second component refers to interpersonal impression management, in which the individual dissembles and is consciously aware of the overly positive character of the self-presentations (Paulhus, 1984).

The Balanced Inventory of Desirable Responding (BIDR-6), to be used in this study, is a recent measure of socially desirable responding developed by Paulhus (1994) and reflects the current two-component model of socially desirable responding. The BIDR-6 has since undergone minor item revisions. The final, revised version has been

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renamed and published as the "Paulhus Deception Scales" (Paulhus, 1999). The BIDR-6 refers to an unpublished experimental version of the Paulhus Deception Scales and does not reflect the final item revisions. The BIDR-6 contains an independent measure of each type of socially desirable responding, although scores from the two separate scales that comprise the BIDR-6 may be summed if desired to produce a composite measure. Such a composite measure can be interpreted in a way analogous to that in which scores on older social desirability measures are customarily employed. The BIDR-6 instrument is comprised of two 20-item scales, with each item presented in a 7-point Likert format. The BIDR-6 is used in this study to help explore the historical relationship between Machiavellianism and socially desirable responding. Examination of the relationships among the types of social desirability and the theoretical components of Machiavellianism are used to extend and refine the findings. The value of the current study resides in an extension and clarification of the constructs of Machiavellianism and social desirability, the nature of the relationships between them, and the instruments used to measure them.
Machiavellianism is an individual-differences construct that reflects a propensity to be manipulative in interpersonal interaction (Christie, 1970c). Impetus for development of the Machiavellianism construct was provided by Niccolo Machiavelli, who wrote political essays in the 16th century that gave advice on the effective use of power predicated on exploitation and deceit. To modern eyes, Machiavelli’s essays communicate a view of human nature as both cynical and untrustworthy. The adjective “Machiavellian” reflects this view of human nature and is used to describe individuals whose behavior is regarded as manipulative, immoral, tricky, and unscrupulous. Based directly upon Machiavelli’s essays, Christie conceived of the Machiavellian personality as “lacking in interpersonal affect, low in concern with conventional morality, devoid of gross psychopathology, and having low ideological commitment” (Christie, 1970c, p. 4). These characteristics were postulated a priori as necessary for the effective control and manipulation of others in an interpersonal context.
Machiavellianism and Other Personality Dimensions

The relationship of Machiavellianism to other major personality dimensions has been explored in the many years of published research on the Machiavellian construct. The findings of this large body of research generally support the four characteristics of the Machiavellian personality as originally envisioned by Christie (Christie, 1970c; Fehr, Samsom & Paulhus, 1992). Some representative findings are that Machiavellianism is positively related to dominance (Paulhus & Martin, 1987; Wiggins & Broughton, 1985), lack of empathy (Hare, 1991; Ray & Ray, 1982), anxiety (Jones, Nickel, & Schmidt, 1979; Nigro & Galli, 1985; Poderico, 1987), and an interpersonal internal locus of control (Biberman, 1985; Hunter, Gerbing, & Boster, 1982; Paulhus, 1983). On the other hand, Machiavellianism has been shown to be relatively independent of a number of important dimensions, namely intelligence (Christie, 1970a), achievement motivation (Christie, 1970a; Johnson, 1980; Smith, 1976; Vleeming, 1984), depression (LaTorre & MacLeod, 1978; Skinner, 1982), self-monitoring (Barnes & Ickes, 1979; Ickes et al., 1986; Snyder, 1974), and cognitive style (Moroldo, et al., 1976; Sypher, Nightingale, Vielhaber, & Sypher, 1981).

Machiavellianism and Behavioral Differences

Machiavellianism has also been explored in terms of differences in individual behavior. When the relationship of Machiavellianism to unethical personal conduct is examined, for example, individuals higher in Machiavellianism do not, contrary to expectations, appear to behave more unethically than do individuals lower in
Machiavellianism (Dien & Fujisawa, 1979; Fehr et al., 1992). Differences in unethical behavior do emerge, however, under different circumstances. For instance, individuals higher in Machiavellianism behave more unethically (e.g., lying, cheating, and stealing) when the risk of exposure is low, whereas individuals lower in Machiavellianism behave more unethically when the relative degree of emotional involvement is high (Bogart, Geis, Levy, & Zimbardo, 1970; Cooper & Peterson, 1980; Harrell & Hartnagel, 1976). Those higher in Machiavellianism appear more detached emotionally and use more strategies of conscious manipulation such as deceit (Falbo, 1977), as compared to those lower in Machiavellianism. In terms of interpersonal style, those higher in Machiavellianism are more likely to use strategic self-disclosure (Jones, Nickel, & Schmidt, 1979), ingratiating (Pandey & Rastogi, 1979), and persuasion (Sheppard & Vidmar, 1980) than are those lower in Machiavellianism, who are more likely to use simple statements, assertion, and persistence to gain compliance (Falbo, 1977).

Current Conceptualization of Machiavellianism

The most recent consideration in the literature on Machiavellianism as a construct involves the postulation that Machiavellianism is related to the construct of psychopathy (McHoskey, Worzel, & Szyarto, 1998). Those authors proposed that Machiavellianism is a measure of psychopathy itself under a different name and different conception. They noted that Machiavellianism is traditionally viewed as a dimensional individual-differences variable within the domain of social psychology and that psychopathy, in contrast, is ordinarily conceptualized as a dichotomous categorical construct within the
domain of clinical psychology. The authors proposed that psychopathy be reconceptualized as a dimensional construct and viewed as another individual-differences variable. The authors further proposed that the Machiavellianism literature as a whole be reconceptualized as reflecting features of psychopathy as they appear in normal populations (consistent with Christie's postulated "lack of gross psychopathology," 1970c, p. 4) and as studied by personality and social psychologists. In contrast, psychopathy, antisocial personality disorder, and sociopathy are viewed by these authors as the common terms under which clinical psychologists study the same construct in clinical populations. Although the question of whether Machiavellianism reflects a subclinical form of psychopathy has been raised by McHoskey, et al. (1998), there is not yet a literature that attempts an answer.

**Machiavellianism and Situational Characteristics**

Geis and Christie (1970) made an attempt to identify the situational characteristics in which those individuals higher in Machiavellianism perform best. These situational characteristics were identified *post hoc* by Geis and Christie through examination of the results of 38 experimental studies conducted prior to the publication of their monograph (Christie & Geis, 1970). These situational elements were identified as "(1) face-to-face interaction, (2) latitude for improvisation, [and] (3) arousing irrelevant affect" (p. 285).

Geis and Christie (1970) concluded that face-to-face interaction during social interaction benefits individuals higher in Machiavellianism because individuals lower in Machiavellianism "get caught up and carried away in a social response process" (p. 285),

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whereas, conversely, the greater emotional detachment of the individual higher in Machiavellianism helps to maintain an effective task or goal orientation. Thus, they saw face-to-face interaction as one important situational element necessary for the individual higher in Machiavellianism to perform best.

A second situational element that Geis and Christie (1970) believed to be important for the individual higher in Machiavellianism to succeed is "latitude for improvisation." Latitude for improvisation implies that the structure of the situation contains sufficient ambiguity that the outcome is not already governed by clear structure, rules, or norms. Thus, an unambiguous situation would limit the opportunity of individuals higher in Machiavellianism to manipulate the situation to their advantage. An unambiguous situation that limits and constrains behavior through clear limits and expectations would help to generate a situation in which the use of strategy could provide little advantage. Thus, Geis and Christie (1970) saw latitude for improvisation as a second important situational element necessary for the individual higher in Machiavellianism to perform best.

Finally, Geis and Christie (1970) concluded that a third situational element necessary for individuals higher in Machiavellianism to succeed is the presence of "irrelevant affect" that characterizes individuals lower in Machiavellianism. The person-oriented interactional style of individuals lower in Machiavellianism carries inherent within it the possibility of emotions, involvements, and attachments with other individuals present in the situation that is unrelated to the task at hand. Such "irrelevant affect" is advantageous to the goal-oriented individual higher in Machiavellianism to the
extent that such involvements are distracting and irrelevant and accordingly serve to
impede task performance. Thus, Geis and Christie (1970) saw the presence of “irrelevant
affect” as a third situational element necessary for the individual higher in
Machiavellianism to perform best.

Machiavellianism and the Con Game

Geis (1970) tested these three situational characteristics in an unreplicated
experiment that involved a conflict-of-interest board game (“the Con Game”) played with
triads formed of males categorized as high, medium, and low in Machiavellianism.
Forming and breaking partnerships and bargaining for game points were required to win.
The games were systematically varied by conditions of power and ambiguity. Different
positions of power were created by giving individual players sets of game cards with
greater, mid-range, or lesser values for use during game play. Ambiguity was introduced
or eliminated based upon whether the sets of power cards were dealt face up or face down
and were thus known to the other players. Each participant played six games in a
tournament, three under ambiguous conditions and three under nonambiguous conditions,
and no participant played the same individual more than once.

The first situational element of “face-to-face interaction” was present during all
games in that the triad members could interact freely with one another over the game
board. The second situational element, “latitude for improvisation,” was present under
ambiguous playing conditions in which no triad member was aware of the power position
of any other triad member. Finally, the third situational element, “irrelevant affect,” was

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considered present in that every triad contained, by design, one of the three constituent members who was classified as low in Machiavellianism (and who was therefore presumably characterized by a person-based interpersonal style).

Under these conditions of face-to-face interaction, latitude for improvisation, and arousal of irrelevant affect, Geis (1970) reported a .71 correlation between Machiavellianism scores and game outcome. Under the power conditions, all individuals improved game performance with better power, but those higher in Machiavellianism did not increase their performance more than did those lower in Machiavellianism.

Under ambiguous conditions, however, in which the power held by other players remained unknown, the individuals higher in Machiavellianism were markedly more successful than were the individuals lower in Machiavellianism. In fact, when conditions were ambiguous, the individuals higher in Machiavellianism performed so well that advantages associated with different objective power positions disappeared.

Geis and Christie reached the overall conclusion that, in circumstances where these three situational elements are present, “high Machs manipulate more, win more, are persuaded less, persuade others more, and otherwise differ significantly from low Machs” (Geis and Christie, 1970, p. 312).

Christie and Geis (1970) published the results of this study in their edited monograph on Machiavellianism, along with information on the conceptualization and development of the Machiavellianism construct, the development of various instruments to measure it, and results of the research conducted by themselves and their colleagues to examine it. The research interest generated in Machiavellianism since the publication of
their monograph has, in turn, focused attention on the characteristics of the instrument most frequently used to measure it.

**The MACH IV Scale**

The predominant instrument for measuring Machiavellianism is the MACH IV (Christie, 1970b), a 20-item scale with each item in a 7-point Likert format. Half the scale items are reversed for control of acquiescence response bias. By content area, nine items deal with views of human nature, nine items deal with tactics of manipulation, and the remaining two deal with abstract morality. The MACH IV scale item responses have a mean split-half reliability of .79. The mean item-whole correlation of item responses is reported at .38. By content area, the mean item-whole correlation for responses to tactics items is .41, for view of human nature, .35, and for abstract morality, .38 (Christie, 1970b, p. 16). Alpha coefficients for the full scale typically range above .70 (Fehr et al., 1992). The Mach IV scale has been subject to two predominant criticisms: first, that responses to the items of the scale are distorted from bias introduced from socially desirable responding (Christie, 1970b; Fehr, et al., 1992); and, second, that the construct validity of the scale scores is questionable due to its multidimensional character (Fehr, et al., 1992; Hunter, Gerbing, & Boster., 1982; O’Hair & Cody, 1987, Panitz, 1989; Williams, Hazelton, & Renshaw, 1975). Although the concern with scale multidimensionality came later, the concern with socially desirable responding scale has been present from the first reported uses of the MACH IV scale (Christie, 1970b).
Social Desirability

Socially desirable responding refers to the tendency to provide responses designed to make the respondent look good. Such responses interest researchers involved in testing and measurement issues because responding in this fashion can bias self-reports and introduce error into the measurement of other content variables (Paulhus, 1991).

Socially desirable responding appears to have two primary components, namely self-deceptive enhancement and impression management (Paulhus, 1984; Sackeim & Gur, 1978). Self-deceptive enhancement refers to the tendency of individuals to view themselves in a more positive light than reality merits; such a bias appears to be an unconscious enhancement of self-regard and is positively related to measures of adjustment. Impression management refers to a conscious, strategic management of one's self-presentation to others. The two components appear to be relatively independent dimensions, with the former representing a stable personality characteristic and the latter varying according to the presentational demands of the specific situation (Paulhus, 1984, 1986, 1991; Sackeim & Gur, 1978). A principal components analysis of 10 social desirability scales supports the two dimensions, with the Edwards Social Desirability Scale associated closely with self-deceptive enhancement, the Wiggins and EPI Lie scales associated closely with impression management, and the Marlowe-Crowne Social Desirability Scale items loading strongly on both dimensions (Paulhus, 1986, 1999), although individual correlations among the measures were not reported. Because the Marlowe-Crowne Social Desirability Scale items load on both dimensions, responses on the latter scale are accordingly a good aggregate measure of both types of socially
desirable responding (Marlowe & Crowne, 1961; Paulhus, 1986), although the scale does not allow separate measurement of the two dimensions.

Separate measurement of the two dimensions, however, may be accomplished through use of the Balanced Inventory of Desirable Responding (BIDR-6), which measures both types of socially desirable responding independently (Paulhus, 1984, 1986). The two BIDR-6 components show low correlations with each other, typically ranging from .2 to .3 (Paulhus, 1994). The overall BIDR-6 correlates .64 with Edwards’ Social Desirability Scale and correlates .73 with the Marlowe-Crowne scale (Paulhus, 1994). However, the relationship of the two components of socially desirable responding to the Machiavellian construct is unexplored.

The MACH IV Scale and Social Desirability

The MACH IV scale has a long history of criticism for a social desirability response bias in questionnaire item responses. In an effort to respond to such concerns, Christie (1970b) developed and published the MACH V, a second scale now in comparative disuse. Christie attempted to remove the effects of social desirability by introducing a triadic forced-choice format into the MACH V questionnaire items. Rogers and Semin (1973) argued that the effects of social desirability are not adequately removed from the responses to the MACH V items using this method. A further criticism is that the MACH V is an ipsative instrument that requires the use of nonparametric statistical techniques (Zook, 1985). Moreover, internal consistency coefficients typically range from .44 to .55, indicating that scores fail to reach acceptable standards of reliability.
It is not currently recommended that the MACH V be used as a research instrument (Fehr, et al., 1992). Despite continuing criticism of the MACH IV, it remains the predominant instrument used to measure Machiavellianism. Because of the continuing prominence of the MACH IV as the preferred instrument for assessing Machiavellianism, interest in the role of socially desirable responding to the items that comprise it persists as a psychometric concern.

Past research has produced consistent evidence supporting a negative relationship between socially desirable responding and Machiavellianism, although the magnitude of the reported relationship has varied markedly over different samples and different social desirability measures. Performance on the MACH IV scale correlated -.35 and -.45 (in two samples) with the Edwards Social Desirability Scale (Edwards, 1957) and -.17 with the Marlowe-Crowne Social Desirability Scale (Christie, 1970b; Edwards, 1957; Marlowe & Crowne, 1961). Budner (1962) reported a correlation of -.75 with the Edwards Social Desirability Scale using a sample of female subjects. Other researchers have also found correlations that are consistently negative. Using the Marlowe-Crowne scale, Biberman (1985) reported a correlation of -.10; also using the Marlowe-Crowne scale, Zook and Sipps (1986) reported correlations of -.10 for males and -.25 for females.

Factor analyses of the MACH IV support a multidimensional scale structure and heightens the ambiguity of the interpretation of such correlations (Fehr, et al., 1992). Ambiguity is introduced because as it is not possible to determine which dimension of a multidimensional scale is responsible for any observed relationship. Moreover, as we saw above, research suggests that the social desirability construct is composed of two
independent dimensions (Paulhus, 1984), one concerning the self-enhancement of one's own image and one concerning the impression management of others. Because these two dimensions are differentially measured by different social desirability instruments, the meaning of any obtained Mach IV correlation is further obscured.

Although past research provides evidence of a relationship between socially desirable responding and Machiavellianism, little research has attempted to explore directly the meaning of the observed relationship. Instead, from the beginning the presumption has been made that the relationship between the MACH IV and scales measuring social desirability has been due to response bias (Christie, 1970b). The earlier interpretation of that relationship as response bias, however, is open to question (McHoskey, et al., 1998).

McHoskey, et al. (1998) reported a -.45 correlation between the impression management scale of the BIDR-6 and the MACH IV in their article on Machiavellianism and psychopathy. The authors indirectly implied that the historical presumption of social desirability response bias in responses to the MACH IV scale items may be unwarranted, when they observed that, "Theoretically, most of the characteristics associated with MACH are socially undesirable, and therefore MACH (and psychopathy) should be inversely correlated with social desirability, and this aspect of their variance should not be partialed out when examining their relations with other measures" (p. 204).

Grams and Rogers (1990) conducted a Machiavellianism study that used social desirability as a personality variable and not merely as a measure of response bias. Social desirability scores, using the Marlowe-Crowne scale as their measure, were interpreted by
the authors as indicators of study participants’ need for social approval. The authors based their study in part upon the assumption that the two traits, Machiavellianism and social desirability, are unrelated to each other. The authors explored the relationship of Machiavellianism and "need for approval" on choice of social influence tactics and found that individuals varied in their choice of social influence tactics as a function of whether they scored higher on Machiavellianism or higher on "need for approval." Although this study can be viewed as an interesting reflection on how Machiavellianism and social desirability independently relate to a third variable, social influence tactics, it fails to address or clarify the relationship between the two independent variables.

Although concerns about the relationship between socially desirable responding and the MACH IV have been present since the scale’s inception (Christie, 1970b), the MACH IV has more recently been criticized as well for its multidimensional character and evidence that its scores lack construct validity (Fehr, et al., 1992; Hunter, Gerbing, & Boster, 1982; Panitz, 1989). The psychometric issues surrounding the scale’s characteristics remain unresolved, and center most notably on whether the two major theoretical components of the scale, Machiavellian views and Machiavellian tactics, are independent constructs or reflect different facets of a single underlying dimension (Fehr, et al., 1992).
The MACH IV Scale and Multidimensionality

Initially, the MACH IV was constructed with the items falling into three classifications: views of human nature, interpersonal tactics, and abstract morality. The latter had only two items and is not robust (Ahmed & Stewart, 1981; Fehr et al., 1992; Hunter et al., 1982). Factor analyses of the scale have supported the views and tactics distinction (Ahmed & Stewart, 1981; Christie & Lehmann, 1970; O'Hair & Cody, 1987; Williams, Hazelton, & Renshaw, 1975). The factors of the scale are largely independent and show low positive correlations ranging from .15 to .30 (Fehr et al., 1992; Vleeming, 1984). In an unpublished study, Paulhus (1982, Fehr et al., 1992) also found a viable two-factor solution that supports a views-tactics distinction.

In an article challenging the construct validity of the MACH IV scores, Hunter et al. (1982) factored the MACH IV scale using confirmatory factor analysis and reported four component beliefs that the authors labeled “flattery, rejection of honesty, rejection of the belief that people are moral, and the belief that people are vicious and untrustworthy” (p. 1293). A mixed pattern of correlations between these factors and dogmatism, self-esteem, and locus of control was found, and a path analysis showed that each factor had a different set of causal links. The authors concluded that Machiavellianism “is an arbitrary composite score formed by summing over Machiavellian beliefs that do have construct validity” (p. 1305). O'Hair and Cody (1987) extended the work of Hunter et al. (1982) by relating the separate Machiavellian belief constructs to different kinds of social influence tactics. They selected a three-factor solution for the MACH IV based on a principal components analysis. The three factors reflected Christie’s (1970b) original...
views and tactics distinction plus a three-item immorality factor. The authors found that individuals who varied on the three factors behaved differently from one another in terms of the compliance-gaining strategies they selected to use in social influence situations. Thus, both the work of Hunter et al. (1982) and O'Hair and Cody (1987) provide additional evidence supporting the multidimensional character of the MACH IV scale.

Although the structure of the MACH IV appears to be multidimensional (Hunter et al., 1982; O'Hair & Cody, 1987), its multidimensionality does not necessarily invalidate Christie's (1970b) original views and tactics distinction (Fehr, et al, 1992). A direct comparison of the item content of the four Hunter component beliefs and the original views and tactics components envisioned by Christie reveal substantial, albeit not identical, correspondence between them. The Machiavellianism views component is represented by the Hunter et al. "rejection of the belief that people are moral" and "belief that people are vicious and untrustworthy" factors, and the Machiavellianism tactics component is represented by the Hunter et al. "flattery" and "rejection of honesty" factors. Despite the established multidimensionality of the MACH IV scale, Christie's original views and tactics distinction appears to be generally supported.

Fehr and his colleagues (1992) concluded that the construct validity of the MACH IV scores is not threatened by its multidimensional nature as long as "the conceptual link between the components and behavior is coherent" (p.108) and that separate scores for each of the components are obtained. O'Hair and Cody (1987) found that individuals who varied on factored components of Machiavellianism also behaved differently in terms of the social influence strategies they selected and concluded, as did Fehr and his
colleagues, that individual examination of the components of Machiavellianism is an appropriate research strategy.

Martinez (1981), using a triadic bargaining game modified from Geis's original study (1970), found that the total Machiavellianism score was more predictive of success than were individual scores on the views or tactics components. Martinez, however, introduced a number of substantive alterations to Geis's initial research protocol: an idiosyncratic measure of Machiavellianism was used; an unusual strategy was employed to assign subjects to Machiavellianism level; the same triad partners played multiple games with each other; and the formation of the game triads were based on unusual combinations of characteristics, such as one high Machiavellian, one mid-Machiavellian with a high-Machiavellian cynicism score, and one low Machiavellian. The alterations make comparisons with prior research ambiguous and conclusions difficult to draw. Nonetheless, his finding that total Machiavellianism score was the more powerful predictor of game success suggests that it may be inappropriate to rely solely on the separate components of the MACH IV scale, despite its established multidimensionality.

Fehr et al. (1992) also noted that the views and tactics components of the MACH IV may interrelate in more than one possible way. The relationship may be an additive one and result from tapping an underlying common factor, or the factors in combination may yield an emergent construct, "such that high scores on both factors are required to generate Machiavellian behavior. An individual needs to believe that duplicitous tactics work and be cynical enough to use them" (p. 109). The relationship between the views and tactics components of the MACH IV scale has not been systematically addressed in
the research literature, nor have broader issues concerning the dimensionality and construct validity of scale responses been fully resolved. The longstanding relationship between performance on the MACH IV and various measures of socially desirable responding also remains unexamined.

Research Question and Hypotheses

Two competing explanations for the longstanding relationship between Machiavellianism and social desirability are formulated here and then discussed.

The Response Bias Model

Since the inception of the Machiavellian construct, the observed relationship with socially desirable responding has been interpreted in terms of a response bias to items comprising the Machiavellianism scale. This interpretation implies that responses to the items of the Machiavellianism scale, in addition to reflecting Machiavellianism, also reflect a tendency to respond on questionnaires in a socially desirable manner. In the context of this view or understanding of the relationship, the variance contributed to the scale by this social desirability tendency is seen to reduce the validity of the Machiavellianism scale scores as measures of Machiavellianism. This model is one possible explanation of the relationship between Machiavellianism and social desirability, and is the historically accepted one. If this model is indeed a good explanation of the Machiavellianism/social desirability relationship, when the variance due to socially desirable responding is removed from scale item response scores, a purer measure of Machiavellianism would remain. With the variance from socially desirable responding
removed, the MACH IV scale scores would then be a better (more valid) measure of Machiavellianism.

The Construct Measurement Model

This model provides a competing explanation for the relationship between Machiavellianism and social desirability. In this view, individuals higher in Machiavellianism show a greater willingness to endorse socially undesirable items on the MACH IV scale simply because individuals higher in Machiavellianism possess a greater willingness to behave in socially undesirable ways, a willingness that is reflected in their endorsement of questionnaire items. If so, then the scale scores would be reflecting genuine differences in terms of how individuals higher in Machiavellianism behave. If this model is a good explanation of the relationship between Machiavellianism and measures of socially desirable responding, then when the variance due to socially desirable responding is removed from MACH IV scale item scores, the MACH IV scale item scores would then be a worse (less valid) measure of Machiavellianism.

The Research Question

These two models provide competing explanations for the relationship between Machiavellianism and socially desirable responding and allow the primary research question to be posed in the following way. Does the variance in the MACH IV scale scores due to socially desirable responding reflect a response bias that weakens the validity of the MACH IV scale scores and thus introduce ambiguity into the interpretation of research findings, or does that variance reflect an integral but unexplored aspect of the
Machiavellian construct, a genuine differential willingness to exhibit socially undesirable behavior that is reflected in a greater endorsement of MACH IV questionnaire items with socially undesirable content?

One way to gain evidence as to whether socially desirable responding reflects a response bias or an aspect of the Machiavellianism construct is to use responses to the MACH IV scale to predict manipulative behavior in an experiment. The experiment to be used is an altered version of the con game discussed earlier, the coalition-bargaining game used by Geis (1970) in which level of Machiavellianism successfully predicted game outcome. The strength of the relationship between MACH IV scale scores and the game outcome will then be examined with the variance due to socially desirable responding either left intact or statistically removed, leading to the experimental hypotheses discussed further below.

An additional way to explore the relationship between Machiavellianism and social desirability is to examine the statistical association between Machiavellianism and the two types of social desirability, self-deceptive enhancement and impression management. Information gained through correlational analyses has less power than experimental data to address the character of the relationship between social desirability and the construct validity of the MACH IV scores. Such correlational data, however, can usefully address the patterns of the relationship between social desirability and Machiavellianism. Exploration of these patterns of relationship has been made possible by the Balanced Inventory of Desirable Responding and its separate measure of each social desirability type (Paulhus, 1994). Moreover, a way to extend exploration of the
relationship between Machiavellianism and social desirability is to examine the association between the two theoretical components of Machiavellianism, views and tactics, and the two types of social desirability, impression management and self-deceptive enhancement, leading to the following hypotheses.

Correlational Hypotheses

**Hypothesis 1**

*Scores on the MACH IV will show significant negative linear relationships with scores on the BIDR-6 and with its two component scales, Self-Deceptive Enhancement and Impression Management.*

This hypothesis tests whether a significant association exists between Machiavellianism and social desirability. In line with the historically negative relationship between Machiavellianism and social desirability, it is anticipated that associations with Machiavellianism using the BIDR-6 and its two components, self-deceptive enhancement and impression management, will also be negative.

**Hypothesis 2A**

*The linear relationship between MACH IV Views scores and Self-Deceptive Enhancement scores will be stronger or weaker than the relationship between MACH IV Views scores and Impression Management scores.*

This hypothesis examines how the Views of Human Nature component of Machiavellianism is related to the types of social desirability, Self-Deceptive Enhancement and Impression Management. No literature bears directly upon this hypothesis and, accordingly, the hypothesis is phrased bidirectionally. The Views component may be more strongly related to Self-Deceptive Enhancement than it is to Impression Management, with which it appears to have conceptually less in common.
Views of Human Nature and Self-Deceptive Enhancement appear alike in that both are concerned with views about the nature of someone, either others or oneself, and both appear to address predominately attitudes, not behaviors. Alternatively, the Views component of Machiavellianism may be more strongly related to the Tactics component of Machiavellianism than it is to the Self-Deceptive Enhancement type of social desirability, in that each reflects a component of the Machiavellianism scale.

**Hypothesis 2B**  The linear relationship between MACH IV Interpersonal Tactics scores and Impression Management scores will be stronger or weaker than the relationship between MACH IV Tactics and Self-Deceptive Enhancement.

This hypothesis examines how the Interpersonal Tactics component of Machiavellianism is related to the types of social desirability, Self-Deceptive Enhancement and Impression Management. No literature bears directly upon this hypothesis and, accordingly, the hypothesis is phrased bidirectionally. The Interpersonal Tactics component may be more strongly related to Impression Management than it is to Self-Deceptive Enhancement, with which it appears to have conceptually less in common. Both Interpersonal Tactics and Impression Management appear to refer to the strategic management of one's behavior in relation to others, and both appear to address predominantly behaviors, not attitudes. Alternatively, the Interpersonal Tactics component of Machiavellianism may be more strongly related to the Views component of Machiavellianism than it is to the Impression Management type of social desirability, in that each reflects a component of the Machiavellianism scale.
Experimental Hypotheses

Hypothesis 3A  Individuals higher in Machiavellianism will outperform individuals lower in Machiavellianism with respect to game scores.

This hypothesis tests whether levels of Machiavellianism, established using scores on the MACH IV, successfully predict game performance, and sets the stage for testing the subsequent hypothesis. Support for this hypothesis is provided in that an earlier version of the game was used successfully to predict game performance from level of Machiavellianism (Geis, 1970).

Hypothesis 3B  The strength of the positive, linear relationship between scores on the MACH IV and game outcome will change, becoming either stronger or weaker, when the variance due to scores on the BIDR-6, or either of its component scales, Self-Deceptive Enhancement and Impression Management, is removed.

This hypothesis tests whether the relationship between level of Machiavellianism and game outcome becomes stronger or weaker when the variance due to socially desirable responding, or its types, is statistically removed. If the relationship becomes weaker, this suggests construct measurement. If the relationship becomes stronger, this suggests response bias. No literature bears directly upon this hypothesis.
CHAPTER 3

METHOD

Participants

Undergraduate students enrolled in introductory psychology courses at the University of Nevada, Las Vegas, received subject-pool participation credit for voluntary participation in this study. Early in Fall Semester, 1997, 356 students filled out packets of ten questionnaires for research participation credit. For additional credit, 126 of those students also volunteered to participate in this experiment. Approval for use of human subjects was granted October 1, 1997, by the University of Nevada, Las Vegas Office of Sponsored Programs (Approval Number 113s1097-081e).

Sample Characteristics

The demographic characteristics of the sample can be seen in Table 1. The mean age for the sample was 19.9 years, consistent with the freshman (57.9%) and sophomore (27.0%) underclass status (84.9%) of most study participants. Most participants were unmarried (93.7%) and the predominant racial and ethnic background of the sample was Caucasian (88.9%).
Table 1

Demographic Characteristics of the Subjects

<table>
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<th>Variable</th>
<th>Males n</th>
<th>Females n</th>
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Materials

Questionnaires

Demographics Questionnaire

This questionnaire contained six items that ascertained year in school, sex, age, academic performance, marital status, and race/ethnicity.

Measure of Machiavellianism

Machiavellianism was measured by the MACH IV, a 20-item 7-point Likert scale (Christie, 1970b). Scale anchors range from disagree strongly (1 point) to agree strongly (7 points), with an unlisted neutral value (4). Scale items measure views of human nature, interpersonal tactics, and generalized morality, with wording on half the items reversed to minimize acquiescent response bias. By convention, the scale is scored by adding a constant of 20 points to make the theoretical midpoint 100 points, the theoretical minimum 40 points, and the theoretical maximum 160 points. The MACH IV scale item responses have a mean split-half reliability of .79. The mean item-whole correlation of item responses is reported at .38. Within content area, the mean item-whole correlation for responses to tactics items is .41, for view of human nature, .35, and for abstract morality, .38 (Christie, 1970b, p. 16). Alpha coefficients for the full scale typically range above .70 (Fehr et al., 1992).
Measures of Social Desirability

Three related measures of social desirability were used, consisting of two measures that, when used together, constitute the aggregate social desirability measure.

The Balanced Inventory of Desirable Responding (BIDR-6). Social desirability was measured by the BIDR-6, a 40-item, 7-point Likert scale with half the items reversed to control acquiescent response bias (Paulhus, 1991). Scale anchors range from not true (1) to very true (7). The BIDR-6 contains two separate 20-item scales that measure two relatively independent constructs, self-deceptive enhancement and impression management. The total BIDR-6 score is obtained by summing the scores from the two BIDR-6 scales, which are first obtained separately. A continuous scoring procedure was selected to obtain the two component scores for this study, although alternate scoring procedures are provided in the BIDR-6 manual (Paulhus, 1991). BIDR-6 scores have a theoretical midpoint of 160 points and range from 40 to 280 points. Internal consistencies are .83 for the total BIDR-6, range from .68 to .80 for self-deceptive enhancement, and range from .75 to .86 for impression management. Depending on situational demands for self-presentation, the two BIDR-6 scales correlate with each other from .05 to .40 (Paulhus, 1991).

Self-deceptive enhancement. The first component of the BIDR-6, self-deceptive enhancement (SDE), measures the tendency to provide honestly believed but positively biased self-reports. The SDE scale measures self-reported claims to positive cognitive attributes, which do not reflect objective, observable behaviors and about which it is accordingly possible for individuals to deceive themselves. This dimension is not

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responsive to situational variations and reflects a relatively stable personality trait (Paulhus, 1991). The SDE scale is scored by first reversing the negatively-keyed items and then summing the endorsed values, for a theoretical midpoint of 80 points, and ranges from 20 to 140 points.

**Impression management.** The second component of the BIDR-6, impression management (IM), measures claims about overt behaviors. The individual is assumed to have actual knowledge of these observable behaviors and to be aware, accordingly, of any distortions in reporting. The IM scale measures an individual's tendency to overreport desirable and underreport undesirable behaviors. This dimension, unlike self-deceptive enhancement, is responsive to situational variations in demands for self-presentation, and impression management scale values show a large increase from private to public conditions of test administration (Paulhus, 1991). The IM scale is scored by first reversing the negatively-keyed items and then summing the endorsed values, for a theoretical midpoint of 80 points and ranges from 20 to 140 points.

**Additional Packet Questionnaires**

Eight additional questionnaires were administered concurrently with the MACH IV and the BIDR-6 to all volunteers under authorization of the University of Nevada, Las Vegas Office of Sponsored Programs (Approval Numbers 113s0397-208e and 113s0397-209e, issued March, 1997), but were not used in the present study. The additional questionnaires were the Attitudes Toward Disabled Persons Scale (Yuker, Block & Campbell, 1960), the Erotometer (Bardis, P. D. (1971), the Love Attitudes Scale...
(Hendrick & Hendrick, 1986), the Miller Social Intimacy Scale (Miller & Lefcourt, 1982), the Modified Interpersonal Relationships Scale (Garthoeffner, Henry, & Robinson, 1993), the Morally Debatable Behaviors Scale (Harding & Phillips, 1986), the Paranoia Scale (Fenigstein & Vanable, 1992), and the Self-Report Psychopathy Scale-II (Hare, 1990). The sequence of questionnaire administration within the questionnaire packet was randomized; questionnaires in alternating packets were administered in reverse random order.

The Modified Con Game

A simplified and modified version of the three-person bargaining-coalition game used by Geis (1970) and called the con game was adapted for use. The original con game was altered and simplified in a variety of ways that concern the game's conduct, features, and conditions. A comparison of the original and modified con games and a summary of their differences are provided in Appendix I.

The Modified Con Game Playing Board

The game board is a 23-inch square, laminated posterboard with numbered squares. The squares are laid out in a path that begins with Start near the lower left corner and ends with Finish in the board's center. The numbers move in sequence from 1 to 149, with the value of 150 being equivalent to Finish. The corner values, defining the path to the center of the board, are in the sequence 1, 20, 38, 57, 72, 87, 99, 111, 121, 130, 136, 143, and 146. One die is rolled at each turn to determine advancement upon the game board toward the goal of Finish, and each player uses one colored place marker to
mark advancement around the board. Sets of power cards are used, similar in size and appearance to ordinary playing cards, each set consisting of six cards in total and individually numbered 2, 3, 4, 5, 6 and 7. A handout listing and explaining game rules is provided to each player (see Appendix I).

The Modified Con Game Play

In the modified con game, three players, selected on varying levels of Machiavellianism and segregated by sex, are face-to-face and in a position to manipulate each other as each plays the board game. Winning is determined by the highest cumulative number of points accrued after three successive game rounds, with each round worth 100 points, for a theoretical game maximum of 300 points. A round is completed when any individual player or coalition of players reaches the final square.

At the time a round is finished, points for the round are either (1) won entirely by one player, or (2) divided between two players in coalition. Individual players are free to make or break coalitions at any time during the game. When players do form coalitions, the possibility is created that the coalition, instead of an individual player, will win the round. Accordingly, at the time a coalition is formed, the coalition partners are required to reach an agreement with each other about how they will divide the 100 points in the event their coalition wins. This agreement is reached through bargaining and negotiation. Each player's final game score results from his or her ability to enter into coalitions, bargain effectively for points, and make and break coalitions to personal advantage.
Each round results in one of two possible outcomes. If a single player wins, the the two losers gain no points and the winning single player gains 100 points. If a coalition wins, the single loser gains no points and the two coalition partners split the 100 points for the round according to the agreement reached at the time the coalition is formed.

At the beginning of each of the three rounds, each player is given a set of power cards. The card values are held facing the player and unseen by other players, although any given player is free to reveal them any time he or she feels it is strategic to do so. Each player has sets of power cards of identical value. This fact, however, is unknown to the players themselves. This unawareness of the relative power held by other players introduces ambiguity into the interpersonal bargaining situation.

To begin play at each of the three game rounds, each player tosses a die. The sequence of play is determined by the die values, ordered from highest (plays first) to lowest (plays last). During play, as each player not in coalition takes a turn, the player throws the die in order to determine the number of spaces to move the player’s marker toward Finish. The player may then elect to play any power card in his or her hand and use the value of that power card to multiply the value of the die toss. That multiplied value then determines the number of squares the marker is advanced. Only one power card may be used per player per turn, and only one set of cards may be used per round. Play rules for members of coalitions are somewhat more complex.

Three rules, bearing directly on coalition play, govern game play and are designed to enhance the role of manipulation in participant’s play. First, players may form two-
party coalitions whenever they wish. When players do form coalitions, the coalitions play as a unit together. At the time the coalition is formed, coalition markers are placed on the square midpoint between the players' initial marker positions. One die toss, for the coalition, determines the advancement of both coalition players' markers, which then move forward together. Each coalition member may use one power card each time the coalition has a turn. If both members use a power card, the values of the two power cards are summed to reach the multiplier value.

For example, assume the coalition rolls a die value of 6, player 1 used a power card of value 6, and player 2 uses a power card of value 3. The two power card values are summed \((6 + 3 = 9)\) and then multiplied against the value of the die toss \((9 \times 6)\), which results in a simultaneous movement forward for both players of 54 squares, or more than one third the way around the game board. Clearly, the formation of coalitions promotes rapid advancement toward Finish. The most effective way to accrue points and win is to participate in coalitions rather than to be excluded from them.

Second, each coalition is required to reach an agreement, at the time a new coalition was formed, about how the 100 points are to be divided between members in case the coalition wins the round. The 100 points are distributed in any way the players choose. An effective way for players to accrue points over rounds is to use their power cards and position on the game board to bargain for more points when new coalitions are formed.

Third, just as coalitions may be made whenever two players agree, coalitions may be broken whenever any individual player chooses. A capable player may form a
coalition with a player ahead on the game board and move rapidly forward as both markers are moved to the midway point between the two new coalition members. One may also use power cards to bargain for a disproportionate share of points. Finally, one may use an advanced position on the board as an opportunity to abandon the coalition partner and move ahead alone. Timely abandonment of a coalition partner can allow such a player to move to Finish alone and capture all 100 round points. The three rules are designed to maximize opportunities for persuasion and bargaining and to demonstrate an individual player's success in manipulating others.

Procedure

Administration of the Questionnaire Packet

Questionnaires were administered in assigned UNLV classrooms early in Fall Semester, 1997. The MACH IV, the BIDR-6, and a short demographics questionnaire were administered as part of a larger packet of questionnaires to 356 undergraduates participating in the Department of Psychology subject pool. Of those 356 original subjects, 126 students voluntarily participated for additional credit in the current study; those participants indicated their interest by signing their name, telephone numbers, and available times of participation on an additional sheet of paper. Anonymity of questionnaire responses was secured by coding questionnaire packets with identification numbers. Administration of the questionnaire packet took approximately 45 minutes and all study participants completed the same questionnaire battery. Participants signed a
consent form prior to participation and a debriefing form was provided to participants after completion of the questionnaire packet.

Experimental Participation

All experimental participation ended by November 24 during Fall Semester, 1997. Participation required approximately 1.5 hours. Participants signed a consent form prior to participation, received a debriefing form after participation, and were provided with the opportunity to ask questions. All participants were provided with 2 hours experimental participation credit.

Assignment to Level of Machiavellianism

The MACH IV questionnaires were scored according to the standard scoring protocol and the resulting distribution of scores was divided into equal thirds. Assignment into high, medium, or low categories of Machiavellian was a function of whether an individual scored in the top, middle, or bottom third, respectively, of the obtained MACH IV distribution of scores (separate MACH IV distributions were obtained for males and females).

Participant Assignment to Conditions

Each triad was formed using one high, one medium, and one low MACH IV scorer. Triads were either all male or female in comparison. Any given player participated only once in a triad. Random selection into triads was accomplished by computer-generated random reordering of the participants within their assigned
Machiavellianism level, followed by matching across columns to determine triad membership. When scheduling difficulties precluded the use of randomly matched triad members, substitutes were selected on the basis of schedule availability. Each participant was assigned to only one triad and each game played yielded one separate game score for each participating player.

**Conduct of the Game Sessions**

Games were supervised by the investigator. One to three games took place at the same time and were scheduled as a function of participants’ availability. Male and female games, however, were not run concurrently. To protect against experimenter bias, the Machiavellianism level of individual game participants was unknown to the experimenter during game play. When game participants arrived, each signed a consent to participate. Each participant was then provided with a printed handsheet of game rules that described the experiment as a “study of social behavior intended to reflect social processes that take place in real life.” The handsheet was read aloud, major rules of play were reviewed, any questions were answered, and a practice game was held to ensure that all participants clearly understood the rules of play. Participants were then each provided with an index card for noting points earned. Questions during game play were answered without providing advice or indicating strategic resolution to game dilemmas. After the end of the game, points earned by each participant were verified and written down by the experimenter. Participants were given a written debriefing form and the opportunity to ask questions prior to their departure.
**Experimental Design**

A 2 x 3 between-subjects ANOVA was used with sex (male, female) and Machiavellianism (high, medium, and low) serving as the independent variables. Scores obtained from the modified con game served as the dependent variable.
CHAPTER 4

RESULTS

The study's individual hypotheses were subjected to statistical analyses, with the outcomes reported as follows.

Correlational Hypotheses

Hypothesis 1  Scores on the MACH IV will show significant negative, linear relationships with scores on the BIDR-6 and with its two component scales, Self-Deceptive Enhancement and Impression Management.

This hypothesis tested whether, as Machiavellianism increased, endorsement of social desirability items declined. The relationship between scores on the MACH IV and the BIDR-6 was in fact negative ($r = -.53, p < .01$), as shown in Table 2. The relationship between scores on the MACH IV and SDE was similarly negative ($r = -.30, p < .01$), as was the relationship between scores on the MACH IV and Impression Management ($r = -.56, p < .01$).

Hypothesis 2A  The linear relationship between MACH IV Views scores and Self-Deceptive Enhancement scores will be stronger or weaker than the relationship between MACH IV Views scores and Impression Management scores.

This hypothesis tested how the Views component of Machiavellianism was related to the two types of social desirability. The relationship between Mach Views and
<table>
<thead>
<tr>
<th>Variable</th>
<th>BIDR-6</th>
<th>SDE</th>
<th>IM</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACH IV</td>
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<td>-.304**</td>
<td>-.561**</td>
</tr>
<tr>
<td>TACTICS</td>
<td>-.472**</td>
<td>-.212</td>
<td>-.541**</td>
</tr>
<tr>
<td>VIEWS</td>
<td>-.504**</td>
<td>-.387**</td>
<td>-.454**</td>
</tr>
</tbody>
</table>

(N=126)

*p < .05 (2-tailed)

**p < .01 (2-tailed)

\( ^a \) Machiavellianism

\( ^b \) Tactics MACH IV Items 1, 2, 3, 6, 7, 10, 12, 15

\( ^c \) Views MACH IV Items 4, 5, 8, 11, 13, 14, 16, 17, 18, and 20

\( ^a \) BIDR-6 Balanced Inventory of Desirable Responding

\( ^b \) SDE Self-Deceptive Enhancement (BIDR-6 Items 1-20)

\( ^c \) IM Impression Management (BIDR-6 Items 21-40)

\( ^a \) Using Multistage Bonferroni adjustment (Larzelere and Mulaik, 1977)
Self-Deceptive Enhancement was negative ($r = -.39, p < .01$), as was the relationship between Mach Views and Impression Management ($r = -.45, p < .01$), as shown in Table 2. However, the relationship between the Mach Views and Self-Deceptive Enhancement correlation and the Mach Views and Impression Management correlation was not statistically significant (using the Dunn and Clark (1969) $z$-score test for dependent correlations with one element in common ($z=.6992, p > .05$)).

**Hypothesis 2B**

*The linear relationship between MACH IV Interpersonal Tactics scores and Impression Management scores will be stronger or weaker than the relationship between MACH IV Interpersonal Tactics scores and Self-Deceptive Enhancement.*

This hypothesis tested how the Tactics component of Machiavellianism was related to the two types of social desirability. The relationship between Mach Tactics and Impression Management was negative ($r = -.54, p < .01$), although the relationship between Mach Tactics and Self-Deceptive Enhancement was not significant ($r = -.21, p > .05$), as shown in Table 2. The latter two correlations, however, were statistically different from one another (using the Dunn and Clark (1969) $z$-score test for dependent correlations with one element in common ($z=-.384, p < .0002$), thus supporting the hypothesis.

**Experimental Hypotheses**

**Hypothesis 3A**

*Individuals higher in Machiavellianism will outperform individuals lower in Machiavellian with respect to game scores.*

This hypothesis tested whether scores on the MACH IV successfully predicted game performance. A 2 (sex) x 3 (Machiavellianism) factorial between-subjects
ANOVA was conducted with game score as the dependent variable. No statistically significant main effects were found for sex ($F(1, 125) = .003, p > .05$) or Machiavellianism ($F(2, 125) = .897, p > .05$) or the sex by Machiavellianism interaction ($F(2, 125) = .224, p > .05$), as shown in Table 3.

Hypotheses 3B  The strength of the positive, linear relationship between scores on the MACH IV and game outcome will change, becoming either stronger or weaker, when the variance due to scores on the BIDR-6, or either of its component scales, Self-Deceptive Enhancement and Impression Management, is removed.

This hypothesis tested whether the variance due to socially desirable responding reflected construct measurement or response bias. The bivariate correlation between scores on the MACH IV and game outcome was not statistically significant ($r = .11, p > .05$). The correlation between scores on the MACH IV and game outcome with variance due to the BIDR-6 partialled out was not significant, ($r = .13, p > .05$). Similarly, the correlation was not significant between scores on the MACH IV and game outcome with variance due to either of the BIDR-6 components partialled out (with Self-Deceptive Enhancement variance partialled out, $r = .15 (p > .05)$; with Impression Management variance partialled out, $r = .07 (p > .05)$).

Supplemental Tables

The MACH IV and BIDR-6 scale characteristics and intercorrelations are reported in Appendix II, as shown in Tables 4, 5, 6, and 7. Experimental group characteristics and game score outcomes are also reported, as shown in Tables 8 and 9, respectively.
Table 3

**Analysis of Variance for the Modified Con Game**

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<th>Source</th>
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<th>MS</th>
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<td>.897</td>
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<td>620.098</td>
<td>.224</td>
<td>&gt; .05</td>
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<tr>
<td>Within</td>
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<td>2762.271</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
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<td>337676.070</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 5

DISCUSSION

The purpose of this study was to examine the relationship between Machiavellianism and socially desirable responding. The question concerned whether the longstanding relationship between scores on measures of Machiavellianism and socially desirable responding reflect response bias in how individuals respond to the Machiavellianism scale items or whether such responses reflect real differences in how Machiavellian individuals behave. The research question was extended to examine the relationships among two components of Machiavellianism, interpersonal tactics and views of human nature, and two types of social desirability, self-deceptive enhancement and impression management. The question was examined within a correlational context through analyses of the scores obtained from the two instruments measuring Machiavellianism and social desirability and extended within an experimental context, utilizing data from a competitive board game.

Study findings were based in part on correlational analyses that addressed the relationship between Machiavellianism and social desirability and their respective components. Findings from the first correlational hypothesis provided evidence that, as expected, Machiavellianism has a moderate, negative relationship with social desirability.
both overall and with its two types considered separately. This result supports the historical finding that as an individual's level of Machiavellianism increases, endorsement of socially desirable items declines, and extends this historical relationship to include the two types of social desirability (Christie, 1970b; Paulhus, 1994).

One exploratory correlational hypothesis concerned the presence and direction of relationships among the first component of Machiavellianism, views on human nature, and the two types of social desirability, self-deceptive enhancement and impression management. Study findings indicated that the Machiavellianism views component is moderately and negatively related to both types of social desirability, but is not more strongly related to one type than to the other type.

A second exploratory correlational hypothesis concerned the presence and direction of relationships among the second component of Machiavellianism, interpersonal tactics, and the two types of social desirability, self-deceptive enhancement and impression management. Study findings indicated that the Machiavellian tactics component is moderately and negatively related to the impression management type of social desirability, but not related to the self-deceptive enhancement type.

The two exploratory correlational hypotheses provided mixed evidence for a pattern of correlations among the scale components based upon a postulated attitudinal/behavioral distinction. Study findings indicated that Machiavellian tactics are related to the impression management component of social desirability and unrelated to self-deceptive enhancement, supporting this distinction. However, study findings also indicated that Machiavellian views are related to both kinds of social desirability, which
does not support such a distinction. The finding that Machiavellian tactics is related to the impression management component of social desirability is perhaps consistent with the strategic interpersonal nature of impression management and the definition of Machiavellianism as the propensity to be manipulative in interpersonal relations (Christie & Geis, 1970). Both constructs capture a flavor of knowing self-presentation in social intercourse.

Experimental findings showed that individuals high in Machiavellianism did not outperform individuals low in Machiavellianism with respect to game scores, contrary to prediction. The failure of the experimental manipulation to result in the predicted differences precluded effective examination of several related questions. These hypotheses concerned removing variance due to the social desirability measure overall and its two components separately to reveal either a strengthening or a weakening of the relationship between Machiavellianism and game score. A stronger relationship between Machiavellianism and game score with the variance due to social desirability statistically removed would have suggested that the relationship between social desirability and Machiavellianism was, in fact, due to the operation of bias in the responses of individuals to scale items. A stronger relationship was not obtained. A weaker relationship, conversely, would have suggested the removal of construct variance and argued against social desirability response bias as the explanation of this relationship. In the absence of a statistically significant linear relationship between Machiavellianism and game score, however, a statistically weaker relationship was not possible to obtain. Accordingly, these questions remain inadequately addressed.
The failure of the experimental manipulation to have produced a relationship between an individual's level of Machiavellianism and game score may be due to changes in the manner in which the original game was conducted. Several potentially important deviations from the original game protocol were employed. First, a practice game was held before the actual game began. Second, alterations in the way the game was played and scored were introduced. Specifically, one game was played over three rounds summing to one score with no change in partners; the original protocol involved six games of one round each played with different partners in a tournament. Finally, the "unambiguous" condition was eliminated and conditions of objective differences in power among participants were eliminated. Any of these alterations, or any combination of them, or other unnamed variables could be responsible for the difference in game outcome obtained in Geis's original protocol.

Geis (1970) found in her research that when the conditions of game play were *ambiguous* (when individual players were unaware, through having cards dealt face down, of the value of the cards other players held), differences in game outcome attributable to the relative power of the cards entirely disappeared. Under conditions of ambiguity, the high Machiavel scored as well as he did when he actually held the high power position, regardless of the actual power of his hand. Because power differences were found to be unimportant under conditions of ambiguity, the current game was simplified by holding constant the power of the cards dealt to each player and playing all games under *ambiguous* conditions.
Researcher observations of game play, however, suggest that despite the literal ambiguity of the power cards (card were always dealt face down), the game participants assumed equal power conditions. This is in part due to the practice game, in which each participant was given a packet of cards with values identical to those received during subsequent rounds of the actual game; individuals knew their own packet of power cards did not vary in value over rounds. This assumption of equal power appeared to be reinforced during game play by conversational exchanges that supported or verified that assumption, reflected in comments such as “you haven’t played your seven yet.” If, in fact, the games were placed by default under conditions of nonambiguity, and everyone’s power in the game was identical and known or assumed to be identical by the participants, then the game outcome observed here was, in fact, precisely as would be predicted: no differences among participants with respect to game scores as a function of differing levels of Machiavellianism.

Future research might profitably address the issue of ambiguity and power with respect to the game employed in this study. Successfully establishing a relationship between an individual’s level of Machiavellianism and game outcome would allow partialing out the variance due to socially desirable responding and an examination of the increased strength or weakness of the original relationship. If convincing evidence could be provided that the longstanding relationship between Machiavellianism and socially desirable responding is, in fact, a function of the inherently socially undesirable nature of Machiavellian behavior itself, researchers could cease, as a matter of course, to partial out the variance to social desirability responding.
Such activity is not without hazard. When examining the relationship of
Machiavellianism to other variables, removal of variance attributable to the
Machiavellian construct under the rubric of social desirability will attenuate the
relationships of interest. Further, to the extent that differential relationships exist among
Machiavellianism and the two components of social desirability, findings may be
distorted and researchers supported in drawing erroneous or misleading conclusions.
Moreover, if McHoskey, Worzel, and Szyarto (1998) are correct in their premise that
Machiavellianism and psychopathy reflect "essentially the same personality construct
(i.e., dimension)" (p. 192), a reinvigoration of the Machiavellian literature might be
anticipated as it is explored in the context of the psychopathy construct. A clarification of
how issues of social desirability influence either or both would be beneficial in
supporting this exploration and is not trivial.
APPENDIX I

GAME RULES AND DESCRIPTION
BOARD GAME RULES SHEET

This game is designed to study social behavior and is intended to reflect social processes that take place in real life. To win, you must interact with each other. You must successfully form and break partnerships with each other and you must bargain for points within any partnerships you form. The game is played on a numbered game board and is a simple race from start to finish. You will play three rounds worth 100 points each. The single player with the most points after three rounds wins.

Assignment to Markers. At the beginning of each round, each participant will roll the die once. Red, green, and blue markers will then be assigned according to the high, middle, and low die toss values. In the event of ties, the die will be thrown until a marker assignment is reached.

Order of Play. The order of play at the beginning of each round is determined simply by the assigned marker color. Red is first; green is second; blue is third. Within a partnership, the player with the highest ranking marker rolls the die. After a partnership breakup, the player with the highest ranking marker takes the first turn.

Partnerships. Partnerships may be made or broken at any time for any reason. When a partnership is formed, both members move their markers to the board square midpoint between the markers. Members thereafter play as one unit, moving both markers forward together, until the round is won or the partnership is broken.

The Partnership Agreement. At the time a partnership is formed, the members must reach an agreement as to how they will divide their 100 points if the partnership wins that round. The 100 points can be divided any way the members choose. In bargaining with each other for points, each member’s position on the board and the number and strength of unused power cards will typically be considered. The agreement about the distribution of points must be written down by each member on each member’s scorepad at the time the agreement is reached.

Movement around the Board. When it is your turn, you will throw a die to determine how far you to move your marker toward Finish. You have one die toss per turn, whether you are a single player or a partnership unit. Which partnership member throws the die for the partnership is a matter of choice. Movement around the board may be accelerated by the use of power cards.
Power Cards

Power card packets. You will be given a packet of five power cards, face down, at the beginning of each round. Each card has a different value. You may or may not reveal the value of your power cards to others, as you choose.

When to play the power cards. At your turn, you may choose to play a power card. Playing a power card is never required. If you do choose to play a power card, you cannot use that card again.

How to play the power cards. You may multiply the value of your power card with the value of your die toss to determine the number of spaces to move toward Finish. This will rapidly accelerate your movement around the game board.

• Single players. For example, if your die toss has a value of 6 and you use a power card with a value of 5, you may move your marker 30 spaces forward.
• Partnership players. Each partnership member may play one power card. The values of both cards are added together. That sum is then multiplied against the value of the die toss. For example, your die toss has a value of 6 and you each use a power card with a value of 5. You will add the two 5s together to sum to 10. Then you will multiply 10 against the value of your die toss, 6, to get 60. Both of you will move your markers 60 spaces toward Finish.

Keeping Score. After each round has ended, each player marks his or her individual score on his or her individual score sheet. This number will range from zero to 100 for each round. A single player who loses will receive a score of zero. A single player who wins will receive a score of 100. If partnership players win the round, the 100 points will be distributed between the partnership players according to the agreement they made at the time the partnership was formed.

Conceding the Round. If any player chooses to concede the round, that player will receive no points. The other players will continue.

Enforcement of Rules. The players are responsible for enforcing game rules. You may refer to the Rules Sheet at any time. The experimenter may intervene in a dispute and will arbitrate if game players cannot reach agreement.

Time limits. A time limit may be imposed during which the game must be finished. If the time limit expires before the game is finished, all players receive zero points.

Winning. The individual player who accrues the largest number of points over three rounds wins.
THE ORIGINAL CON GAME

The modified con game was altered and simplified from the original con game (Geis, 1970) in a variety of ways that concern the game's conduct, features, and conditions. The original con game, and modified con game, and a summary of the major differences are discussed below.

Conduct of the Original Con Game

Original con games were played in a tournament fashion during the fall of 1963, with three to four game triads present at each session (Geis, 1970). Each player, males only, participated in six separate games, against different partners alternated from other triads, and played under different conditions of power and ambiguity. Each game was worth 100 points, and each player's success at manipulation was reflected in the total sum of points earned over the six games. Tournament participants were assigned identification tags to assist in movement among triads. The experimenter was female, with several male assistants and a number of informal observers present during tournament play. A review of game rules and the provision of a rules sheet preceded game play, and a post-session questionnaire was administered that assessed prior game-playing experience, involvement and enjoyment of the game, and other opinions.

At each player's turn, movement around the board was determined in part by the
higher die toss value of two thrown dice. Game conditions were varied by power, which means that each player during each game received a packet of cards characterized by high, medium, or low values compared to the card values received by other triad members. Game conditions were also varied by ambiguity, which means that sometimes the different power positions of the players could be observed by cards that were dealt face up (unambiguous condition) or obscured by cards that were dealt face down (ambiguous condition).

Each game triad contained one high, medium, and low Machiavellian member. Assignment to Machiavellian category was based on a combination of MACH IV and MACH V scores. Each questionnaire distribution of scores was divided separately into quartiles and only males who placed in the same or adjacent quartiles on both questionnaires were selected. Then, “high” was assigned based on two fourth quartiles scores or one fourth and one third quartile scores; “low” was assigned based on two first quartile scores or one first and one second quartile score, and “middle” was assigned to those remaining.

The Modified Con Game

Geis (1970) found that under unambiguous conditions, when the power structure of the game was obvious and clear, those with more objective power earned more points without regard to level of Machiavellianism. She also found that under ambiguous conditions, when the power structure of the game was not obvious and clear, the high Machiavellians won more points regardless of the actual power structure of the game.
and essentially eliminated the influence of different power positions.

Based on this finding, the unambiguous condition was eliminated, and all games in the modified version were played under conditions of ambiguity. Moreover, the power conditions were also eliminated for the same reason; that is, under ambiguous conditions, the differences associated with different power positions disappear. All games were thus played under ambiguous conditions and with equal power positions.

Because the three games under the unambiguous condition were dropped, and power position was held constant, the modified games were not played tournament fashion. Instead, each triad played the game three times with the same individuals, constituting three rounds of play for one game, under simultaneously ambiguous and equal power positions.

Each round was worth 100 points and each game accordingly worth 300 points. The game winner was determined by largest number of point winnings earned over the three rounds of the game. Game score was interpreted as indicating a player's comparative effectiveness at managing the behavior of the other game participants in a self-advantageous way.

The original games used male participants only; in the modified game, female-only triads were added. Use of identification tags was dropped as unnecessary. During play, only one die was tossed to determine the movement of game markers, instead of the highest value of two dice thrown. Only the female experimenter was present during games, with no assistants and no informal observers present. A practice round was
played before the game, in addition to a review of the game rules and the provision of a rules sheet. No questionnaire was administered after the game. Finally, assignment to level of Machiavellian was accomplished by using scores from the Mach IV. Individuals falling in the top, middle, and bottom thirds of the distribution for their sex were classified as high, medium, and low Machiavellians, respectively. This was a less complex assignment procedure than that employed in the original con game.

Summary

The most important changes between the original and modified con game appear to be (1) the addition of female games and a practice round, (2) the elimination of the unambiguous condition and differences in power, and (3) changes in the way the game was played and scored, e.g., one game played over three 100-point rounds with no change in partners versus six 100-point games played tournament style with different partners.
APPENDIX II

SUPPLEMENTAL TABLES
Table 4

Descriptive Statistics of the MACH IV Scale and Scale Components

<table>
<thead>
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<th></th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
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<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>92.40</td>
<td>89.94</td>
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<td>SD</td>
<td>15.08</td>
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<td>n</td>
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<td>126</td>
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<tr>
<td>MACH IV Tactics(^a)</td>
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<td>M</td>
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<tr>
<td>MACH IV Views(^b)</td>
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</tbody>
</table>

\(^a\)MACH IV items 1, 2, 3, 6, 7, 10, 12, and 15.

\(^b\)MACH IV items 4, 5, 8, 11, 13, 14, 16, 17, 18, and 20.
Table 5

**Descriptive Statistics of the Balanced Inventory of Desirable Responding Scale (BIDR-6) and Scale Components**

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</tr>
<tr>
<td><strong>Self-Deceptive</strong></td>
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<tr>
<td>Enhancement</td>
<td>a</td>
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<td>M</td>
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<tr>
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<tr>
<td><strong>Impression</strong></td>
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<tr>
<td>Management</td>
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<tr>
<td>M</td>
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<tr>
<td>SD</td>
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<tr>
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</tbody>
</table>

* a BIDR-6 items 1-20.
* b BIDR-6 items 21-40.
Table 6

Internal Consistencies of the MACH IV and BIDR-6 Scales (Cronbach’s Alpha)

<table>
<thead>
<tr>
<th>Items</th>
<th>Males (n = 63)</th>
<th>Females (n = 63)</th>
<th>Overall (n = 126)</th>
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<tr>
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<td>.75</td>
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<tr>
<td>Tactics</td>
<td>8 .65</td>
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<td>.61</td>
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<tr>
<td>Views</td>
<td>10 .44</td>
<td>.65</td>
<td>.56</td>
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<td>BIDR-6 b</td>
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<td>.87</td>
<td>.82</td>
</tr>
<tr>
<td>SDE</td>
<td>20 .61</td>
<td>.75</td>
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<tr>
<td>IM</td>
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<td>.80</td>
<td>.80</td>
</tr>
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</table>

a MACH IV Machiavellianism
   Tactics MACH IV Items 1, 2, 3, 6, 7, 10, 12, 15
   Views MACH IV Items 4, 5, 8, 11, 13, 14, 16, 17, 18, and 20

b BIDR-6 Balanced Inventory of Desirable Responding
   SDE Self-Deceptive Enhancement (BIDR-6 Items 1-20)
   IM Impression Management (BIDR-6 Items 21-40)
Table 7

Machiavellianism, Social Desirability, Sex, and Game Score: Pearson Correlations

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* \( p < .05 \) (2-tailed)
** \( p < .01 \) (2-tailed)

a MACH IV Machiavellianism
  Tactics MACH IV Items 1, 2, 3, 6, 7, 10, 12, 15)
  Views MACH IV Items 4, 5, 8, 11, 13, 14, 16, 17, 18, and 20)
b BIDR-6 Balanced Inventory of Desirable Responding
  SDE Self-Deceptive Enhancement (BIDR-6 Items 1-20)
  IM Impression Management (BIDR-6 Items 21-40)
c Using Multistage Bonferroni adjustment (Larzelere and Mulaik, 1977)
Note. The assumption of normality was examined for the MACH IV, the BIDR-6, and the game score distributions using the Kolmogorov-Smirnov test for normality, with a Lilliefors significance correction for estimating population mean and variance based on sample values. For the MACH IV and BIDR-6 distributions, the normality assumption was not rejected (Kolmogorov-Smirnov statistic = .55, \( df = 126, p > .05 \) and .040, \( df = 126, p > .05 \), respectively). For game score distribution, the normality assumption was rejected (Kolmogorov-Smirnov statistic = .096, \( df = 126, p < .05 \). although the Levene test for equal variances used to test the assumption of homogeneity of variance was not rejected (2.814, \( df = (2, 123), p > .05 \).
Table 8

Descriptive Statistics of the MACH IV Experimental Groups

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<th>Experimental Groups</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
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Table 9

Modified Con Game Outcome Scores by Experimental Group

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REFERENCES


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Posters and Presentations


Platz, L., and Hoefer, M. L. *Differences among level of gambling participation and socially desirable responding*. Poster accepted for the meeting of the Western Psychological Association, Irvine, California, April 30, 1999.

**Thesis Title:** Socially Desirable Responding on the Machiavellianism Scale: Response Bias or Construct?
Thesis Examination Committee:
Chairperson, N. Clayton, Silver, Ph.D.
Committee Member, Russell T. Hurlburt, Ph.D.
Committee Member, Jeffrey M. Kern, Ph.D.
Graduate College Representative, Sherri Strawser, Ph.D.