The rationale for this review of the literature on Machiavellianism from 1971 to 1987 was threefold. First, a comprehensive review of this personality construct has not been undertaken since the publication of Studies in Machiavellianism by Christie and Geis (1970). Second, because Christie is currently developing a new measure of Machiavellianism, it seems timely to summarize and evaluate the literature that has accumulated on the current Mach scales. Third, the validity of the construct has been questioned recently.

Three broad domains are discussed. The first section explores the relation of Machiavellianism to major personality dimensions. The goal is to evaluate the coherence of Machiavellianism within a larger nomological network. The second section evaluates the utility of the Mach scales in predicting behavior. The last section focuses on controversies surrounding the reliability and construct validity of the Mach scales.

The concept of Machiavellianism derived from the writings of the 16th-century Italian author, Niccolo Machiavelli. In his treatises, The Prince and The Discourses, Machiavelli presented his view of people as untrustworthy, self-serving, and malevolent, and advocated that a ruler maintain power in an exploitative and deceitful manner. Some four centuries later, during the 1960s, Richard Christie proposed that the tendency to accept Machiavelli’s worldview was a measurable individual-difference variable. An extensive program of construct validation culminated in the publication of the definitive monograph by Christie and Geis (1970).

In that monograph, Christie (1970b) described how three themes in
Machiavelli's writings were translated into items on a questionnaire. The first theme was the endorsement of such manipulative tactics as the use of flattery and deceit in interpersonal interactions. The second theme was a cynical view of human nature in which others are regarded as weak, untrustworthy, and self-serving. The third theme was a disregard for conventional morality. Christie also detailed the 10 years of scale development, culminating in the final two versions of the questionnaires (the Mach IV and the Mach V) for use in subsequent research.

Judging by the vast quantity of literature, the concept and measurement of Machiavellianism captured considerable attention among researchers. A bibliography by Hanson (1978) listed 183 references and a later one by Hanson and Vleeming (1982) listed 333 references. The research that accumulated in the 1960s was reviewed by Christie and Geis (1970) and by Geis (1978). A later review, published by Vleeming (1979a), provided an overview of 34 articles that appeared in the psychological literature from 1970 to 1979. However, that article is brief and rather narrow in focus. This chapter is a more comprehensive and up-to-date review of over 150 articles.

This chapter was motivated in part by the publication of critiques of the concept and measurement of Machiavellianism by Hunter, Gerbing, and Boster (1982) and by Ray (1983). They concluded that the multidimensionality of the Mach IV and Mach V scales leaves the entire construct of Machiavellianism open to question. A serious response to these critiques requires a thorough review of what is known to date. The first section of our review is concerned with personality correlates of Machiavellianism. The second section deals with behavioral validation of the construct. In the final section, the focus is on recent controversies over the reliability and construct validity of the Mach scales. In all three sections, the emphasis is on what the recent work adds to our understanding of Machiavellianism as originally reviewed by Christie and Geis (1970). The review culminates with an evaluation of the construct of Machiavellianism in light of our current knowledge. It concludes that Machiavellianism remains a valid construct, despite criticisms leveled against it. However, problems with the relation between theory and measurement, particularly when using the Mach V scale, are noted. It is recommended that interested researchers use the Mach IV scale and score the subfactors (Tactics and Cynicism) separately.

PERSONALITY CORRELATES

A number of researchers have investigated the relation between Machiavellianism and other self-report personality measures (e.g., need for achieve-
(1981) concerning the perceived personality traits of Machiavellians may be attributable to methodological differences between the studies. First, different sets of trait descriptors were used. Second, in the Cherulnik et al. study subjects observed a videotaped interview, whereas in the Falbo study they actually interacted with high and low Machs. Finally, the high and low Machs being rated may have behaved differently in the two studies: An interview might elicit more deliberate impression management, for example, than a casual discussion with one’s peers.

Simulations

Skinner, Giokas, and Hornstein (1976) asked individuals to complete a variety of questionnaires as if they were high Machs. Simulating highs scored significantly higher than control subjects on the Ascendance–Dominance, Trust–Suspicion, and Impulsiveness factors of the Howarth Personality Questionnaire (Howarth, 1973), and significantly lower on Superego, Cooperativeness–Considerateness, and Inferiority. These characteristics are consistent with the actual personality correlates of high Machs reported by Christie and Geis (1970).

The Skinner et al. study provides important information about the meaningfulness of this construct to the layperson. Apparently, Machiavellianism is a readily available cognitive category, one that matches the self-reports of high Machs. The category seems to be cognitively equivalent to the trait adjective calculating (Wiggins & Broughton, 1985).

Need for Achievement

Early work suggested that the relation between achievement motivation and Machiavellianism was ambiguous. Christie (1970c) described a study of Hungarian refugees by Weinstock (1964) in which a low positive correlation was found between scores on a shortened Mach IV scale and a short achievement scale. He also mentioned the Geis, Weinheimer, and Berger’s (1966) study of male college students in which no relationship was found between Mach scores and their achievement measure. Studies using Mehrabian’s (1969) achievement scales yielded mixed results. Johnson (1980) obtained positive correlations in two groups of male undergraduates, whereas Smith (1976) obtained a moderate correlation and a near-zero, positive correlation when his own short scale was used. Finally, Vleeming (1984), in a multiple regression analysis, reported a nonsignificant relation \( R = .15 \) between scores on the Mach IV and a Dutch achievement scale.

Other research has investigated the relation between need for achievement and Machiavellianism in specific subject populations. Skinner (1981) reasoned that, because high Machs prefer business-oriented occupations (see section titled Occupational Choice), the correlation would be significantly higher between achievement motivation and Mach scores for business students than for nonbusiness students. Scores on the Mach V and Mehta’s (1969) measure of achievement were moderately correlated in a sample of male business students and uncorrelated in nonbusiness students. Okanes and Murray (1980) investigated sex differences in the relation between achievement motivation and Machiavellianism in a business setting. They discovered that females in management positions scored significantly higher than males on the Mehrabian Achievement Scales but found no sex differences in Mach IV scores. Contrary to Skinner (1981), they found a low negative correlation between achievement motivation and Machiavellianism. When the correlation was computed for each gender separately, the correlation remained low and negative for females; for males, the measures were uncorrelated.

Finally, Okanes and Murray (1982) investigated cultural differences in the relation between Machiavellianism and need for achievement. They predicted that students from the United States and the Philippines would score significantly higher on Mehrabian’s achievement and the Mach IV scales than would students from Arab countries like Algeria and Iran. The Taiwanese were expected to score in the middle range for both measures. The hypotheses were based on a number of cultural differences associated with these countries. Predictions were not supported.

To summarize, Christie’s (1970c) assessment still seems applicable to the current picture: “Available evidence does not suggest a strong positive relationship between Machiavellianism and the achievement motive” (p. 44).

Hostility and Self-Reported Aggression

Christie (1970c) described only one study in this area: Wrightsman and Cook (1965) found moderate to high positive correlations between Mach scores and various measures of hostility. Guterman (1970) reported that high Machs were more likely to score high on a measure of outward aggression, which assessed hostile feelings, than middles or lows. Conversely, highs had lower scores on a measure of inward aggression than did the other two groups. Touhey (1971) obtained moderate correlations for males between scores on Guterman’s Mach scale and single measures of self-reported difficulties with aggression and self-control. For females, the correlation with Mach scores was low for the aggression item and high for the difficulties with self-control item. Finally, Jones, Nickel, and Schmidt (1979) reported that high Mach males were more hostile than lows.
(as measured by the Multiple Affect Adjective Checklist by Zuckerman & Lubin, 1965).

Thus, Machiavellianism and hostility appear to be related. Christie questioned whether high Machs actually are more hostile than lows, or whether they are simply more willing to admit feelings of hostility. He favored the latter interpretation, given that the highest correlation ($r = .60$) in Wrightsman and Cook's study was between two scales that have both been criticized for social desirability problems: the Mach IV and Siegel's (1962) Hostility scale. Christie's suggestion that high Machs may simply be more forthright in admitting feelings of hostility than lows remains viable. There is little evidence that high Machs are behaviorally more hostile or aggressive than low Machs (see section on Antisocial Behavior).

Locus of Control

Many studies have investigated the relation between Machiavellianism and internal versus external locus of control as measured by Rotter's (1966) I-E scale. Although some of the results are contradictory (e.g., Vleeming, 1984, found no relation between these variables using an abbreviated version of a Dutch locus of control scale), the bulk of the research indicates a positive correlation between Machiavellianism and externality. For example, Christie (1970c) reported that Wrightsman and Cook (1965) found a moderate correlation between Machiavellianism and externality. Moderate correlations have been found in other studies using diverse subject groups: undergraduate students (Paulhus, 1983), abnormal, personality and educational psychology students (Solar & Bruehl, 1971), Italian university students (Galli & Nigro, 1983), high school principals (Richford & Fortune, 1984), and MBA students (Biberman, 1985). Prociuk and Breen (1976) obtained a moderate positive correlation between externality and Mach V scores only for men, not for women.

Several other studies found low positive correlations between Machiavellianism and externality. In a group of sales managers surveyed by mail, Comer (1985) speculated that the correlation was low because his subjects typically held positions of power within large organizations and therefore would be less external than students. However, correlations of similar magnitude have been reported in studies using other subject groups including university students (Zenker & Wolfgang, 1982, although a moderate correlation was obtained when the correlation was computed for female subjects only; Maroldo et al., 1976, although no relation was found when the correlations were computed for males and females separately), and in a study of American and German students (Maroldo & Flachmeier, 1978). The correlation was also low and positive in male hockey players (Russell, 1974).

Relations with Levenson's (1974) measures of locus of control, the Internal, Powerful Others, and Chance scales, have also been examined. Correlations between Mach scores and the Internal scale are generally low and negative across different groups: American students (Hunter, Gerbing, & Boster, 1982), Italian students (Galli, Nigro, & Krampen, 1986), and German students (Galli et al., 1986, although when the data were analyzed for men only, no relation was found; for women, a moderate, negative correlation was obtained). Levenson and Mahler (1975) reported a high negative correlation between Mach IV scores and the Internal scale for women only.

Correlations between the Mach scales and the Powerful Others scale are moderate and positive in most samples: American students (Hunter et al., 1982), Italian students (Galli et al., 1986), and German students (Galli et al., 1986, although the relation was somewhat weaker for men only). Prociuk and Breen (1976) found a moderate correlation between Mach V scores and the Powerful Others scale only for males. Positive correlations also have been obtained between the Chance scales and Mach scales by Hunter et al. (1982), Galli et al. (1986, although only for Italian, not German, students), and for males by Levenson and Mahler (1975).

Overall, high Machs tend to score in an external direction on measures of locus of control. This holds for Levenson's subscales of externality (Powerful Others and Chance) as well as Rotter's general measure of externality. However, in some studies, the relation holds for only one gender and also may vary depending on the subjects' ethnicity.

The rather consistent finding that high Machs have an external locus of control appears conceptually contradictory in light of the Machiavellian's ability to control and manipulate interpersonal situations. A study by Paulhus (1983) helped resolve this paradox. Paulhus conceived locus of control as domain specific and, accordingly, developed three measures associated with three major spheres of behavior: personal achievement, interpersonal control, and sociopolitical control. He correlated the Mach V scale with each of these subscales and found that the positive relation between Machiavellianism and externality is attributable to the sociopolitical dimension of perceived control. In contrast, the interpersonal component exhibited a positive relation between internality and Machiavellianism. (Machiavellianism and personal achievement were uncorrelated.) These results are quite consistent with Christie and Geis' (1970) portrayal of the Machiavellian character. This individual is cynical about political control and, hence, scores low on the sociopolitical control measure. However, the

*Correlations corrected for attenuation were also reported by Hunter et al. (1982). In this chapter, we report the unattenuated correlations because they are most comparable to those given in other studies (i.e., the other studies we reviewed did not correct for attenuation).*
high Mach does expect to be in control when dealing with other people and, consequently, scores high on the interpersonal measure.

**Dogmatism-Authoritarianism**

Christie (1970c) discussed the relation between authoritarianism and Machiavellianism, noting that in 1955 and 1956 no relation had been found, but in a 1964 study, Mach IV scores correlated .20 with authoritarianism. He suggested that an unflattering view of people is common to authoritarianism and Machiavellianism. Although Christie never tested this prediction, it should be noted that in one of his factor analyses (Christie & Lehmann, 1970) both F scale and Mach items were included. Items from both scales loaded on one of the factors; Interestingly, the Mach items were mainly those that refer to a cynical view of others.

According to Steininger and Eisenberg (1976), Rokeach’s dogmatism scale can be taken as a measure of authoritarianism. They investigated the relation between Machiavellianism and dogmatism using the Kiddie Mach and their short dogmatism scale (which correlates .9 with Rokeach’s scale). Total scores on the two scales were moderately correlated for females; for males the correlation was low. Based on Christie’s speculation that an unflattering view of people is common to both constructs, they expected that the highest correlations would be found with the views component of Machiavellianism and the Derogation and Aloneness factor of their dogmatism scale. Results supported predictions, although for males these correlations were moderate, not high; for females they were moderate to high (depending on whether positively or negatively worded views items were used). Similarly, Hunter et al. (1982) predicted that their cynicism component of Machiavellianism would be more highly correlated with dogmatism (Trowdahl & Powell, 1965) than the total Mach score. The correlation between cynicism and dogmatism was moderate; the correlation using the total Mach score was low. Vleeming (1984), in a multiple regression analysis, found a significant relation between Mach IV scores and a Dutch authoritarianism scale, which was attributable largely to two of his four Mach clusters: flattery and cynicism.

Finally, in a series of factor analytic studies, Kline and Cooper (1983, 1984a) and Cooper, Kline, and May (1986) failed to find significant relationships between any Mach components and scores on Kohn’s (1972) authoritarianism measure. The findings using Ray’s (1974) dogmatism scale were inconsistent: Negative relations with the Mach components were found in some analyses; other analyses showed no relation. Ray (1979) also found no relation between Mach IV scores and his authoritarianism scale.

Overall, the pattern of findings with regard to both dogmatism and authoritarianism tends to support Christie’s original authoritarianism predictions. Total Mach scores are not very highly correlated with these measures. However, there is a significant association between the views component of Machiavellianism and dogmatism/authoritarianism.

**Cognitive Style**

Christie and Geis (1970) concluded that low Machs are more interpersonally involved and more sensitive to the emotions, needs, and intentions of others than are highs. Therefore, Delia and O’Keefe (1976) hypothesized that low Machs would score higher on interpersonal cognitive complexity (measured with the Role Category Questionnaire; Crockett, 1965) than would highs, given that individuals who are very involved with others develop more complex systems of interpersonal constructs to represent and interpret the actions of others. Subjects described a liked and a disliked peer. The total number of constructs produced in the descriptions constituted the measure of cognitive complexity. They found moderate to high negative correlations between Mach IV scores and number of constructs generated. In a second study, the constructs were classified as psychological or not psychological. There was a moderate negative correlation between Mach scores and the tendency to discriminate among others along psychological dimensions. Thus, low Machs seem to have a more elaborated, more extensive, system of interpersonal constructs than do highs. Unfortunately, when Sypher, Nightingale, Vielhaber, and Sypher (1981) replicated Delia and O’Keefe’s first study, they found no relation between Mach IV scores and Crockett’s RCQ in two groups of students.

Maroldo et al. (1976) found no relation between a modified Mach IV and cognitive style as measured by the Object Sorting Test Form (Clayton & Jackson, 1961). Maroldo and Flachmaier (1978) replicated the study. They obtained a low positive correlation in an American sample, and a low negative correlation in a German sample. In sum, the research on the cognitive style of Machiavellians is unimpressive. The few existing studies report generally weak results and tend not to be replicable.

**Self-Monitoring**

According to Ickes, Reidhead, and Patterson (1986), one would expect a positive correlation between self-monitoring and Machiavellianism because both involve the use of impression management. However, both Snyder (1974) and Barnes and Ickes (1979) failed to find a relation between these constructs, and Ickes et al. (1986) obtained only a low positive correlation between the Mach V and Snyder’s (1974) Self-Monitoring scale. Bell, McGhee, and Duffey (1986) also found low positive correlations between self-monitoring and Kiddie Mach scores. In explaining the lack of strong
association between these variables, Ickes et al. posited that although high Machs and high self-monitors use impression management strategies they use these strategies in different ways and for different reasons. They predicted and found that Machiavellianism was associated with a focus on self during social interactions, whereas self-monitoring was associated with a focus on the interaction partner.

Psychopathy

According to Christie (1970a), one of the characteristics of high Machs is a "gross lack of psychopathy" (p. 3). Nevertheless, researchers have continued to explore whether any relation between Machiavellianism and various forms of psychopathology might exist. With regard to the global categories of neuroticism and psychotism, Kline and Cooper (1983, 1984a) and Cooper, Kline, and May (1986) consistently found that the components of Machiavellianism and Psychoticism as measured by the Eysenck Personality Inventory were positively associated, whereas Machiavellianism and Neuroticism were unrelated. Skinner (1982b) administered the EPI to 346 male subjects. The 32 subjects classified as high Machs did not differ significantly from the remaining 314 subjects in terms of Psychoticism or Neuroticism. The lack of relationship with Psychoticism may have been due to the high criterion for designating high Machs. At any rate, the meaning of such correlations awaits clarification of the Psychoticism scale (Howarth, 1986).

Psychopathy. Of all forms of psychopathology, the concept of psychopathy bears the strongest resemblance to Machiavellianism: Both portray a character low in emotionality and prone to underhanded behavior. This resemblance is supported empirically, at least for males. Ray and Ray (1982) found a moderate correlation between scores on the Mach IV and the MMPI Psychopathic Deviate scale in a group of Australian voters (most of whom were male). Smith and Griffith (1978) reported a low correlation between these measures in a group of students, most of whom were male. In Skinner's (1982b) study, high Mach males scored significantly higher than low Mach males on the Psychopathic Deviate scale.

The most exciting development has been a clarification at the factor level. Harpur and his associates (Harpur, Hakstian, & Hare, 1988; Harpur, Hare, & Hakstian, 1989) have factored the Psychopathy Checklist (PCL) and its revision (PCL; Hare, 1991). This differential linkage has important implications: It appears that psychopaths simply may be high Machs who have run up against the law.

Anxiety. Christie (1970c) reported a study (Christie & Budnitsky, 1957) of four classes of medical school students in which moderate positive correlations were found between the Mach IV and Heineman's (1953) version of the Taylor Anxiety Scale. Later, when the same classes were tested with the Mach V (which does not correlate with external measures of social desirability), the correlations were considerably lower, ranging from −.01 to .21. Christie concluded that the original correlations between Machiavellianism and anxiety were attributable to social desirability problems with the Mach IV. However, Jones, Nickel, and Schmidt (1979) administered the Mach V and the Multiple Affect Adjective Checklist to a group of male students and found that high Machs scored significantly higher on anxiety than did lows.

Similarly, when Nigro and Galli (1985) had Italian undergraduates complete the Mach IV and the Spielberger, Gorsuch, and Lushene (1970) State–Trait Anxiety Inventory, they found positive correlations between Machiavellianism and both state and trait anxiety. Poderico (1987) replicated the Nigro and Galli study with children, using an Italian translation of the Kiddie Mach Scale and an Italian Children's Anxiety Scale that measured school and environmental anxiety. Low positive correlations were obtained between Machiavellianism and both kinds of anxiety, which the authors interpreted as more Machiavellian and anxiety is quite replicable.

Depression. LaTorre and McLeod (1978) examined the relation between scores on Guterman's Machiavellianism scale and clinical depression in a geriatric sample and found that suicidally depressed males were significantly less Machiavellian than nondepressed males. Depressed and nondepressed females did not differ statistically in Machiavellianism, although depressed females tended to be more Machiavellian. The authors interpret this trend in light of the finding that attempted suicides by females are often for manipulative, rather than for destructive, purposes. Skinner (1982b) found no difference between the scores of high and low Mach males on the IPAT Depression Scale. Thus, Machiavellianism and depression seem to be largely unrelated.

To summarize, the clearest finding concerning the relation between psychopathology and Machiavellianism is the positive association between Machiavellianism and psychopathy. In fact, very recent work suggests that a convergence between the bodies of research on Machiavellianism and psychopathy may not be far off. There is evidence of some relation between
anxiety and Machiavellianism. This combination of correlates represents an ostensible paradox—how can high Machs be both psychopathic and anxious? After all, aren't psychopaths free of anxiety? Recent research by Hare and his colleagues among others refutes this stereotype: Although psychopaths may not experience anxiety while exploiting others, their trait levels of anxiety are high. Thus, it is not surprising that high Machs, in turn, suffer from anxiety. Perhaps, as Nigo and Galli (1985) suggested, the anxiety of the high Mach reflects not psychopathology as much as the high Mach's vigilance in seeking out opportunities to be manipulative. As noted earlier, the high Mach's interpersonal motive is pure dominance unmitigated by nurturance. This tendency to see social interactions as a struggle for supremacy may put the high Mach in a perpetual state of unease.

Overview of Personality Correlates

The accumulated body of research on personality correlates has fleshed out a nomological network that is generally consistent with that presented by Christie and Geis (1970). At the same time, some clarifications have emerged. Rather than actively hostile, the high Mach strives for dominance unmitigated by nurturance. The high Mach has a strong perception of control in the interpersonal (but not sociopolitical) realm. Although total Mach scores are not strongly correlated with authoritarianism–dogmatism, there is a positive relation with the cynicism component of Machiavellianism. Machiavellianism also emerges as a central component in the Psychopath Checklist. On the other hand, high Machs seem not to differ from lows in terms of achievement motivation, self-monitoring, cognitive style, or depression.

BEHAVIORAL VALIDATION

Behavioral differences between high and low Machs are most likely to be observed in situations where there is latitude for improvisation, face-to-face contact, and when the affect evoked in the situation (e.g., becoming interpersonally involved with one's interaction partner) is irrelevant to performance. After reviewing the research conducted from 1959 to 1969, Geis and Christie (1970) concluded that, when these situational factors are present, "high Machs manipulate more, win more, are persuaded less, persuade others more and otherwise differ significantly from low Machs." (p. 312). These three situational factors continue to be important determinants of behavioral differences between high and low Machs (see following sections). Comparisons across these situational factors assume that subjects are equally motivated to reach the particular goal: garnering money, scoring high on a test, or impressing people. The research reported in this section includes laboratory studies as well as real-world studies.

Unethical Behavior

Unethical decision behavior was studied by Hegarty and Sims (1978) in a role-play business context. Business graduate students were required to make a series of decisions on whether to stop the payment of kickbacks to purchasing agents and run the risk of losing profits (vs. condoning this unethical practice). As predicted, Machiavellianism was associated with advocating the payment of kickbacks. In follow-up studies, they varied factors such as the size of the kickback and the ethics policy held by the corporation (Hegarty & Sims, 1979). Again, Machiavellianism was positively associated with unethical behavior.

Other studies have examined the extent to which Machiavellians engage in unethical practices such as cheating, stealing, and lying.

Cheating. Overall, high Machs do not seem to cheat more than low Machs. For example, Dien and Fujisawa (1979) found that scores of 11-year-olds on a Japanese version of the Kiddie Mach did not predict whether the children had cheated in an earlier experiment (when the children were 4 years of age). Instead, situational factors seem to determine whether high and low Machs will cheat. Bogart, Geis, Levy, and Zimbardo (1970) found that high Machs were more likely to cheat in situations where there was a low probability of getting caught; lows were more likely to cheat if the situation was interpersonally involving (e.g., cheating in order to comply with a partner). Similarly, Cooper and Peterson (1980) found that high Machs were more likely to cheat when working alone on a task (where the chance of detection was minimal); lows were more likely to cheat when in competition with another person, presumably because they became emotionally involved in this interpersonal situation.

Stealing. Similar situational factors seemed to operate in Harrell and Hartnagel's (1976) study of Machiavellianism and stealing. They found that low Machs' behavior depended on affective interpersonal factors like whether or not their supervisor trusted them—they stole from a distrustful, but not a trusting, supervisor. High Machs stole from both kinds of supervisors.

Lying. An early study (Exline, Thibaut, Hickey, & Gumbert, 1970) indicated that, of the subjects who chose to lie, high Machs were more successful at doing so than lows. However, this was not the case in five of seven studies summarized by Geis and Christie (1970). Subsequent research
has tried to elucidate whether high Machs lie more convincingly than lows. Geis and Moon (1981) videotaped subjects who denied knowledge of a theft. The subjects had been directly implicated in the theft; the other half made a truthful denial. As predicted, high Machs who were lying were believed more often by naive viewers than low Machs. In fact, the viewers were unable to discriminate between lying and truthful high Machs. (High and low Mach did not differ in their ability to convince others when they were telling the truth.) In a similar study, DePaulo and Rosenthal (1979) videotaped high and low Machs who described someone they disliked, whereas pretending to like that person, and vice versa. The main effect for Machiavellianism only approached significance, but there was a significant interaction: High Machs were particularly successful deceivers in the condition where they feigned disliking someone whom they actually liked.

Thus, high Machs seem to be more believable liars than low Machs. Janisse and Bradley (1980) predicted that the ability of high Machs to lie might extend to control over autonomic reactivity, namely pupillary responses. However, high and low Machs experienced a similar change in pupil size during deception. Bradley and Kloh (1987) further explored whether highs and lows differed in their physiological responses in a study where subjects did or did not commit a mock crime. Galvanic skin response and pulse rate were recorded during a subsequent interrogation concerning the crime. Contrary to expectations, guilty high Machs scored higher than guilty lows on the physiological measures while lying.

In summary, whereas there is some evidence that high Machs are more unethical than lows, generally, situational factors such as the degree of affective involvement in the situation determine whether high or low Machs are more likely to engage in unethical behavior. A recent correlational study by Leary, Knight, and Barnes (1986) is relevant to the issue of the situational specificity of Machiavellian unethical behavior. Scores on the Mach V scale and the Ethics Position Questionnaire (Forsyth, 1980) were correlated. They found a low positive correlation between Machiavellianism and Relativism, suggesting that "high Machs disavow the possibility of formulating absolute, cross-situational moral rules" (p. 78). The correlation with Idealism was moderate and negative, leading to the conclusion that "a pragmatic, nonidealistic ethical orientation is more fundamental to Machiavellianism than the degree to which one's ethical views are relative or absolute" (p. 78).

Other Forms of Manipulation

Falbo (1977) found that high Machs reported using strategies such as conscious manipulation of one's facial expressions, manipulation of others' emotions, making others think that what you want them to do is their own idea, deceit, and hinting when trying to convince others. Middle Machs were more likely to report using persuasion and threat, whereas low Machs reported using simple statements, persistence, and assertion. Falbo concluded that Machiavellians spontaneously report using the kinds of strategies that Christie and Geis (1970) claim are effective for them. Apart from the unethical tactics (covered in the previous section), behavioral evidence is available on ethical strategies commonly employed by high Machs: persuasion, self-disclosure, and ingratiolation.

Persuasion. The high Mach's persuasive ability was explored by Sheppard and Vidmar (1980) in a mock courtroom situation. High and low Mach subjects acted as lawyers. When subjects who had witnessed a videotaped crime scene were interviewed by the high Mach lawyers, their testimony was biased in the direction desired by the lawyer. Moreover, subjects acting as judges allocated a smaller percentage of the blame to the high Mach's client than to the low Mach's client, based on the testimony of the witnesses.

Several studies have found that high Machs are particularly adept at persuading others in bargaining situations. Huber and Neale (1986) assigned business students the role of buyer or seller. Buyers and sellers negotiated with one another until they reached an agreement. Mach V scores correlated .28 with profits. In Geis' (1970a, 1970b) Con Game study, where players could make and break coalitions with other players to maximize their own winnings, Mach scores correlated .71 with total number of points won. Highs were particularly successful in the ambiguous bargaining condition that provided them with greater latitude for improvisation.

The role of a different situational factor, emotional involvement, was explored in the legislature game study (Geis, Weinheimer, & Berger, 1970). Male students acted as congressmen who had to convince each other to vote for or against various issues. When the issues were trivial, there was no difference between the number of points won (votes obtained in one's favor) by high and low Machs. However, when emotionally involving issues were used, highs won significantly more points. (Rosenthal, 1978, failed to replicate these results when he had female subjects play this game.) Fry (1985) was struck by Christie and Geis' repeated demonstrations that low Machs typically fare poorly when negotiating face to face with highs, presumably because of lows' greater susceptibility to emotional arousal. He reasoned that a visual barrier between bargainers might reduce arousal in lows, thereby enabling them to bargain more effectively. Consistent with predictions, when a visual barrier was present, high-low, high-high and low-low Mach pairs of male subjects were equally effective bargainers. However, in a face-to-face bargaining condition, the joint outcomes of
high–low Mach pairs were significantly lower than those of the other pairs, due to the ineffective performance of the low Mach partner. (Interestingly, the performance of low Machs was not hampered when bargaining face to face with another low Mach.)

Finally, Burgoo, Lombardi, Burch, and Shelby (1979) were interested in the kind of information that Machiavellians would find most persuasive. They hypothesized that high Machs would be susceptible to authority-based influence attempts because such sources could supply them with valid and persuasive information that could be used later to persuade someone else. Subjects read a message advocating tuition increases attributed to either a fellow student or an economics expert on the university’s Board of Regents. Low Machs were more influenced by appeals from a peer, whereas high Machs shifted their attitudes to conform with those of the authority figure. (Falbo, 1977, however, did not find that low Machs conformed more than highs to peers’ opinions in an Asch-type paradigm. However, his conformity task entailed rating funniness of cartoons, which may not have been as emotionally involving to university students as raising tuition fees.)

**Self-Disclosure.** Strategic self-disclosure is another manipulative tactic that high Machs may have at their disposal. In a series of studies, Jones, Nickel, and Schmidt (1979) found that high Mach males were less disclosing to a hypothetical partner than lows when expecting to engage in a competitive task with him.

Gender differences were explored by Domelsmith and Dietch (1978), who administered the Mach V and the Dietch Self-Disclosure Inventory (Dietch & House, 1975) to undergraduates. For males, Machiavellianism was moderately correlated with unwillingness to disclose, whereas for females, Machiavellianism was moderately correlated with willingness to disclose. The authors speculate that given the constraints of sex-role stereotyping, self-disclosure may be a socially appropriate channel of manipulation for women, but not for men. Similar results were obtained by Brown and Guy (1983) when they replicated this study with different measures.

Both of these studies were criticized by Dingler-Duhon and Brown (1987) for using trait, rather than behavioral, measures of self-disclosure. They had subjects write a dialogue in which they solicited donations for the Cancer Society (influence strategy condition). In the affiliative condition, subjects wrote a description of themselves that they believed would be shown to their partner in the next part of the experiment. The descriptions were scored according to degree of self-disclosure. In the influence condition, high Mach males were more self-disclosing than low Mach males, whereas both high and low Mach females used intermediate levels of disclosure. In the affiliative condition, there was a trend for low Mach males to be more self-disclosing than highs; for females, the trend was in the opposite direction. The authors comment that, although it may not be socially appropriate for males to admit using self-disclosure as an influence strategy, high Mach males nevertheless are quite willing to use it.

**Ingratiation.** Pandey and Rastogi (1979) predicted that high Machs would be more ingratiating in a competitive situation than would lows. Male students at the Indian Institute of Technology read a scenario in which they were being interviewed for a job. High Machs endorsed the use of ingratiation tactics more than lows in both the competitive (more applicants than jobs) and noncompetitive (more jobs than applicants) conditions.

In a related study, Pandey (1981) conjectured that established organizations would present fewer opportunities for ingratiation than would recently established organizations, because new organizations tend to lack structure. High Machs were expected to capitalize on the latitude for improvisation provided by the lack of structure. Subjects imagined working in either type of organization. The results were largely nonsignificant, although there was a tendency for high Machs to endorse the use of ingratiation regardless of type of organization.

To summarize, high Machs endorse the use of certain manipulative tactics that are not blatantly unethical. Moreover, they appear to be better at some of these forms of manipulation, such as persuasion. However, whether or not they choose to utilize these abilities depends to some extent on the situation. For example, high Machs disclose more than lows only if it is to their advantage to do so. In a competitive situation, for instance, high Mach males reveal little about themselves. Surprisingly, the degree of competitiveness seems to have little impact on whether Machiavellians favor the use of ingratiation tactics: There is a tendency for highs to endorse the use of ingratiation regardless of the situation.

**Leadership.**

All the research on leadership has postdated Christie and Geis (1970). The leadership capabilities of high Machs typically have been examined in an unstructured situation where the dependent measure is who emerges as leader and takes the initiative in controlling and structuring group interaction. Gleason, Seaman, and Hollander (1978) predicted that in a situation of high task structure where there was little ambiguity and little opportunity for manipulation, low Machs would exhibit more leadership behaviors than high Machs and would be perceived as leaders by group members. Male subjects participated in either a structured or unstructured model-building task. Contrary to expectations, middle Machs emerged as the preferred leaders in both conditions.

Rather than study emergent leadership, Drory and Gluskinos (1980)
examined differences in behavior and performance of all male, task-oriented groups led by either high or low Machs. They were surprised to discover that the Machiavellianism of the leader had no effect on group productivity nor on group members' perceptions of their leader. Data from observers revealed that high Mach leaders gave more orders and initiated more of the group interaction than did lows. They also engaged in significantly less tension-reducing behavior in the group and were less caught up in arguments and suggestions. Finally, high Mach leaders demonstrated remarkable flexibility in responding to the situational demands of the task, whereas the behavior of low Mach leaders remained relatively invariant.

These studies suggest that, in general, Machiavellianism does not predict the emergence of group leadership, nor the effectiveness of a leader. However, a couple of points are worth noting. First, in both of these studies, leadership ratings were made exclusively (Drory & Gluskinos) or predominantly (Gleason et al.) by middle Machs. Perhaps middle Machs prefer a leader who is similar to themselves (and therefore did not favor either the high or the low Mach leader in the Drory and Gluskinos study and chose a middle Mach in the Gleason et al. study). Future research should examine the interaction between the Machiavellianism of the group members and the Machiavellianism of the leader in predicting who is preferred and most effective as group leader.

Prosocial and Antisocial Behavior

With regard to antisocial behavior, Geis and Christie (1970) commented that "in no instance that we can recall have high Machs appeared behaviorally hostile, vicious, or punitive toward others" (p. 306). They explained that high Machs "are adept at getting what they want from others without overt hostility" (p. 307). Research conducted since then provides a more detailed picture.

Russell (1974) correlated Mach V scores of ice-hockey players with various naturalistic measures of aggression. He obtained low positive correlations between Mach scores and total penalty time, penalties for physical aggression against other players, and penalties for challenging game officials. Machiavellianism and performance (number of goals, assists) were uncorrelated.

Harrell (1980) had subjects work on a task with a confederate who began stealing money from them. When confronted by the experimenter, the confederate was either remorseful or not. In the next phase, subjects delivered a burst of noise to the confederate whenever she made an error on a problem-solving task. Low Machs were much more aggressive (gave significantly longer bursts of noise) to the nonremorseful confederate than to the remorseful confederate. High Machs were equally aggressive in both conditions. Thus, again, an emotional–interpersonal issue, like the remorsefulness of the confederate, dramatically affected the behavior of low Machs, but not highs.

Finally, Kerr and Gross (1978) hypothesized that because high Machs expect exploitation and selfish behavior to occur in social interactions, they might be prone to identifying with an aggressor. However, their hypothesis that high Machs would identify with a confederate who tormented them was not supported. Although high Machs may admire an exploitive leader in the abstract, they do not enjoy being victims.

Looking at prosocial behavior, Wolfson (1981) examined differences between high and low Machs in three conditions: working on a task with two other same-Mach subjects (face-to-face condition), working on the task individually but in the presence of two other same-Mach subjects (back-to-back condition), and working alone. An accident was staged in the hallway. When working alone, 92% of the highs and 92% of the lows responded to the accident. In the back-to-back condition, more lows than highs helped (100% vs. 75%). In the face-to-face condition, only 33% of the high Machs helped compared to 75% of the lows. In explaining this result, Wolfson suggests that "the high Machs' more aloof interpersonal responses possibly led to a state of mutual inhibition in which each subject's apparent calm decreased the others' helping behavior" (p. 193).

The results of the studies on aggression and helping are consistent with other research findings, suggesting that high Machs are emotionally detached and task oriented, whereas lows attend more to people than to the task at hand. Thus, it is the latter who respond with pro or antisocial behavior commensurate with the situationally induced affect. The one study showing more aggression among high Machs (Russell, 1974) occurred in a team sport where aggression is an instrumental activity.

Occupational Choice, Success, and Satisfaction

A large number of studies have examined the relation between Machiavellianism and occupational preferences, success, and satisfaction with one's occupation.

Occupational Choice. A stereotyped view of the high Mach suggests that he or she would prefer a business career. Consistent with the stereotype, subjects faking Machiavellianism prefer business-related occupations whereas helping professions are least preferred (Skinner et al., 1976). Research on actual career choices points to the same conclusion. For example, Wertheim, Widom, and Wortzel (1978) found that law and management students had the highest Mach scores, followed by education
students. Social work students had the lowest scores. Steininger and Eisenberg (1976) found that business students scored higher on Machiavellianism than did English and Sociology students. Chonko (1982) also reported that purchasing managers were more Machiavellian than other groups in the literature.

However, in a subsequent study in which over 1,000 members of the American Marketing Association were surveyed, Hunt and Chonko (1984) found that those who majored in business administration were not more Machiavellian than those who majored in other areas (e.g., social sciences). Moreover, contrary to predictions, marketers in sales and advertising positions were not more Machiavellian than marketers in staff and research positions. They concluded that marketers are no more Machiavellian than the rest of North American society.

Skinner et al.'s subjects assumed that high Machs would shy away from helping professions. However, Christie and Geis (1970) reported that medical students who declared psychiatry as their specialty were more Machiavellian than those who declared other specialties. This finding prompted Abramson (1973) to administer the Mach V to counseling graduate students (∑ = 18) and graduate students in educational or experimental psychology (N = 12). The groups did not differ in their total Mach scores. However, counseling students scored higher when the comparison was made using five tactics items. Videotaped counseling sessions (available for 10 of the counseling students) were rated in terms of counselor effectiveness (e.g., empathy, respect). All correlations between the indices of counselor effectiveness and Mach V scores were negative and remained so when only five tactics items were used. Abramson concluded that, although high Machs may be drawn to counseling because face-to-face interaction and latitude for improvisation are involved, they are not likely to be effective.

Abramson's study was criticized by Zook and Sipps (1987) on methodological grounds. They replicated the study using subjects from a variety of universities, larger sample sizes, and the Mach IV. Contrary to Abramson, they found that counseling students were significantly less Machiavellian than experimental psychology graduate students.

To summarize, the research on the occupational choices of Machiavellians is largely consistent with what Skinner et al.'s simulating subjects supposed. Individuals with a Machiavellian orientation seem to prefer business-related careers. (Whereas the Hunt and Chonko study does not support this conclusion, remember that the subjects who had not majored in business nevertheless were working in a business setting, which could account for why they were as Machiavellian as the business majors.) High Machs tend not to choose helping professions, although as Zook and Sipps pointed out, the kind of helping profession studied may make a difference: Psychiatrists may be more Machiavellian than counselors or social workers.

Occupational Success. Are Machiavellians successful in their chosen professions? Christie (1970c) was surprised when a national survey revealed that high Machs did not have more prestigious jobs or higher incomes than low Machs. Similarly, Turnbull (1976) found no relation between Machiavellianism and success measured by sales productivity. Touhey (1973) also failed to find an overall relation between Machiavellianism and social mobility (assessed as the discrepancy between one's father's and one's own socioeconomic status) in a sample of men from a variety of occupational settings. However, when subjects' IQ scores were taken into account, greatest social mobility was found for the high Mach-high IQ group; lowest mobility was found in the high Mach-low IQ group. Based on this finding, Turner and Martinez (1977) reexamined Christie's survey data and found that education had a similar moderating effect. For men with above-average education, there was a significant positive relation between Machiavellianism and occupational attainment (salary, job prestige); for men with below-average education, a significant negative relation was found. For women, Machiavellianism and occupational status were positively correlated. (Note, however, that only 26% of the female subjects held positions that were classifiable in terms of occupational status.)

Hunt and Chonko (1984) expected to replicate the Turner and Martinez positive relation between Machiavellianism and occupational success in a highly educated group of marketers. They obtained a correlation of −.15 between Mach scores and income, which was spurious because Machiavellianism no longer predicted income when age, gender, and education level were entered into a regression analysis as control variables. The same pattern of findings was obtained when job title, rather than income, was used as the measure of occupational success.

Similarly, Gemmill and Heisler (1972) found no relation between Machiavellianism and two indices of social mobility (management level, number of positions held) in a group of managers. These relations remained nonsignificant when partial correlations were computed holding education and number of years in career constant. In a related study, Heisler and Gemmill (1977) reported small negative and positive correlations between Mach scores and social mobility (number of positions held) in two groups of managers. Correlations between salary and Mach scores were small to moderate and negative.

One of the earliest papers on Machiavellianism examined the relation between Mach scores and academic success. Singer (1964) conducted a number of studies and found low to moderate correlations between Mach V
scores and GPA. The correlations were lower for women than for men, leading Singer to speculate that it may be not be socially acceptable for women to use direct manipulation to obtain good grades; instead, women might use "strategies of attractiveness and appearance rather than deceit and management" (p. 140). Ames and Kidd (1979) suggested that the weak relation between women's GPA and Mach V scores in Singer's studies might best be accounted for in terms of gender-role orientation rather than gender per se. Based on the fear of success literature, they suggested that feminine-typed women might "manipulate to prevent themselves from appearing overly successful academically" (p. 224). They expected and found no overall relation between Mach scores and GPA. For feminine-typed women (as measured by the Bem Sex Role Inventory), the correlation was -.64; for masculine-typed women, the correlation was .61. The authors acknowledge that there are many possible interpretations for these findings. For example, it is unclear whether feminine Machiavellian women are using manipulation to reduce their grades or are simply rejecting the use of manipulative tactics. The data do suggest that masculine-typed Machiavellian women may be willing to use manipulation to get good grades.

Obtaining good grades may be a primary goal for high Machs in academic settings. Kauffman, Chupp, Hershberger, Martin, and Eastman (1987) correlated Mach scores with Eison's LOGO. They obtained a correlation of .43 with GO (Grade Orientation—being primarily interested in obtaining a good grade) and .13 with LO (Learning Orientation—viewing education as an opportunity to acquire knowledge and enlightenment).

Finally, in a study of athletic success, Paulhus, Molin, and Schuchs (1979) found that, for university tennis and football players, success in their sport was moderately correlated with the tactics component of Machiavellianism.

Overall, Machiavellianism and occupational success appear to be unrelated. Early studies suggested that these variables were positively associated in highly educated or intelligent groups. However, more recent studies have tended not to support this conclusion. There is evidence of some relation between Machiavellianism and success in academic settings. However, this relation seems to hold only for men or masculine-typed women.

Job Satisfaction. The relation between job satisfaction and Machiavellianism has also been investigated. Three studies of business managers have been published (Gemmill & Heisler, 1972; Heisler & Gemmill, 1977; Hollon, 1983), all of which indicate that Machiavellianism is negatively related to job satisfaction and positively correlated with job tension. Biberman (1985) found no relation between Mach scores and satisfaction in a sample of MBA students, many of whom held management positions. However, satisfaction was assessed by only a single self-report item.

Richford and Fortune (1984) reported a low negative correlation between Mach scores and job satisfaction in a group of high school principals.

In a sample of marketers, Hunt and Chonko (1984) found negative associations between Mach scores and each of their seven measures of job satisfaction, even when income, age, gender, and education were entered into the regression as control variables. In fact, Machiavellianism was the best predictor of satisfaction in marketing. Gable and Topol (1987) replicated the Hunt and Chonko study using department store executives as subjects. They found moderate negative correlations between Mach scores and satisfaction for both men and women.

The reasons why Machiavellianism and job satisfaction are negatively correlated remain unclear. In the Hollon (1983) study, Machiavellianism was negatively related not only to job satisfaction but also to perceived participation in decision making, job involvement, and positively related to role ambiguity. Hollon commented: "whether dissatisfied, non-job-involved, stressed, managers, who have perceived ambiguity in their roles and low participation in decision making become Machiavellian or managerial Machiavellianism leads to such work attitudes and perceptions constitutes an unresolved issue" (p. 434).

In the Gemmill and Heisler (1972) study, a number of other measures was included (e.g., perceived opportunity for formal control, social mobility, etc.). Because the variables were interrelated, they did partial correlations between pairs of variables, holding the others constant. Only the relation between Mach scores and perceived opportunity for control remained significant, \( r = -.31 \). They suggest that the relation between Machiavellianism and job satisfaction and job strain may be due to their relation with perceived control, or from their mutual association with some other variable.

The finding that only the negative relation between Mach scores and perceived control remained significant may be understood in light of Paulhus' (1983) work differentiating the personal, interpersonal, and sociopolitical spheres of control. In most of the studies on job satisfaction, subjects have been managers in a business setting and thus may be operating largely in the sociopolitical, rather than the interpersonal, sphere of control. As mentioned earlier, Machiavellianism is negatively correlated with sociopolitical control, which means that high Machs tend to agree with items like "When I look at it carefully, I realize it is impossible to have any really important influence over what big businesses do." Thus, it is possible that when high Machs become managers they find themselves operating in

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1Even in the Hunt and Chonko study of marketers, the majority held management positions. In Richford and Fortune's study, subjects were high school principals, which could be considered a management position.
within the education system.

principals are currently in a position where they are given little autonomy and little control manipulation in an effort to augment their effectiveness" (p. 17). They go on to comment that organization control is diminishing, secondary school principals resort to interpersonal order to meet the increasing demands of their jobs when their perceived opportunity for formal

manner. Christie in fact be measuring differential tendencies to respond in an undesirable possible confounding with socially desirable responding. Because high

scores on the Mach scales predict duplicitous behavior has been sustained by the more recent evidence. None of the findings conflict with the original conceptualization of the construct. As noted earlier, however, complex research results have necessitated certain qualifications to this general rule. Real-world evidence indicates that the impact of Machiavellian tendencies on occupational success is rather limited.

PSYCHOMETRIC ISSUES

A number of articles have focused on the instruments for measuring Machiavellianism. The Mach scales have been scrutinized with regard to social desirability, reliability, and construct validity. The Mach V has been the main target of criticism, although the Mach IV has not been exempt.

Social Desirability

In most of the published research, either the Mach IV or the Mach V was used to measure Machiavellianism. The Mach IV scale consists of 20 statements to which the individual responds on a 7-point Likert scale ranging from strong disagreement to strong agreement. Half the items are reversed. Christie (1970b) suggested that a constant of 20 be added to the total score to create a neutral score of 100. After adding the constant, the lowest possible score is 40 and the highest is 160.

Even in the early years of scale development, there was concern about possible confounding with socially desirable responding. Because high scores on the Mach IV require socially undesirable responses, the scale may in fact be measuring differential tendencies to respond in an undesirable manner. Christie (1970b) reported significant negative correlations between desirable responding and the Mach IV scale: \(-.17\) for the Marlowe-Crowne Social Desirability scale and \(-.35\) to \(-.45\) for the Edwards Social Desirability scale. Although these correlations do not seem overly threatening, he expressed particular concern about one sample where the correlation for female subjects was \(-.75\) (Budner, 1962).

To minimize the influence of social desirability, Christie developed the Mach V. This inventory utilizes a forced-choice format with paired unrelated items (a “Mach statement” and a “non-Mach statement”) matched in social desirability. A third item with negatively correlated social desirability is added to the matched pair (the “buffer statement”). To complete the Mach V, respondents must indicate which of the three items they agree with most, which they agree with least, and leave the other blank. Scores are assigned to each of the six possible combinations. The highest score is obtained when the Mach item is agreed with most, the item matched on social desirability is agreed with least, and the buffer item is left blank. The assumption is that the Mach statement and the matched (non-Mach) statement will be more salient than the buffer statement to those persons with the highest and lowest Machiavellian orientations. After adding a 20-point constant, scores can range from 40 to 160, with 100 as the middle point. Although Mach scores correlate negatively with the “internal” measure of social desirability (i.e., responses to the buffer items), Christie (1970b) reported that no significant correlations had been found between the Mach V and external measures of social desirability.

There has been much debate surrounding the relation between socially desirable responding and the Mach V scale. Rogers and Semin (1973) noted that, whereas Christie may have removed effects of social desirability with the triadic forced-choice format, he reintroduced them through the scoring system. They pointed out that, if the social desirability matching was invalid (e.g., a different subject population), Christie’s scoring distinction in terms of the matched item would not make sense. In fact, Vleeming (1979b) wondered whether the low reliabilities and significant correlations with social desirability obtained with his Dutch Mach V scale might be attributable to invalid social desirability matching. Ray (1982) similarly argued that it is virtually impossible to equate alternative items in terms of social desirability because of differences across groups and individuals in what is seen as socially desirable. Although he acknowledged that Likert scales do not alleviate social desirability problems, Ray (1979) recommended the Mach IV because social desirability scores derived from a separate social desirability measure could at least be partialed out.

Bloom (1980) disagreed with Ray’s view that the Mach IV is plagued with social desirability problems, quoting Christie’s (1970b) statement that the “hidden nature of the forced choice makes it difficult for the average respondent to decide what the ‘right’ answer is” (p. 21). Christie based this...
statement on several pieces of evidence. First, subjects consistently score higher on the Mach V than on the Mach IV. Second, subjects cannot identify the items keyed for Machiavellianism on the Mach V even when told the principle that underlies the scoring method. Third, various manipulations of the Mach V instructions, including requests to score high, to make a good impression on an employer, and to fake low, do not yield scores that differ significantly from those obtained with the standard instructions. Fourth, the Mach V shows no significant correlation with the Edwards and Marlowe–Crowne Social Desirability scales. Bloom conceded that there is a negative correlation between the Mach V and the internal measure of social desirability that is built into the Mach V scoring system. However, he maintained that this correlation should not be considered a weakness of the Mach V because Christie and Geis have not found this measure of social desirability useful as a measure of individual differences. Bloom's final defense of the Mach V was that the scale has had considerable success in predicting Machiavellian behavior.

The third point requires comment. Two studies published since Christie and Geis (1970) suggest that subjects can fake scores on the Mach V scale (Skinner, 1982a; Skinner et al., 1976). Subjects were asked to complete the Mach V as a Machiavellian would. The faked Mach responses were significantly higher than honest scores of low Machs and congruent with those of high Machs. Studies by Alexander and Rudd (1984) and Alexander and Beggs (1986) similarly pointed to the conclusion that Mach V scores can be simulated, although the results of these studies have not been entirely consistent.7

With regard to the fourth point, note that whereas Mach V scores typically do not correlate with external measures of social desirability, Vleeming (1979b) obtained correlations of -.35 and -.40 between the short version of the Crowne and Marlowe Social Desirability scale and two versions of his Dutch translation of the Mach V.

In conclusion, the Mach IV has been criticized on grounds that scores on this scale correlate too highly with measures of social desirability, which is why Christie developed the Mach V. Our response to this criticism is twofold. First, the Mach V may not be as immune from socially desirable responding as Christie had hoped. Research by Skinner and his colleagues and others shows that subjects can fake Machiavellian responses to the Mach V. Moreover, Vleeming (1979b) reported substantial correlations between an external measure of social desirability and his Dutch Mach V scale.

Second, studies published since Christie and Geis' (1970) monograph have not consistently found high correlations between the Mach IV and measures of socially desirable responding. Vleeming (1984) in a multiple regression analysis did report a multiple correlation of .49 between scores on these two scales. This relation was mainly due to association between social desireability and one of his four clusters, honesty (the others were flattery, Mach views, and cynicism). Biberman (1985) reported a correlation of only -.10 between scores on the Mach IV and the Crowne and Marlowe scale. Zook and Sipps (1986) obtained correlations of -.10 and -.05 between scores on these scales for male subjects; -.25 and -.19 for female subjects. Even Geis, Christie, and Nelson (1970) found a correlation of only -.17 between these measures. These correlations suggest that the Mach IV is not as plagued with social desirability problems as was originally thought.

Reliability

Williams, Hazelton, and Renshaw (1975) noted that the correlation between scores on the Mach IV and V can be taken as an index of reliability. These correlations are not always as high as one might expect. They obtained a correlation of .58 between total scores on the two scales; correlations between corresponding items ranged from .11 to .50. Geis (1970a) reported a correlation of .73 between scores on the two scales in one study, but only .37 in another (Geis, Christie, & Nelson, 1970). Geis and Moon (1981) obtained correlations of .52, .59, and .69 in three groups of students. Finally, Durkin (1970) reported a correlation of .66 between scores on the Mach IV and V.

Both the Mach IV and the Mach V have been criticized for poor internal consistency. Alpha coefficients above .70 are typically found for the full Mach IV scale, although recently White (1984) reported an alpha of only .46. Ray (1979) reported a coefficient alpha of .54 for a shortened 10-item Mach IV scale. In a later study, Ray (1983) stated that the shortened scale actually comprised only 8 items (2 of the original 10 were dropped because they did not correlate significantly with the total score). When all 10 items were reanalyzed, the reliability alpha was reduced to .49. When the reliability of the full Mach IV scale was assessed, alpha coefficients of .70 and .65 were obtained (Ray, 1983; Ray & Ray, 1982). Zook and Sipps (1986) reported an alpha of .68 for their revised version of the Mach IV (3 items were reworded to make them gender neutral). Alpha coefficients of .70 to .76 have been reported by many researchers (e.g., Comer, 1985; Gable & Topol, 1987; Holton, 1983; Hunt & Chonko, 1984; Ray & Ray, 1982; Vleeming, 1984; Zook and Sipps, 1986). These results suggest that the full Mach IV has acceptable internal reliability. Note that even the shortened version of this scale described by Ray (1983) appears reasonably consistent (α = .68), when corrected by the Spearman-Brown formula.

7 The results from Alexander and Rudd's (1984) studies are not as clear-cut. It appears that subjects had some difficulty faking Mach responses to the Mach V if the buffer items were removed.
Split-half reliabilities for the Mach IV ranged from .69 to .88 in studies reported in Christie and Geis. More recently, Geis and Moon (1981) obtained coefficients of .69, .59, and .52 in three samples. Pandey and Singh (1987) reported a split-half reliability coefficient of .76 in a group of Indian women. Zook and Sipps (1986) obtained a .67 test-retest correlation in a sample of undergraduate students over a 6-week period.

With respect to the Mach V scale, Christie (1970b) stated that “in most samples the reliability... hovers in the .60s” (p. 27). Martinez (1981) reported an alpha of .65 when using the Mach V along with some other items, and .68 when using a 10-item Mach V (Turner & Martinez, 1977). Leary et al. (1986) obtained an alpha of .55 in their study. Vleeming (1979b) reported alphas ranging from .14 to .41 for two versions of his Dutch Mach V scale, scored in different ways.

Rogers and Semin (1973) examined the part-whole correlations of the 20 Mach V triads in a British sample and found that a number of correlations were low. The magnitude of the correlation appeared to be linked to the forced-choice triad format of the scale. They therefore proposed an alternative scoring system that ignored item matching. (Points were given based on whether the Mach item in the triad was chosen first, second, or last.) An increase in the standard deviation and in part-whole correlations was obtained with this new scoring system: Part-whole correlations improved from .08 to .44 (using Christie and Geis' scoring system) to .11 to .50. (Median part-whole correlations increased from .25 for the old scoring system to .295 for the new system.)

Since the publication of the Rogers and Semin article, a number of researchers have adopted their scoring system (e.g., Dingler-Duhon & Brown, 1987; Domelsmith & Ditch, 1978; Gleason et al., 1978; Martinez, 1981; Turner & Martinez, 1977). However, Shea and Beatty (1983) found that alpha increased only from .44 to .55 when the Rogers and Semin scoring system was used.

The Mach V has not fared much better in terms of split-half reliability. In the studies reported in Christie and Geis (1970), coefficients range from .56 to .64. Shea and Beatty (1983) obtained coefficients of .29 and .36 (using Christie & Geis' and Rogers & Semin's scoring systems, respectively). These figures rose to .45 and .53, respectively, when adjusted with the Spearman-Brown prophecy formula. Geis and Moon (1981) reported coefficients of .33, .35, and .06 in three samples. Finally, Geis, Christie, and Nelson (1970) reported a Kuder-Richardson reliability of .22 for the Mach V.

Thus, the Mach V does not measure up in terms of internal consistency. Shea and Beatty (1983) caution against the use of Rogers and Semin's scoring system as a way of improving reliability. Even though they found that alpha and split-half reliabilities improved when Rogers and Semin's method was used, neither coefficient approached the conventionally ac-cepted criterion of .80. Therefore, they recommend using Likert scales and abandoning the "cumbersome and biased triadic-choice model adopted by Christie" (p. 512).

Bloom (1984) replied to the Shea and Beatty article, arguing that .80 is only a convention and that lower reliabilities can be acceptable. Contrary to Shea and Beatty, he maintains that classical test theory does not state that reliability is necessarily the lower limit of a test’s validity. In his view, this point is crucial in light of all the research supporting the predictive validity of the Mach V. Utilizing such research, the squared estimate of the Mach V’s predictive validity can be taken as a lower limit on reliability. This lower limit is frequently higher than the internal consistency directly measured. Bloom concludes by stating that Shea and Beatty’s arguments about the reliability of the Mach V are not in themselves damaging to the status of the scale. However, should the Mach V be shown to lack construct validity, then Bloom would agree that a new measure of Machiavellianism is in order. It is to this issue that we turn next.

Dimensionality

When Christie and his colleagues were constructing the Mach IV, they classified the items into three categories: duplicitous tactics, a cynical view of human nature, and a disregard for conventional morality. The fewest items fell into the last category because, as Christie (1970b) explained, “the construction of items tended to follow Machiavelli’s writings rather closely and Machiavelli was less concerned with abstractions and ethical judgments than with pragmatic advice” (p. 14). Not surprisingly, the morality component of Machiavellianism has been least robust. (In fact, only two morality items were retained when the Mach IV was constructed, and one of these items, #19, has been dropped by researchers because of low correlations with other items and other psychometric failings; e.g., Ahmed & Stewart, 1981; Hunter et al., 1982.) Factor analyses by Christie and Lehmann (1970), in which Mach items have been analyzed along with Anomie and F Scale items, have yielded factors labeled Anomie Disenchantment, Machiavellian Tactics, Pollyanna Syndrome, Honesty, and Machiavellian Orientation. As a whole, these analyses have provided support for the tactics-views distinction.

Because none of the Christie and Lehmann factor analyses used only Mach items, Williams, Hazelton, and Renshaw (1975) factored both the Mach IV and Mach V. The separation between tactics and views was generally supported with the Mach IV. They concluded that in terms of face validity, the Mach IV seems to tap the constructs suggested by Christie, although it has several weaknesses (e.g., only 13 of 20 items had acceptable factor loadings). The factor structure of the Mach V was less clear. In fact,
they declared the factors uninterpretable (which they attributed, in part, to the Mach V scoring system). We tabulated whether the items loading on each factor were views, tactics, or morality items and found some evidence of a tactics-views distinction, although it was by no means crystal clear. Williams et al. found little correspondence between the Mach IV and Mach V factors.

Martinez (1980) was puzzled by Williams et al.'s failure to find a clear robust factor structure for the Mach V. He speculated that the ethnicity of the subjects might be important and therefore administered the Mach V to an American and a Mexican-American sample. The factors obtained for each group were quite different, leading Martinez to question the consistency of the internal structure of the Mach V scale across different ethnic groups. In each group, there is a tendency for views and tactics items to load on separate factors, although both kinds of items appear on the same factors as well.

In another study of ethnic groups, Kuo and Marsella (1977) compared the factorial structure of the Mach IV scale in matched samples of Chinese and American students. Even though some of the factors were given similar labels, the items loading on the factors were quite different for the two groups. As with the Martinez study, the factor structure is not particularly clear for either group. There is support for a tactics-views distinction. However, as in the previous study, it was not uncommon for tactics and views items to load on the same factor.

Ahmed and Stewart (1981) also were prompted to factor analyze the Mach IV because Christie and Lehmann (1970) did not factor only the Mach scales. The results of their factor analysis support the tactics-views distinction, although positively and negatively worded items tended to load on separate factors. The tactics-views distinction is also supported in Hunter, Gerbing, and Boster's (1982) factor analysis of the Mach IV scale. Similar to Ahmed and Stewart's results, positively worded items tended to load on a different factor than negatively worded items. (Where views and tactics items loaded on a single factor, the items were worded in the same direction.) O'Hair and Cody's (1987) factor analysis of the Mach IV scale yielded a clear views and a clear tactics factor, although each consisted of only negatively worded items. Positively worded tactics and views items loaded on the same factor. The direction in which items are keyed also seemed to influence the results obtained in Vleeming's (1984) cluster analysis of the Mach IV. Whereas views and tactics items tended to cluster separately, there was also a strong tendency for items simply keyed in the same way to cluster.

Finally, Kline and Cooper (1984b) did a factor analysis of an early 50-item Mach scale (Mach II, Christie, 1970b). Based on their analyses, they concluded that "In Great Britain, two Machiavellian scales of views and tactics can be used... but the morality scale is not viable" (p. 252).

The factor analytic studies of the Mach scales are difficult to integrate because of variations in factor analytic techniques, in the labels chosen for factors, and in the populations examined. Nevertheless, when the items loading on factors are classified as to whether they are tactics or views items, analyses of the Mach scales (especially the Mach IV) consistently support a distinction between the tactics and views factors. With both scales, however, there is a tendency for the tactics-views distinction to be confounded with the direction in which the items are keyed. In our own factor analyses of the Mach IV scale, we found the original two-factor solution to be still viable (Paulhus, 1982). In analyses of four diverse data sets, the four factors cited by Christie and Lehmann (1970) reappeared but the last two eigenvalues were usually small. When two factors were rotated, the original labels of Tactics (including dishonesty) and Cynicism (Views) seemed appropriate. Thus, like Christie and Lehmann, we conclude that the structure simplifies to the two robust factors—tactics and views.

Dimensionality and Construct Validity

Hunter et al. (1982) considered the implications of the multidimensionality of Machiavellianism. They found a mixed pattern of correlations between certain traits and their four Mach IV components. For example, dogmatism correlated .50 with cynicism, .16 with flattery, and it was virtually uncorrelated with deceit or immorality. A mixed pattern of relations was also found with Levenson's Powerful Others scale: Scores were moderately correlated with cynicism and flattery, showed a low correlation with deceit, and were virtually uncorrelated with immorality.

Hunter and colleagues also performed a path analysis and again concluded that the components of Machiavellianism differed radically from one another in their relation to other personality traits. For example,
Machiavellianism was found to be causally antecedent to dogmatism, competitiveness, fatalism, and indirectly antecedent to self-concept. They argued that the entire Mach scale cannot enter into the causal model in a logically consistent manner. Because each of the four components was found to have a different set of causal links to other traits, they maintained that there can be no meaning to a score that is created by summing across them. In short, Hunter et al. concluded that Machiavellianism is not a coherent construct.

In our view, the multidimensional nature of Machiavellianism is not necessarily a threat to its construct validity. What is often overlooked is that Christie intended Machiavellianism to be a multidimensional construct. The Mach scales were constructed expressly with the components of tactics, views, and morality in mind. This fact does not jeopardize the status of the construct, as long as the conceptual link between the components and behavior is coherent. A negative correlation between the components would be disturbing. In fact, the tactics, views, and morality factors have consistently shown positive correlations (e.g., Martinez, 1981; Paulhus, 1982). Even Hunter et al. (1982) and Vleeming (1984) reported that scores on their four factors (clusters) were positively intercorrelated. 

The multidimensional nature of Machiavellianism does imply that one should obtain separate scores for each of the components when using the Mach scales in research. Some research taking this approach has already been described (e.g., Cooper et al., 1986; Hunter et al., 1982; Kline & Cooper, 1983, 1984a; Steininger & Eisenberg, 1976; Vleeming, 1984; see also O'Hair & Cody, 1987, and Tamborini, Stiff, & Zillmann, 1987).

The most popular approach has been to distinguish tactics and views. In a series of studies on the political activism of students in the 1960s, Gold, Friedman, and Christie (1971) found that cynicism was positively correlated with endorsement of New Left Philosophy and the use of revolutionary tactics, whereas correlations with Mach tactics were negative.

Pinaire-Reid (1979) predicted that women with a high predisposition to fashion would be higher in Mach tactics and lower in cynicism than individuals with a low predisposition. Her rationale was that some Machs might use an attractive appearance as a manipulative tactic, whereas others might resist high fashion because of their cynicism with regard to the social structure in general. Results supported hypotheses.

Finally, Martinez (1981) hypothesized that tactics scores would be more predictive of bargaining success in the Con Game (see Geis, 1970a) than would cynicism (views) scores, because the former is concerned with methods of dealing with people whereas the latter refers to one's philosophy of human nature. He found that total Mach scores were more highly correlated with bargaining success than scores on either tactics or cynicism. Martinez's study highlights the fact that, although it may sometimes be beneficial to distinguish between tactics and views, the total score may be more useful in predicting certain behaviors. Indeed, the utility of a total Machiavellian score was amply demonstrated in the behavioral validation section of this chapter.

Is the Construct Additive or Emergent?

There are at least two ways the subfactors could combine to predict behavior so successfully. The two may tap an underlying common factor of Machiavellianism. Adding them then provides a total score that is more reliable as well as having a wider band for predicting behavior.

The other possibility is that the combination of the two factors yields an emergent construct. In other words, 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. This model is testable by examining the interaction between tactics and cynicism when predicting behavior. We recommend that future work with the Mach IV utilize stepwise regression methods wherein the product of the factors is entered after the main effects. A significant interaction term would indicate that Machiavellianism is an emergent property. As recommended by Ray (1979), a measure of socially desirable responding should also be included in the regression equation.

Conclusions

Despite the criticisms leveled against it, the last 17 years of research on Machiavellianism has been largely supportive of the original formulation by Christie and Geis (1970). The construct is a natural trait category in that its position in judges' implicit personality theories matches its position in the empirically observed nomological network. The efficacy of the Mach scales in predicting Machiavellian behavior is very impressive. There are, however, some psychometric problems with these scales. There is evidence that the Mach IV and Mach V are not parallel forms and therefore should not be treated as such. Indeed, the few inconsistent empirical findings may well be due to use of different Mach scales. Despite some high correlations with social desirability, a number of writers have recommended the Mach IV for use in research. This appears to be sound advice despite Bloom's admirable defense of the Mach V. The Mach V suffers from scoring problems, low internal consistency, and the underlying factor structure is not as clear as that of the Mach IV.
We must conclude that Machiavellianism remains a valid personality construct. It has permitted researchers to make theoretically based predictions, and these predictions have been substantiated by operationalizing the construct with the Mach IV and Mach V scales. We recommend that, in the future, researchers use the Mach IV to separate Tactics and Cynicism, as well as using the combined score. Such information should help clarify the conceptual significance of multiple factors. This clarification remains critical for a full understanding of the impressive ability of the Mach scales to predict behavior.

ACKNOWLEDGMENTS

This chapter was supported in part by a University of Winnipeg Summer Research Furlough Grant awarded to the first author and by a Social Sciences Research Council of Canada grant awarded to the third author.

We thank Ross Broughton for his helpful comments on an earlier draft of this chapter.

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It has been widely assumed since Rorschach's time that a high ratio of human movement responses to color responses reflects an introverted style, whereas a low ratio shows an extraverted tendency (Exner, 1974; Rorschach, 1942; Singer & Brown, 1977). From a Jungian point of view this is questionable, because extraversion and introversion are independent of styles of perceiving. A common belief about color preference, that extraverts tend to prefer yellow or red and introverts prefer green or blue, is doubtful for the same reason. 

Jung's typology (Jung, 1971) is operationalized in the Myers-Briggs Type Indicator (Myers, 1962). This allows us to categorize people into 16 types, differing along four dimensions: extraversion-introversion, sensing-intuition, thinking-feeling, and judging-perceiving. Each person's type includes one member of each of these pairs. One may, for example, be an extraverted, sensing, thinking, perceiving type or an introverted, intuitive, feeling, judging type. The 16 possible such combinations yield 16 basic types, each with its own particular characteristics.

Extraverts tend to be more interested in what goes on outside themselves, whereas introverts are more concerned with what outside events mean to them in their private world. The introvert brings the world to him or her, whereas the extravert goes out to meet it (Shapiro & Alexander, 1975). Each of us, whether introvert or extravert, can be said to have a preferred method of perceiving, either by intuition or sensing (Myers, 1962). The sensing person deals with relatively concrete things and facts as they actually are, whereas the intuitive lives in a world of possibility, never seeing things quite as they are, but rather as they might be. The sensing person