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The Development and Validation of a New Machiavellianism Scale[†]

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A new measure of Machiavellianism, the Machiavellian Personality Scale (MPS), was developed and validated over two studies. Machiavellianism is conceptualized as one's propensity to distrust others, engage in amoral manipulation, seek control over others, and seek status for oneself. Study 1 developed and tested the factor structure of the scale, whereas Study 2 provided evidence for the convergent, divergent, and criterion-related validity of the MPS. The results of these studies supported the a priori factor structure of the MPS and indicated that it is a valid predictor of such outcomes as job satisfaction, task performance, and counterproductive work behaviors.

Keywords: *Machiavellianism; deviance; counterproductive work behavior; political behavior*

The notion of Machiavellianism¹ has its roots in the “dark side” (Griffin & O’Leary-Kelly, 2004) of management and leadership. Christie and Geis (1970) originally developed

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the construct based on their studies of political and religious extremist groups, ultimately focusing on how the leaders of these groups manipulated their subordinates to meet their own desires. The characteristics of these manipulative leaders were interpreted in light of early politics research (e.g., Eysenck, 1954) and historical perspectives on power, particularly those of Niccolo Machiavelli as espoused in *The Prince* (1513/1981) and *The Discourses* (1531/1984). Christie and Geis and their colleagues identified several themes as particularly relevant to effective manipulators, such as a willingness to utilize manipulative tactics and act amorally and endorse a cynical, untrustworthy view of human nature.

We believe that recent research highlighting the importance of ethical management (London, 1999; Thomas, Schermerhorn, & Dienhart, 2004; Treviño & Brown, 2004), authentic leadership (Avolio & Gardner, 2005), organizational politics (Andrews & Kacmar, 2001; Ferris & Kacmar, 1992), and trust (Dirks & Ferrin, 2002; Mayer, Davis, & Schoorman, 1995) in the workplace strongly suggests that Mach should be a construct of interest for management studies. Yet, the study of Mach seems to have plateaued; after much attention in the 1970s and 1980s, interest in the Mach construct has waned in recent years (Wilson, Near, & Miller, 1996) despite its contemporary relevance. From our perspective, a fresh look at Mach is long overdue, and it has the potential to inform many areas of organizational research.

Accordingly, the purposes of this study are to reintroduce the construct of Mach to contemporary researchers and develop and validate a new measure to facilitate future Mach research. To demonstrate the relevance of the construct, we begin by reviewing past research on Mach to demonstrate how the construct is relevant to a variety of organizational criteria. We then apply some of these findings to suggest how Mach might inform new research on current topics of interest in management, such as ethics, organizational politics, and trust. Following this literature review, we then turn to an assessment of the original Mach-IV scale developed by Christie and Geis (1970) to note several problems that have emerged in its application. Next, we reexamine the content validity of the Mach-IV and outline our hypothesized factor structure for a new Mach scale, the Machiavellian Personality Scale (MPS), which we develop in Study 1. Lastly, in Study 2 we provide support for the convergent, discriminant, and criterion-related validity of the MPS.

Machiavellianism and Organizational Criteria

Although Mach has largely been studied in laboratory and small-group settings, existing research strongly suggests that the Mach construct has important implications for organizational criteria. Table 1 provides an overview of these criteria, which we discuss in greater detail in the following sections.

Leadership. Little research regarding Machiavellian leaders has been conducted to date in generalizable contexts, but an interesting pattern emerges from the existing literature. For example, Drory and Glusinkos (1980) examined the performance of groups led by high Machs, and they found that high Mach leaders showed considerable flexibility in handling structured or unstructured tasks. However, these high Mach leaders also exhibited a highly

Table 1
Summary of Research on Machiavellianism and Organizational Criteria

| Criterion | Key Findings | Relevant Citations |
|----------------------|---|---|
| Leadership | Findings regarding Mach and leadership are mixed, with some studies indicating that high Mach leaders are directive, adaptable, and even charismatic yet oftentimes unsupportive and inconsiderate of followers. | Deluga (2001), Drory and Glusinkos (1980) |
| Economic opportunism | High Machs are concerned with maximizing their own profits, with little regard for their economic partners. | Sakalaki, Richardson, and Thepaut (2007) |
| Defection | Game theory models indicate that high Machs are best served by frequently defecting from groups that have been exploited to avoid suffering retaliation. This tendency has been theorized to encourage high turnover among Machs. | Gunnthorsdottir, McCabe, and Smith (2002); Wilson, Near, and Miller (1996) |
| Theft | High Machs are much more likely to take advantage of opportunities to steal from others. In addition, research indicates that they are willing to violate the trust of a supervisor to steal, whereas low Machs are unwilling to do so. | Fehr, Samson, and Paulhus (1992); Harrell and Hartnagel (1976) |
| Influence tactics | Research indicates that high Machs engage in a variety of influence tactics conducive to building political connections, including strategic self-disclosure, ingratiation, and intimidation. | Dingler-Duhon and Brown (1987), Harrell (1980), Pandey and Rastogi (1979) |
| Job satisfaction | Job satisfaction consistently has a negative relationship with Mach, a finding replicated across many studies. | Gable and Topol (1987), Gemmill and Heisler (1972), Heisler and Gemmill (1977), Hunt and Chonko (1984) |
| Occupational choice | Legal and management careers seem to have more appeal for those high in Mach, whereas helping and artistic professions seem to be poor fits. | Chonko (1982), Corzine (1997), Fehr et al. (1992), Hunt and Chonko (1984), Steininger and Eisenberg (1976), Wertheim, Widom, and Wortzel (1978) |
| Helping behaviors | High Machs are less likely to help others when an accident occurs. This effect is exacerbated when a high Mach is in the company of other high Machs. | Wolfson (1981) |

Note: Consistent with previous research, *Machiavellianism* is abbreviated as *Mach* and *Machiavellians* as *Machs*.

directive leadership style with little consideration for interpersonal concerns, such as managing tension between followers or showing consideration for followers' feelings. Deluga (2001) however provided some evidence that high Machs may be able to give the appearance

of consideration for others by showing that ratings of Mach, charisma, and performance in profiles of past U.S. presidents all related positively. In sum, although much more research is needed in this area, it seems that Mach does influence leadership behaviors, yielding a more directive style with less genuine interpersonal consideration.

Counterproductive work behaviors (CWBs): Theft, opportunism, and defection. Some of the most consistent research on the Mach construct indicates that high Machs are prone to engaging in a variety of behaviors that would be categorized as counterproductive work behaviors, voluntary actions that harm the well-being of the organization (Fox & Spector, 1999). Wilson et al. (1996) presented compelling evidence drawn from evolutionary psychology to argue that high Mach individuals are best served by engaging in frequent defection. That is, they hide their true natures within a group for as long as possible, all the while capitalizing on their exploitative skills, and then move to another unsuspecting group as knowledge of their tendencies becomes widespread. Furthermore, Wilson et al. suggested that this tendency should encourage Machs to change groups frequently, which implies that high Machs are likely to have high turnover and remain concerned with only their own personal benefits. For example, Sakalaki, Richardson, and Thepaut (2007) demonstrated that high Machs were highly prone to engaging in economic opportunism to maximize their own benefits rather than trusting and cooperating with potential economic partners. Gunthorsdottir, McCabe, and Smith (2002) found an even more blatant trend; in a trust game setting in which both participants could profit, high Machs overwhelmingly chose to defect with maximal benefits for themselves rather than reciprocate the trust shown by the other participant.

The exploitation of others that occurs before defection is clearly evident in research linking Mach to stealing and the use of influence tactics. Fehr, Samson, and Paulhus's (1992) review indicates that high Machs are more likely to take advantage of opportunities to steal than low Machs. Moreover, Harrell and Hartnagel (1976) showed that high Machs were equally willing to steal from a supervisor who trusted them versus one who distrusted them, whereas low Machs were less willing to steal from the trusting supervisor out of a sense of reciprocation. Similarly, research indicates that high Machs engage in a variety of influence tactics, including strategic self-disclosure, ingratiation, and intimidation to attain desired ends (Dingler-Duhon & Brown, 1987; Harrell, 1980; Pandey & Rastogi, 1979). These tactics help high Machs generate the perception of trust and cooperation that provides them access to resources prior to ultimately defecting.

Job satisfaction. A consistent pattern of research indicates that Mach is negatively related to job satisfaction (Fehr et al., 1992). Researchers have replicated this finding among high Machs in both marketing and management positions (Gable & Topol, 1987; Gemmill & Heisler, 1972; Heisler & Gemmill, 1977; Hunt & Chonko, 1984). One explanation for this finding is that high Machs are likely to desire greater rewards and control over others, and they may therefore be perpetually dissatisfied with their current occupational status.

Occupational choice. Mach does seem to influence the extent to which individuals choose certain occupations, with the highest Mach scores evident among individuals in management and law (Corzine, 1997; Fehr et al., 1992). These positions are likely desirable because they

provide access to extensive resources and means of controlling others. In contrast, employees in helping professions, such as sociology and counseling, report lower Mach scores (Steininger & Eisenberg, 1976; Zook & Sipps, 1987). This finding suggests that high Machs tend to self-select into occupational settings that are most congruent with their desires and behavioral tendencies.

Helping behaviors. Although no research has specifically examined the relationship between Mach and discretionary contextual performance, Wolfson (1981) provided evidence that high Machs are less likely to engage in helping behaviors than low Machs. High Machs were less willing than low Machs to provide assistance in response to a staged accident during the study. Moreover, this effect was considerably strengthened when high Machs were in the company of other high Machs, suggesting a facilitative effect driven perhaps by mutual distrust of each other.

In sum, the existing research on Mach and organizational outcomes paints a disturbing picture. High Mach employees are manipulative and economically opportunistic, dissatisfied with their work, prone to withdraw and defect from groups, and unlikely to be considerate of others in leadership positions. These patterns based on existing research suggest that Mach should have important implications for organizations. However, Mach has been relatively absent in the management literature. Accordingly, we next present some unexplored, theoretical links that we see between Mach and organizational politics, trust, and ethical management.

Machiavellianism in Management Research: New Implications for Study

Organizational trust. Although a number of studies described earlier indicate that high Machs are less trusting, no research has examined how Mach shapes trustworthy behavior in organizational contexts. Mayer et al. (1995) defined trust as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (p. 712). Researchers have linked a wide variety of desirable outcomes to trust, including positive job attitudes, enhanced team processes, higher levels of cooperation, better task performance, leader-member exchange, and organizational justice (e.g., Dirks, 2000; Dirks & Ferrin, 2001, 2002; Korsgaard, Brodt, & Whitener, 2002; Mayer et al., 1995; Mayer & Gavin, 2005; Serva, Fuller, & Mayer, 2005).

We see several important links between Mach and organizational trust research that could inform the trust literature. Mayer et al.’s (1995) model of the trust process suggests that feelings of trust are influenced by a trait they termed *propensity to trust*, a generalized expectation about the extent to which others can be trusted. As we discuss in greater detail in the following sections, we believe that high Machs extensively distrust others and are therefore very likely to report a low propensity to trust. Moreover, Mayer et al. suggested that perceived risk should be a key moderator between trust and risk-taking behavior. High Machs are likely to overweight the potential for loss in trusting relationships, implying that they would be loathe to engage in risk taking when the consequences are not assuredly in their favor.

Mach also has important implications for how the trust exchange relationship unfolds. Mayer et al.'s (1995) model includes ability, benevolence, and integrity as key factors that influence the extent to which someone is seen as trustworthy. Over time, the interactive partners of high Mach colleagues are likely to see them as lacking benevolence and integrity, suggesting that trust will increasingly be withheld by both parties. This may especially be the case for manager-subordinate relationships. Whitener, Brodt, Korsgaard, and Werner (1998) outlined five categories of behavior that influence subordinates' perceptions of managerial trustworthiness, including behavioral consistency, behavioral integrity, sharing of control, open communication, and demonstration of concern. We would expect the behavior of a high Mach manager to lack consistency and integrity due to their opportunistic behavior, and the existing literature on Mach leadership that we previously cited demonstrates that high Mach leaders are reluctant to delegate control or consider interpersonal dynamics (Drory & Glusinkos, 1980). Dirks and Ferrin's (2002) meta-analysis of trust and leadership clearly shows severe consequences for distrust between managers and subordinates, including lower performance, organizational commitment, and job satisfaction and greater turnover intentions.

Ethical management. In the wake of major corporate scandals at such organizations as Enron, MCI WorldCom, Adelphia Communications, and Halliburton, organizational scholars have heavily emphasized the importance of ethical management (Knights & O'Leary, 2006; London, 1999; Schroeder, 2002; Thomas et al., 2004; Treviño & Brown, 2004; Treviño, Hartman, & Brown, 2000; Veiga, 2004; Weaver, 2004). Mach poses a threat to ethical behavior in many regards. Most obviously, high Machs are unlikely to place much value on ethical behavior if it stands in the way of personal rewards, which makes it unlikely that they will emerge as ethical managers. Indeed, Treviño et al. (2000) noted that reputations for ethical leadership derive from acting both as a moral person and a moral manager. The traits and behaviors associated with being a moral person and a moral manager—such as integrity, trustworthiness, showing concern for people, being open, and following ethical decision rules—are contradictory with the traits and behaviors associated with being high Mach.

Perhaps a more concerning ethical implication is the potential for Mach behaviors to spread and take root in an organization. Rather than viewing high Machs as just a few "bad apples" (Treviño & Brown, 2004) that can be plucked out of the organizational context, opportunistic, unethical behavior consistent with Mach can become socialized, reinforced, and eventually ingrained into corporate culture (Anand, Ashforth, & Joshi, 2004; Ashforth & Anand, 2003). Unethical behavior certainly can yield beneficial outcomes, and although these outcomes are perhaps not sustainable (Veiga, 2004), they are appealing enough that mechanisms such as co-optation, incremental exposure to corruption, and compromise can be used to normalize opportunistic corruption in organizations (Ashforth & Anand, 2003). This may especially be true for high Mach managers, whose deceitful nature and skill with influence tactics may encourage acquiescence and eventually rationalized support among others in the organization (Anand et al., 2004).

Organizational politics. Pfeffer (1981) and Mintzberg (1983) both suggested that organizations are political entities and therefore that political behaviors are key contributors to individual success in organizations. Consistent with Ferris, Russ, and Fandt's (1989) conceptualization,

political behaviors are typically self-serving, unsanctioned, and detrimental to the organization. Given that the Mach trait was derived from Machiavelli's writings on governance, it is not surprising that Mach has been theoretically tied to the emerging literature on organizational politics. Political environments are inherently risky, suggesting that those who accrue power and influence will remain most successful (Cropanzano, Howes, Grandey, & Toth, 1997; Hall, Hochwarter, Ferris, & Bowen, 2004). High Machs are therefore likely to embrace political environments for the opportunities they provide to secure personal rewards. For example, Ferris, Fedor, and King (1994) developed a theoretical model of politics in which they placed Mach as a dispositional antecedent of political behaviors. They reasoned that high Machs are talented at using influence tactics, which allows them to forge important connections and secure their positions. However, despite these intuitive theoretical links between Mach and political behavior, little empirical research has explicitly examined these relationships.

Perhaps a more subtle issue is that high Machs may also be more likely to perceive politics in organizations, not just engage in political behaviors. Consistent with this idea, Valle and Perrewé (2000) showed that political behaviors are antecedents to politics perceptions. Furthermore, many studies have tied perceptions of politics to a wide variety of undesirable outcomes, including lowered morale and job satisfaction, poorer performance, and increased cynicism and turnover intentions (Davis & Gardner, 2004; Harris & Kacmar, 2005; Rosen, Levy, & Hall, 2006; Valle & Perrewé, 2000). However, high Machs are unlikely to have such negative responses to perceptions of politics; the ambiguity and unfairness inherent in political environments are advantageous to high Machs. Thus, Mach could also be an important moderator of the relationships between perceptions of politics and subsequent outcomes.

Summary. To review our perspective to this point, the existing research on Mach strongly suggests that the construct is related to a number of important organizational criteria. Specifically, Mach is predictive of leadership behaviors, a variety of counterproductive work behaviors, defection, job satisfaction, occupational choice, and helping behavior. Moreover, we also see many interesting directions for future research that involve integrating Mach with established research streams on politics, ethics, and trust. Thus, we hold that Mach is a construct that should be examined more closely in organizational studies due to the potential it has to inform so many areas of research.

However, the limitations of the only widely used measure of the construct, the Mach-IV (Christie & Geis, 1970), present a considerable challenge to initiating Mach research. Accordingly, we now turn to providing some background on the development of this measure and a variety of problems that have emerged in its use.

Development and Critique of the Mach-IV

Christie and Geis (1970) drew much of the inspiration for their measure of Mach, the Mach-IV, based on the characteristics of effective manipulators as espoused by Machiavelli (1513/1981). Specifically, they developed a pool of statements that were either drawn directly from Machiavelli's writings or considered to "tap the same syndrome" (Christie &

Geis, 1970, p. 8). Three types of statements were written, those that dealt with interpersonal tactics, those that dealt with cynical views of human nature, and those that dealt with abstract morality. This pool was eventually reduced to a 20-item Likert scale dubbed the *Mach-IV* as it was the fourth iteration of the item pool, and it remains today as the primary Likert measure of Mach for adult samples. In response to concerns about socially desirable responding, Christie and Geis also developed a 10-item, forced-choice inventory called the Mach-V, which has been much criticized for its low reliability, frequently obtaining alpha coefficients below .60 (Shea & Beatty, 1983). Given that the Mach-V also requires the use of nonparametric statistical analysis (Zook, 1985) and that it virtually disappeared from the literature in favor of the Mach-IV, we have focused our critique on the Mach-IV instead. Specifically, we have identified several problems with the Mach-IV that limit its use, namely, inconsistent reliability, an ambiguous factor structure, and the inclusion of several poor items (e.g., double-barreled items).

Inconsistent reliability. Several reviews of Mach research have indicated large variability in scale reliability across demographic groups (Fehr et al., 1992; Vleeming, 1979). For example, Oksenberg (1971) found split-half reliabilities of the Mach-IV of 0.73 for men but only 0.39 for women. Consistently lower reliabilities for women have also been found in cross-cultural settings among Chinese (Oksenberg, 1971) and Arabic students (Starr, 1975). Even when collapsed across genders, Geis and Moon (1981) found split-half reliabilities among American samples of .59 and .52, and alpha coefficients for the Mach-IV have been found to be as low as .46 (White, 1984). Thus, although Fehr et al. (1992) pointed out that many studies find acceptable internal consistency for the Mach-IV (e.g., .70 to .76), there is sufficient doubt about its reliability to warrant concern.

Dimensionality. Despite the fact that Christie and Geis (1970) wrote the initial item pool with the a priori expectation that the items would fall into three distinct "substantive areas" (p. 14), the Mach-IV is scored as a unidimensional scale. Moreover, the third content area, abstract morality, is only represented by two items in the Mach-IV, one of which was subsequently targeted by researchers for removal based on psychometric failings (Ahmed & Stewart, 1981). Not surprisingly, factor analyses of the Mach-IV have typically only yielded two factors, interpersonal tactics and interpersonal views (Ahmed & Stewart, 1981; Hunter, Gerbing, & Boster, 1982; O'Hair & Cody, 1987). However, item directionality has been shown to heavily skew factor analytical results of the Mach-IV (e.g., Vleeming, 1984), and cross-cultural factor analyses have sometimes shown interpersonal tactics and interpersonal views loading on the same factor (Kwang & Marsella, 1977). These results suggest that the construct validity of the Mach-IV is limited and that a more precise factor structure is necessary.

Poor item choices. The complete Mach-IV contains several individual items that are potentially problematic. Spector (1992) warned against the use of "personally sensitive items [that] may evoke defensiveness on the part of some respondents" (p. 7) when constructing surveys. The Mach-IV has several items that evoke defensiveness, including "People suffering from incurable diseases should have the choice of being put painlessly to death" and "Most people forget more easily the death of their parents than the loss of their property."

We see these items as needlessly provocative, especially given that the aspects of the construct space that they represent (elevating personal freedom over standards of conventional morality and valuing one's property above all else, respectively) can just as easily be assessed with less inflammatory questions. Other items from the Mach-IV are problematic because they are double-barreled and assess multiple ideas (e.g., "All in all, it is better to be humble and honest than to be important and dishonest"). Respondents may find that they have different reactions to different parts of questions such as this one, which can result in invalid responses (Spector, 1992). Indeed, double-barreled items are viewed by many survey design scholars as major impediments to developing construct-valid measures (e.g., Fowler, 1993).

Thus, in summary, the use of the Mach-IV is methodologically problematic and future research would benefit from the development of a new scale. Moreover, the existing substantive content areas of the Mach-IV need refinement, and some pieces of the broader Mach construct implied by recent research are missing. Accordingly, we propose to develop a new measure of Mach, the MPS, which measures the multidimensional structure outlined in the following section.

Content Validity and Proposed Factor Structure of the MPS

We believe that Mach is indicated by a complex set of characteristics, namely, a tendency to distrust others, a willingness to engage in amoral manipulation, a desire to accumulate status for oneself, and a desire to maintain interpersonal control. Thus, our conceptualization of Mach includes dimensions of observable behaviors as well as internal beliefs and motivations. These dimensions are described in the following sections.

Distrust of others. Whereas high Machs clearly seek to manipulate situations, they perceive that others may be doing the same as well (Christie & Geis, 1970). Accordingly, they have a negative outlook toward others, which was manifested in the Mach-IV as the content area of "cynicism." However, subsequent reviews have shown that Mach is positively related to anxiety (Fehr et al., 1992), consistent with our theoretical perspectives on Mach and trust in organizational settings. We argue that high Machs are not just cynical about the motivations of others; rather, they are actively distrustful of the actions of others and the potential for negative outcomes that may occur because of those actions. Thus, the original content area of "cynicism" should be broadened to include an emphasis on active *distrust of others*, which we define as a cynical outlook on the motivations and intentions of others with a concern for the negative implications that those intentions have for the self.

Amoral manipulation. Central to the original conceptualization of Mach is the idea that high Machs (a) are able to manipulate others through purposeful monitoring and impression management, an idea represented by the "tactics" area of the Mach-IV, and (b) demonstrate moral flexibility when making decisions, consistent with the Mach-IV content area of "abstract morality." We believe that these two content areas are too interrelated to treat separately; abstract morality is a prerequisite to a willingness to commit manipulative behaviors. Research indicating an inconsistent factor structure for the Mach-IV (e.g., Hunter et al.,

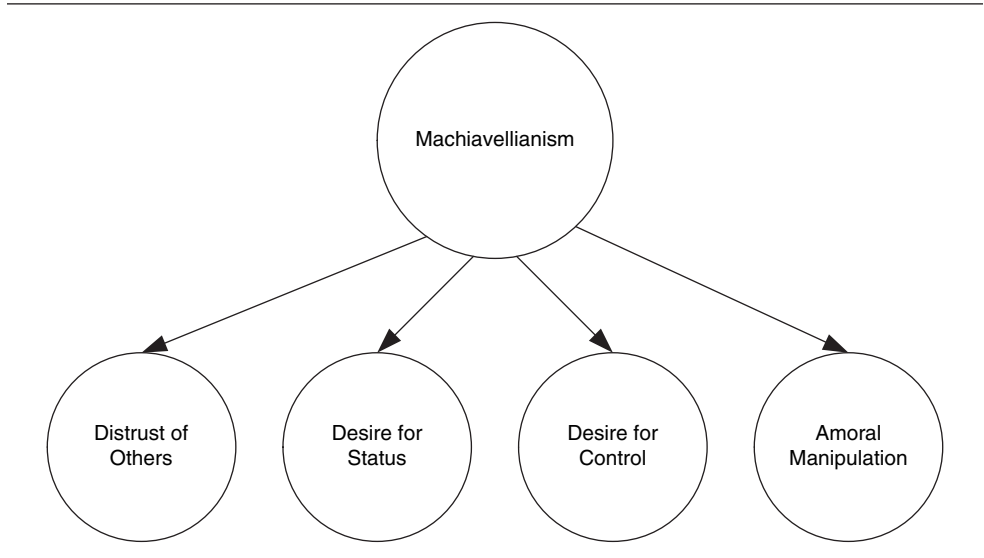
1982), with abstract morality and tactics loading on the same factor, supports this idea. Importantly, high Machs are not immoral in the sense that they wantonly manipulate and betray others all the time, but they are selectively willing to deviate from moral standards when the opportunity for gain presents itself. This propensity to act amorally is evident in Mach research on cheating (Bogart, Geis, Levy, & Zimbardo, 1970), stealing (Harrell & Hartnagel, 1976), lying (Vleeming, 1979), and behavior in bargaining games (Gunnthorsdottir et al., 2002). In all of these situations, high Machs exhibit a flexible ability to shift from cooperation to manipulation as opportunities for gain emerge. It is this interpretation that we intend to tap with the amoral manipulation dimension of the MPS, and this distinction is not made clear in the "tactics" or "abstract morality" areas of the Mach-IV. Accordingly, we define the *amoral manipulation* dimension of the MPS as a willingness to disregard standards of morality and see value in behaviors that benefit the self at the expense of others.

Desire for control. Much research indicates that Mach is strongly related to perceptions of external causality (Fehr et al., 1992; Mudrack, 1989). In other words, high Machs see external others as threatening and they accordingly desire domination over interpersonal situations. Importantly, we do not believe that Machs have a generalized external locus of control that includes elements such as luck or chance (Levenson, 1981); their perceptions of external causality are firmly tied to the actions of others. We therefore define *desire for control* as a need to exercise dominance over interpersonal situations to minimize the extent to which others have power.

Desire for status. Interestingly, Christie and Geis's (1970) measure of Mach did not address the goals that Machs tend to pursue as they engage in manipulation and amass control. McHoskey's (1999) extension of self-determination theory (Deci & Ryan, 1985) to Machs suggests that they are motivated by external goals rather than internal goals. Specifically, because intrinsic goals are self-determined and Machs tend to see events as externally controlled, Machs are more likely to measure success in terms of extrinsic goals. Thus, high Machs are likely driven to pursue goals such as wealth, power, and status rather than internal goals like personal development or self-love. Accordingly, we include a *desire for status* in the Mach construct, defined as a desire to accumulate external indicators of success.

Factor structure. In summary, we believe that Machiavellianism is indicated by four discrete dimensions: distrust of others, amoral manipulation, desire for control, and desire for status. We therefore see Mach as a higher-order latent variable that shapes these characteristics, as shown in Figure 1. Moreover, consistent with the criteria established by MacKenzie, Podsakoff, and Jarvis (2005), we have treated this dimensional structure as a latent variable model with effects indicators (i.e., with arrows flowing from the construct to the indicators) rather than an aggregate or manifest variable model (i.e., with arrows flowing from the indicators to the construct). Specifically, because we see these dimensions as manifestations of Mach that are likely to be highly correlated and share similar relationships with antecedents and consequences, we felt that a latent variable structure fit better with our theoretical approach than an aggregate variable model.

Figure 1
Hierarchical Factor Structure of the Machiavellianism Construct



Next, we turn to several hypotheses that we will test after establishing the factor structure of the scale. These hypotheses are designed to provide initial evidence of the convergent, discriminant, and criterion-related validity of the MPS.

Convergent Validity

Demonstrating convergent validity is contingent on placing the revised Mach construct in a nomological net relating it to other constructs (Spector, 1992). We have outlined several specific hypotheses in the following concerning the patterns of significant relationships between Mach and other important individual differences, such as political skill, self-monitoring, narcissism, and the competitiveness component of need for achievement.

Social effectiveness constructs. Ferris, Perrewé, and Douglas (2002) pointed out that many variables measure a form of social effectiveness, an overall level of proficiency in social settings. As Mach also prescribes behaviors that lead to social dominance, it should relate positively to other social effectiveness constructs. Specifically, we have considered two of these constructs to assess convergent validity: political skill and self-monitoring.

Ahearn, Ferris, Hochwarter, Douglas, and Ammeter (2004) defined *political skill* as “the ability to effectively understand others at work, and to use such knowledge to influence others to act in ways that enhance one’s personal and/or organizational objectives” (p. 311). We expect that this construct will positively relate to the MPS because both variables involve

consolidating one's position to further personal goals. However, the political skill construct includes components of sincere communication, which would be foreign to a high Mach individual. Thus, although these variables should correlate positively, we argue that they are conceptually distinct constructs.

Hypothesis 1: The MPS total score will relate positively to political skill.

Similarly, *self-monitoring* (Lennox & Wolfe, 1984) is a construct that examines the extent to which people are image-conscious, concerned with the appropriateness of their behavior, and concerned about monitoring their behavior to manage self-impressions (Gangestad & Snyder, 2000; Snyder, 1987). However, the emphasis in self-monitoring is on the appropriateness of the behavior as judged by others; high self-monitors focus on the interactional partner to ensure that their behavior conforms to the partner's expectations (Ickes, Reidhead, & Patterson, 1986). In contrast, the amoral manipulation dimension of the Mach construct involves manipulating others' impressions only to the extent that it facilitates personal goals, and the relative appropriateness of their behavior or the expectations or needs of the other person are otherwise irrelevant. Thus, we see these as related but distinct constructs.

Hypothesis 2: The MPS total score will relate positively to self-monitoring.

Narcissism. Although commonly viewed as a clinical disorder, empirical work has demonstrated that there is support for a nonclinical narcissism construct (Morf & Rhodewalt, 2001; Raskin & Hall, 1979). Facets of narcissism that have emerged in the nonclinical literature include grandiosity, entitlement, dominance, and superiority (Paulhus & Williams, 2002; Raskin & Hall, 1979). The extreme self-focus of narcissists, particularly their sense of dominance and entitlement, suggests that they have a desire for status similar to that felt by Machs. Indeed, subclinical narcissists have shown a strong sense of inflated self-worth (Raskin, Novacek, & Hogan, 1991) that justifies these desires. Thus, we expect that narcissism and Mach will be positively related.

Hypothesis 3: The MPS total score will relate positively to narcissism.

Need for achievement (competitiveness). Although Machs are concerned with attaining positive outcomes relative to the outcomes of others, the existing research on the relationship between need for achievement (NAch) and Mach is inconsistent (Christie & Geis, 1970; Fehr et al., 1992; Okanes & Murray, 1980). This conflicting pattern may occur because a high NAch involves a desire to outperform and dominate others that is consistent with Mach but also a need to attain personal excellence and recognition of such from others that would not concern Machs (Cassidy & Lynn, 1989). Consistent with this reasoning, we believe that the inconsistent Mach-NAch relationship can be reconciled by comparing Mach to specific facets of the NAch construct. Specifically, we expect that the competitiveness portion of NAch (NAch-C) should relate positively to Mach due to Machs' desire to dominate and control others.

Hypothesis 4: The MPS total score will relate positively to NAch-C.

Discriminant Validity

Demonstrating discriminant validity involves differentiating the Mach construct from theoretically unrelated constructs (Spector, 1992). We have identified the excellence dimension of NACH (NACH-E) and general mental ability (GMA) as two individual differences that should not be related to Mach based on past research and our reconceptualization of Mach.

Rather than posing null hypotheses that we cannot adequately test, Bagozzi, Yi, and Phillips (1991) suggested that discriminant validity hypotheses should be tested with nested models using structural equation modeling. Specifically, their technique involves comparing the difference in chi-square between two models, one in which the covariance between the two constructs is fixed to one (i.e., the constructs are treated as unitary) and the other in which the covariance is freely estimated (i.e., the constructs are treated as distinct). If the model with the freely estimated covariance yields significantly better fit to the data than the model in which the constructs are constrained to be unitary, the results indicate that the constructs are discriminant. Accordingly, our discriminant validity hypotheses are phrased in terms of differences in model fit that we expect based on utilizing Bagozzi et al.'s technique.

Need for achievement (excellence). As we noted previously, we believe that the inconsistent pattern of relationships between Mach and NACH is attributable to Mach relating to only some portions of the NACH construct. One aspect of NACH with which we do not expect Mach to relate is the pursuit of excellence (NACH-E), which Cassidy and Lynn (1989) described as the extent to which rewards are found in performing to the best of one's ability. Our conceptualization of Mach does not suggest that excellent performance should be rewarding to MACHs unless this level of performance corresponds to other desired outcomes. Thus, MACHs may be motivated at some times to perform at peak levels as a means to other ends but at other times should see no value in excellence as its own reward. Thus, we expect that NACH-E should be distinct from Mach.

Hypothesis 5: A model in which Mach and NACH-E are allowed to freely covary will display significantly better fit than a model in which Mach and NACH-E are fixed to be unitary.

General mental ability. Some researchers argue that measures of social effectiveness and other variables relating to interpersonal communication are simply a subset of GMA (e.g., Gottfredson, 1997). However, past reviews of Mach have suggested that the construct is unrelated to GMA (Fehr et al., 1992; Vleeming, 1979), contrary to the large correlation that would be expected if Mach could be subsumed by GMA. Indeed, we were unable to find a single study that found Mach to be significantly related to any measure of intelligence. Consistent with this past research, we expect that Mach as measured by the MPS will be distinct from GMA.

Hypothesis 6: A model in which Mach and GMA are allowed to freely covary will display significantly better fit than a model in which Mach and GMA are fixed to be unitary.

Criterion-Related Validity

Although we see a wide variety of outcomes potentially related to Mach, we have highlighted job performance (task performance, contextual performance, and CWBs), job satisfaction, and stress to demonstrate the criterion-related validity of the MPS.

Job satisfaction and stress. Hunt and Chonko (1984) showed that Mach was negatively related to job and career satisfaction in a field sample of more than 1,000 business professionals. Indeed, a number of studies suggest that Mach is negatively related to satisfaction and positively related to work-related stress (Gable & Topol, 1987; Gemmill & Heisler, 1972; Heisler & Gemmill, 1977; Hollon, 1983). Similarly, we expect that Mach, as measured by the MPS, will negatively relate to job satisfaction because Machs are under pressure to manage their impressions at work. Furthermore, they constantly distrust the actions of their coworkers and are likely to be dissatisfied if coworkers receive rewards that they do not. Thus, Machs may be predisposed to being consistently dissatisfied with their jobs across a wide variety of situations, and the effort involved in managing impressions and scanning for threats is likely to add a great deal of stress to their jobs.

Hypothesis 7: The MPS total score will negatively relate to job satisfaction.

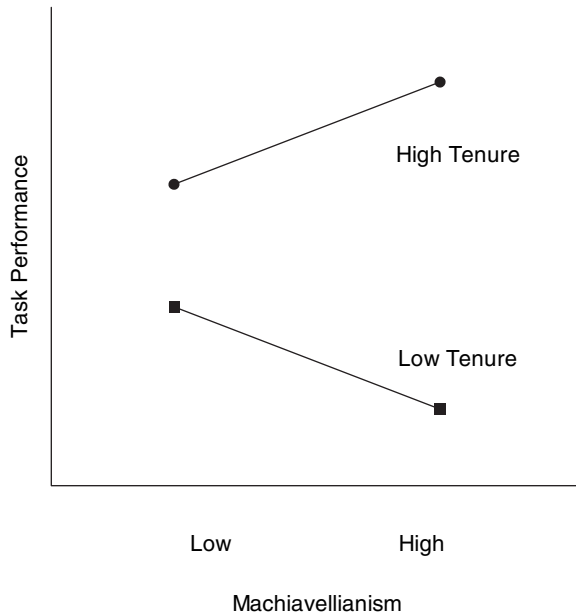
Hypothesis 8: The MPS total score will positively relate to work-related stress.

Counterproductive work behaviors. Sackett and DeVore (2002) provided a great deal of evidence that personality can influence CWBs, and as Marcus and Schuler (2004) argued, a broader perspective on CWBs over time strongly suggests the influence of stable personality traits. Past research has linked Mach to a variety of unethical and counterproductive behaviors. High Machs have shown a willingness to cheat in situations where the potential for being caught is low (Bogart et al., 1970; Cooper & Peterson, 1980), steal from either trusted or distrusted supervisors (Harrell & Hartnagel, 1976), and employ deception (DePaulo & Rosenthal, 1979; Geis & Moon, 1981; Vleeming, 1979). Taken in sum, these findings suggest that Mach scores may be a useful predictor of a wide variety of CWBs.

Hypothesis 9: The MPS total score will positively relate to CWBs.

Task and contextual performance. Borman and Motowidlo (1997) stated that task performance involves behaviors that contribute to the technical core and are formally rewarded. In our view, because Mach is characterized by a desire to attain heightened status and control, we expect that these formal rewards would make task performance especially salient. However, we expect that the relationship between Mach and task performance will be moderated by tenure. Because high Machs distrust others and may need time to adjust to the culture of a new organization, which includes a grasp of political and social aspects of the environment (Chao, O'Leary-Kelly, Wolf, & Klein, 1994), longer tenures may help Machs perform their jobs more effectively. As such, high Machs with longer tenure, being more familiar with the social aspects of the organization and the behaviors that are rewarded by an organization, will obtain higher task performance ratings than high Machs with lower tenure. We therefore expect an interaction between Mach and tenure, as depicted in Figure 2.

Figure 2
Expected Interaction of Machiavellianism and Tenure on
Task Performance (Hypothesis 10)



Hypothesis 10: Tenure will moderate the relationship between Machiavellianism and task performance such that the task performance ratings of high Machs with more tenure will be higher than high Machs with less tenure.

Whereas we expect that high Machs will value task performance, high Machs are unlikely to worry about organizational citizenship behaviors (OCBs) or contextual performance. Although contextual performance is recognized by supervisors, it is generally not formally rewarded (Borman & Motowidlo, 1997; Rotundo & Sackett, 2002). Furthermore, typologies of contextual performance include behavioral categories like altruism, courtesy, civic virtue, and spreading goodwill (George & Brief, 1992; Organ, 1988) that likely have no appeal to high Machs. As such, we expect that scores on the MPS should relate negatively to contextual performance.

Hypothesis 11: The MPS total score will relate negatively to contextual performance.

Overview of Research

Following Hinkin's (1995) recommended practices for scale development, two studies were conducted to create and validate the MPS. The first study was conducted to generate

and assess items that were thought to tap the Mach domain and then to refine this measure based on reliability analysis and exploratory factor analysis (EFA). The second study involved a hierarchical confirmatory factor analysis (HCFA) of the MPS to establish dimensionality and tests of convergent, discriminant, and criterion-related validity.

Study 1

Method

In the interest of developing a parsimonious scale composed only of those items that best characterized the constructs, we began by writing a large item pool that deliberately oversampled the construct space (Little, Lindenberger, & Nesselroade, 1999) and could be reduced through subsequent analyses (Hinkin, 1995; Spector, 1992; Stanton, Sinar, Balzer, & Smith, 2002). All three researchers in cooperation wrote 45 items set to a 5-point Likert scale to capture the content domain of Mach (14 items were written to reflect amoral manipulation, 11 items to reflect desire for control, 9 items to reflect desire for status, and 11 items to reflect distrust of others; see appendix). These items were rationally written consistent with the definition for each of the four content domains that were previously presented (Hinkin, 1995; Schwab, 1980). To narrow the item pool, participants were asked to complete the 45-item MPS pool as part of a larger study.

Sample

Participants were 176 employed students at a large Midwestern university. Of these, 9 participants were removed based on incomplete data, leaving a sample of 167. Given that most of our items ultimately had moderate communalities (MacCallum, Widaman, Zhang, & Hong, 1999) and that all of our factors were overdetermined (Velicer & Fava, 1998), this sample size is consistent with recommended estimates that allow a stable interpretation of the results (Fabrigar, Wegener, MacCallum, & Strahan, 1999; MacCallum et al., 1999; Thompson, 2004). The mean reported age for participants in this sample was 21.2. The sample was approximately 77% female and 80% Caucasian, 12% African American, and 8% Asian, Hispanic, or Other.

Results and Discussion

Exploratory factor analysis. We started by conducting a minimum average partial correlation analysis (MAP; Velicer, Eaton, & Fava, 2000) to determine the maximum number of factors that we should interpret rather than relying on more subjective criteria, such as the Kaiser rule or a Scree plot analysis (Fabrigar et al., 1999). The results of the Velicer's map indicated that six factors should be retained for interpretation. We then performed an EFA using principal axis factoring and a direct oblimin rotation on the item pool; the resultant six

Table 2
Exploratory Factor Analysis of Machiavellian Personality Scale Item Pool (Study 1)

| Item | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 |
|---------------------|----------|----------|----------|----------|----------|----------|
| Amoral 1 | -0.06 | -0.10 | 0.43 | 0.06 | -0.03 | -0.02 |
| Amoral 2 | -0.06 | 0.61 | 0.00 | -0.16 | -0.16 | -0.07 |
| Amoral 3 | 0.74 | 0.00 | 0.10 | 0.14 | 0.04 | 0.07 |
| Amoral 4 | 0.04 | 0.62 | 0.10 | 0.02 | -0.04 | -0.03 |
| Amoral 5 | 0.22 | 0.45 | -0.13 | 0.04 | 0.03 | 0.15 |
| Amoral 6 | 0.07 | -0.14 | 0.55 | 0.18 | 0.01 | 0.07 |
| Amoral 7 | 0.56 | 0.00 | -0.19 | 0.08 | -0.19 | -0.08 |
| Amoral 8 | 0.60 | -0.03 | -0.06 | 0.17 | -0.15 | 0.06 |
| Amoral 9 | 0.62 | -0.13 | 0.22 | 0.05 | 0.00 | 0.15 |
| Amoral 10 | 0.61 | 0.06 | 0.15 | 0.01 | -0.08 | 0.12 |
| Amoral 11 | 0.52 | -0.02 | 0.24 | 0.20 | 0.00 | -0.11 |
| Amoral 12 | 0.22 | -0.04 | 0.38 | 0.06 | 0.14 | 0.19 |
| Amoral 13 | 0.16 | 0.09 | 0.58 | 0.00 | -0.01 | -0.14 |
| Amoral 14 | 0.00 | -0.04 | 0.06 | 0.42 | -0.36 | -0.19 |
| Control 1 | 0.38 | -0.04 | -0.07 | 0.35 | -0.10 | 0.09 |
| Control 2 | 0.11 | 0.03 | -0.08 | 0.52 | -0.02 | 0.00 |
| Control 3 | 0.23 | 0.03 | 0.20 | 0.55 | -0.06 | 0.06 |
| Control 4 | 0.01 | 0.02 | 0.09 | 0.57 | 0.00 | 0.17 |
| Control 5 | 0.22 | 0.20 | 0.35 | 0.40 | -0.09 | 0.11 |
| Control 6 | -0.02 | -0.33 | -0.16 | 0.44 | -0.01 | 0.06 |
| Control 7 | -0.05 | 0.00 | 0.13 | 0.46 | -0.19 | 0.03 |
| Control 8 | 0.13 | -0.07 | -0.18 | 0.28 | -0.30 | 0.05 |
| Control 9 | 0.24 | -0.40 | 0.06 | -0.02 | -0.09 | -0.19 |
| Control 10 | 0.10 | 0.13 | 0.00 | 0.48 | 0.08 | 0.03 |
| Control 11 | 0.24 | -0.26 | 0.15 | -0.02 | -0.12 | -0.17 |
| Distrust 1 | 0.24 | 0.13 | -0.15 | -0.20 | -0.24 | 0.02 |
| Distrust 2 | 0.20 | 0.47 | -0.13 | 0.14 | 0.01 | 0.02 |
| Distrust 3 | -0.18 | 0.30 | 0.15 | 0.09 | -0.21 | 0.13 |
| Distrust 4 | -0.05 | 0.10 | 0.03 | 0.13 | -0.49 | 0.20 |
| Distrust 5 | -0.16 | -0.07 | 0.31 | -0.11 | -0.29 | 0.00 |
| Distrust 6 | 0.12 | -0.03 | -0.15 | 0.04 | -0.44 | 0.19 |
| Distrust 7 | 0.14 | -0.13 | 0.25 | -0.27 | -0.20 | 0.24 |
| Distrust 8 | 0.25 | 0.01 | 0.13 | -0.03 | -0.48 | 0.01 |
| Distrust 9 | 0.03 | 0.04 | 0.05 | 0.09 | -0.63 | -0.09 |
| Distrust 10 | 0.08 | -0.02 | 0.08 | -0.18 | -0.59 | 0.08 |
| Distrust 11 | 0.21 | -0.29 | -0.17 | 0.14 | -0.55 | 0.06 |
| Status 1 | 0.09 | -0.02 | -0.20 | 0.07 | -0.10 | 0.51 |
| Status 2 | -0.05 | 0.07 | -0.02 | -0.01 | -0.05 | 0.70 |
| Status 3 | -0.14 | 0.17 | -0.03 | 0.11 | -0.60 | 0.03 |
| Status 4 | -0.53 | -0.04 | 0.42 | -0.06 | -0.02 | 0.03 |
| Status 5 | 0.24 | -0.06 | -0.03 | -0.04 | -0.23 | 0.27 |
| Status 6 | -0.02 | 0.14 | 0.37 | -0.02 | -0.03 | -0.21 |
| Status 7 | 0.30 | -0.37 | 0.06 | -0.15 | -0.07 | 0.14 |
| Status 8 | -0.09 | 0.07 | 0.04 | 0.13 | 0.01 | 0.72 |
| Status 9 | 0.32 | 0.02 | 0.27 | -0.22 | -0.01 | 0.23 |
| Eigenvalues | 7.29 | 3.26 | 2.73 | 2.59 | 2.20 | 1.90 |
| Percentage variance | 16.21 | 7.23 | 6.06 | 5.75 | 4.89 | 4.22 |

factors and their pattern loadings are presented in Table 2. (Note that the item numbers shown in Table 2 correspond to the items written in full in the appendix.) Our a priori dimensions of amoral manipulation, desire for control, distrust of others, and desire for status are reflected in Factors 1, 4, 5, and 6, respectively. Factor 3 was indicated only by reverse-scored items without interpretative coherence, an occasional problem noted in past EFA research by Fabrigar et al. (1999) and Hinkin (1995). Factor 2 seems to reflect general impression management, which we do not see as an aspect of Machiavellianism.

We dropped items at this point on the basis of several criteria. First, as noted in the appendix, we removed 12 items based on their primary loadings on the general impression management factor or the artifactual reverse-scored factor. These items do not reflect Mach as we have conceptualized it, and we did not want to contaminate the measure by retaining these items. Second, using Tabachnick and Fidell's (2001) recommendation of .33 as a minimum cutoff for a factor loading, we removed 8 items for insufficiently loading on any factor and an additional 5 items for cross-loading on multiple factors. Lastly, we dropped 4 of the remaining items in the interest of parsimony; their item content was redundant due to overlap with other retained items (Little et al., 1999) that possessed stronger loadings.

At the conclusion of this process, we had retained 16 items: 5 representing amoral manipulation, 5 representing distrust of others, 3 representing desire for status, and 3 representing desire for control. This set of 16 items demonstrated good reliability ($\alpha = .82$). For conceptual clarity, Table 3 shows a second EFA of these retained items,² and Table 4 presents the correlations between the four factors that emerged from the analysis.

Study 2

Method

We conducted Study 2 to confirm the factor structure found in Study 1 and provide evidence for convergent, discriminant, and criterion-related validity. Participants completed the 16-item MPS in the context of a broader survey of self-report scales. In addition, we gathered data on task and contextual performance from a separate survey given to participants' supervisors.

Sample

Data were gathered from 323 employed students at a large Midwestern university who participated in the study for extra credit. The mean age of the subordinate participants was 22.6 with an average tenure of approximately 24.3 months, working an average of 24.4 hours per week. The sample was 68.5% female and 76.5% Caucasian, 14.9% African American, and 2.7% Asian, Hispanic, Native American, or Other. The supervisor respondents had a mean age of 39.64 years, with a mean of 19.22 months of supervision over the subordinate participants. The supervisors had a mean of 5.55 years of management experience and 9 years of employment with their current organization. Furthermore, the supervisor sample was 62.4% female and 89% Caucasian, 3.4% African American, 1.7% Asian American, and 5.8% Hispanic, Native American, or Other.

Table 3
Exploratory Factor Analysis Pattern Coefficients on Retained Machiavellian Personality Scale Items (Study 1)

| Item | Amorality | Desire for Status | Desire for Control | Distrust of others |
|---|-------------|-------------------|--------------------|--------------------|
| 1. I am willing to be unethical if I believe it will help me succeed. | 0.71 | 0.04 | -0.02 | -0.01 |
| 2. I am willing to sabotage the efforts of other people if they threaten my own goals. | 0.74 | 0.12 | -0.11 | 0.03 |
| 3. I would cheat if there was a low chance of getting caught. | 0.72 | 0.02 | 0.09 | 0.01 |
| 4. I believe that lying is necessary to maintain a competitive advantage over others. | 0.70 | -0.12 | 0.03 | 0.00 |
| 5. The only good reason to talk to others is to get information that I can use to my benefit. | 0.48 | 0.03 | 0.20 | 0.17 |
| 6. I like to give the orders in interpersonal situations. | 0.00 | 0.09 | 0.68 | -0.03 |
| 7. I enjoy being able to control the situation. | -0.07 | -0.04 | 0.69 | 0.05 |
| 8. I enjoy having control over other people. | 0.00 | -0.01 | 0.64 | -0.04 |
| 9. Status is a good sign of success in life. | 0.04 | 0.49 | 0.02 | 0.09 |
| 10. Accumulating wealth is an important goal for me. | 0.00 | 0.81 | -0.09 | -0.03 |
| 11. I want to be rich and powerful someday. | -0.03 | 0.79 | 0.10 | -0.11 |
| 12. People are only motivated by personal gain. | -0.05 | 0.20 | 0.11 | 0.54 |
| 13. I dislike committing to groups because I don't trust others. | 0.02 | 0.23 | 0.01 | 0.34 |
| 14. Team members backstab each other all the time to get ahead. | 0.29 | 0.01 | -0.11 | 0.43 |
| 15. If I show any weakness at work, other people will take advantage of it. | -0.07 | -0.11 | 0.10 | 0.71 |
| 16. Other people are always planning ways to take advantage of the situation at my expense. | 0.05 | 0.02 | -0.14 | 0.66 |
| Postrotation eigenvalues for retained items | 4.50 | 1.87 | 1.76 | 1.45 |
| Percentage of variance explained for retained items (postrotation) | 28.31 | 11.70 | 11.04 | 9.08 |
| Final Cronbach alpha reliabilities for retained items | 0.83 | 0.72 | 0.70 | 0.75 |
| Final Cronbach alpha reliability for overall Machiavellian Personality Scale. ⁸² | | | | |

Note: Primary factor coefficients in bold.

Table 4
Factor Intercorrelation Matrix for Retained Items (Study 1)

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
|----------|----------|----------|----------|----------|
| Factor 1 | 1.00 | | | |
| Factor 2 | 0.13 | 1.00 | | |
| Factor 3 | 0.28 | 0.09 | 1.00 | |
| Factor 4 | 0.45 | 0.05 | 0.29 | 1.00 |

Our sample size varied for some of our hypothesis tests. Hypothesis 6 stated that the MPS would be discriminant from GMA. We administered the Wonderlic Personnel Test, Form A (WPT; Wonderlic, 1992) to a subsample of 81 of our participants to minimize the influence of mono-method bias rather than rely on self-reported grade point average. Hypotheses 10 and 11 involved the relationships between Mach and task and contextual performance, respectively (Borman & Motowidlo, 1997; Rotundo & Sackett, 2002). To examine these relationships while minimizing the effects of mono-source bias, participants' supervisors were contacted via mail and surveyed regarding the performance of their subordinate. In all, 125 supervisors returned the survey, yielding a response rate of 38.7%. A series of subsequent one-way ANOVAs indicated no significant differences in any of the self-report variables when comparing the group of participants whose supervisors returned their survey to the group of participants whose supervisors did not respond.

Measures

Convergent validity measures. Political skill was measured with the Political Skill Inventory (PSI; Ferris et al., 2005), a 33-item Likert scale ($\alpha = .89$) designed to assess four dimensions relevant to political skill: self-perceptions of social astuteness, interpersonal influence, apparent sincerity, and networking ability. A sample item reads "I find it easy to envision myself in the position of others."

Self-monitoring was measured with the Revised Self-Monitoring Scale (RSMS; Lennox & Wolfe, 1984), a 13-item Likert measure ($\alpha = .81$) assessing individuals' sensitivity to the expressive behavior of others and ability to modify self-presentation. A sample item reads "I have the ability to control the way I come across to people, depending on the impression I wish to give them."

Narcissism was measured using the Narcissistic Expectations/Self-Promotion subscale of the Entitlement Attitudes Scale (McGann & Steil, 2006). This is an 8-item Likert measure ($\alpha = .77$) of nonclinical narcissistic expectations. A sample item reads "I expect other people to do special favors for me."

Nach-C was assessed using the seven-item Competitiveness subscale ($\alpha = .79$) of Cassidy and Lynn's (1989) Nach Scale. A sample item reads "I try harder when I'm in competition with other people."

Discriminant validity measures. NACH-E was assessed using the seven-item Excellence subscale ($\alpha = .78$) of Cassidy and Lynn's (1989) NACH Scale. A sample item reads "I find satisfaction in working as well as I can." GMA was measured using the WPT (Wonderlic, 1992), a 12-minute, 50-item performance test highly correlated with intelligence (Dodrill, 1983).

Criterion-related validity measures. General job satisfaction was measured using a three-item ($\alpha = .82$) Likert scale developed by Cammann, Fichman, Jenkins, and Klesh (1979). This scale assesses satisfaction with the job in general. A sample item reads "All in all, I am satisfied with my job."

Work-related stress was assessed using the six-item scale ($\alpha = .89$) developed by Kandel, Davies, and Raveis (1985). Respondents indicated the extent to which they experienced six emotional reactions (e.g., bothered or upset, frustrated) when they thought of their day-to-day experiences on the job.

CWBs were measured by Fox and Spector's (1999) 27-item scale ($\alpha = .86$) adapted from the Job Reactions Survey (JRS; Spector, 1975). This scale utilizes Robinson and Bennett's (1995) 2×2 typology of CWBs to measure four types of CWBs: major and minor CWBs directed toward the organization and major and minor CWBs directed toward other people. A sample item reads "Purposely waste company materials/supplies."

Task performance was measured using Williams and Anderson's (1991) 7-item Likert measure of in-role behavior ($\alpha = .84$). A sample item from this scale is "Adequately completes assigned duties." Similarly, contextual performance was measured by Williams and Anderson's 15-item Likert measure. This scale measures both contextual performance directed toward the organization and toward others. Sample items include "Helps others who have been absent" and "Conserves and protects organizational property." Participants' supervisors provided both the task and contextual performance ratings.

Results

HCFAs. A hierarchical CFA was conducted to cross-validate the four-factor structure that emerged from Study 1. MPLUS 3.1 (Muthén & Muthén, 2002) was employed to validate the hypothesized model. We compared the fit of our a priori theoretical model to several alternative models to provide further evidence of discriminant validity (Lance & Vandenberg, 2002). Specifically, we tested four models: a null model, in which each item indicated its own latent construct; a common factor model, in which all items loaded on a single latent construct; a four-factor model, in which the four a priori Mach latent constructs were allowed to freely covary; and our a priori, hierarchical model, in which the superordinate Mach construct affects the four dimension constructs. The hierarchical model was specified to freely estimate the loadings of all four dimensions, which necessitated setting the variance of the second-order Mach latent variable to one to identify the model (Kline, 2005).

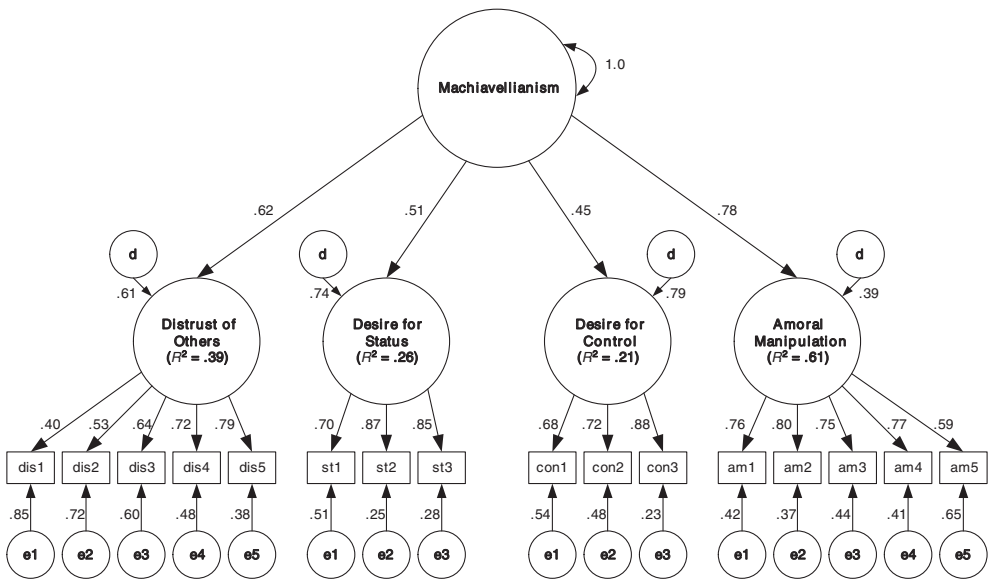
The results of these analyses are shown in Table 5. The four-factor model and the a priori, hierarchical model both displayed significantly better fit to the data than either the null or common factor models. A chi-square difference test indicates that the four-factor model and the hierarchical model fit equally well, $\Delta\chi^2(2) = 4.67$, *ns*, with no appreciable changes

Table 5
Fit Indices for Tests of Discriminant Validity (Study 2)

| Model | χ^2 | <i>df</i> | Standardized Root Mean Square Residual | Root Mean Square Error of Approximation | Comparative Fit Index | $\Delta\chi^2$ | Δdf |
|---------------------|-------------|-----------|--|---|--------------------------|----------------|-------------|
| Null model | 2,125.77*** | 120 | .29 | .23 | .32 | — | — |
| Common factor model | 1,105.55*** | 104 | .14 | .18 | .50 | 1,020.22*** | 16 |
| Four-factor model | 280.57*** | 98 | .07 | .08 | .91 | 824.98*** | 6 |
| Hierarchical model | 285.24*** | 100 | .07 | .08 | .91 | 4.67 | 2 |

****p* < .01.

Figure 3
**Results of Hierarchical Confirmatory Factor Analysis of
Machiavellian Personality Scale Items (Study 2)**



in any other fit indices. Given that the hierarchical model is more parsimonious with greater degrees of freedom and that we have a strong theoretical reason to expect a hierarchical structure, we found these results supportive of the a priori model. Consistent with Kline (2005), the fit indices indicate a good fit to the data, $\chi^2(100) = 284.83, p < .01$; Comparative Fit Index = .91; root mean square error of approximation = .07; standardized root mean square residual = .07. Figure 3 shows the results of this model with all path coefficients.

Table 6
Correlations Between Variables (Study 2)

| Study Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------|------------|------------|------------|------------|------------|-----|-----|----|--|
| 1. Overall Machiavellian Personality Scale | .84 | | | | | | | | | | | | | | | | | | | |
| 2. Distrust of others | .74*** | .74 | | | | | | | | | | | | | | | | | | |
| 3. Desire for control | .56*** | .30*** | .80 | | | | | | | | | | | | | | | | | |
| 4. Amorality | .76*** | .41*** | .23*** | .85 | | | | | | | | | | | | | | | | |
| 5. Desire for status | .64*** | .22*** | .17*** | .36*** | .84 | | | | | | | | | | | | | | | |
| 6. Political Skill | .13** | .08 | .26*** | -.02 | .10 | .89 | | | | | | | | | | | | | | |
| 7. Self-monitoring | .11 | .08 | .12 | .07 | .06 | .57*** | .81 | | | | | | | | | | | | | |
| 8. Narcissism | .55*** | .34*** | .36*** | .47*** | .34*** | .03 | .01 | .77 | | | | | | | | | | | | |
| 9. Need for achievement (competition) | .51*** | .33*** | .37*** | .39*** | .29*** | .19* | .20*** | .48*** | .79 | | | | | | | | | | | |
| 10. Need for achievement (excellence) | -.11 | -.03 | .12 | -.21*** | -.12 | .31*** | .24*** | -.06 | .02 | .78 | | | | | | | | | | |
| 11. General mental ability | -.17 | -.02 | .09 | -.10 | -.43*** | .02 | .29 | -.06 | -.50** | .13 | — | | | | | | | | | |
| 12. Job satisfaction | -.19*** | -.17*** | .05 | -.21*** | -.14** | .12 | .02 | -.12** | -.06 | .20*** | -.01 | .82 | | | | | | | | |
| 13. Stress | .17*** | .19*** | -.04 | .12** | .14** | .09 | .07 | -.02 | -.02 | -.13** | -.28 | -.34*** | .89 | | | | | | | |
| 14. Counterproductive work behaviors | .38*** | .25*** | .19*** | .38*** | .19** | .13** | .10 | .38*** | .35*** | -.09 | .33 | -.45*** | .19*** | .89 | | | | | | |
| 15. Task performance | -.11 | -.05 | .07 | -.13 | -.14 | .17 | .06 | -.01 | .04 | .19* | .03 | .27*** | -.12 | -.01 | .80 | | | | | |
| 16. Contextual performance | .00 | -.01 | .14 | -.05 | -.03 | .29*** | .12 | .01 | .05 | .08 | .47 | .20** | -.03 | .17 | .61*** | .90 | | | | |
| 17. Gender | -.13** | -.06 | -.15*** | -.13** | .00 | .02 | .01 | -.01 | -.21*** | -.04 | -.22** | .16** | -.07 | -.34*** | .08 | .00 | — | | | |
| 18. Ethnicity | .15*** | .12** | .09 | .07 | .17*** | .15*** | .03 | .15** | .11 | .00 | -.21 | -.04 | .06 | .00 | .02 | .03 | .02 | — | | |
| 19. Age | -.17*** | -.01 | -.12** | -.14** | -.22*** | -.13** | -.08 | -.19*** | -.10 | .06 | -.01 | .02 | .04 | -.07 | .09 | .08 | .03 | .04 | — | |

Note: The numbers in bold on the diagonal are the alpha coefficients for each scale.

** $p < .05$. *** $p < .01$.

Convergent validity hypotheses. Table 6 presents the internal consistency and correlations for all study variables, and Table 7 shows the results of our hierarchical regression analyses pertaining to convergent validity hypotheses. As shown in Table 7, we first controlled for the effects of gender, ethnicity, and age prior to regressing the dependent variable on Mach for all analyses.

Hypothesis 1 stated that political skill was expected to relate positively to the overall MPS. An inspection of Table 7 indicates that Hypothesis 1 was not supported as Mach only explained an additional 1% of the variance in political skill. Interestingly, we engaged in a series of follow-up exploratory analyses to see if the MPS related to any of the specific dimensions of political skill. Our results indicate that Mach was predictive of both networking ability ($\beta = .11, p < .05$) and social astuteness ($\beta = .19, p < .01$) but not the apparent sincerity or interpersonal influence dimensions. Although we expected to find a relationship with the overall political skill score, this pattern of exploratory findings is quite consistent with the reasoning we presented for Hypothesis 1, implying that Mach and political skill share a common basis of being socially shrewd and well connected.

Hypothesis 2 stated that the MPS should relate to self-monitoring. This hypothesis was not supported, as shown in Table 7. Moreover, as illustrated in Table 6, none of the individual MPS dimensions were related to self-monitoring.

Narcissism was expected to relate positively with the overall MPS (Hypothesis 3). As Table 7 illustrates, Hypothesis 3 was supported ($\beta = .54, p < .01$), explaining an additional 26% of the variance in narcissism over and above the demographic control variables.

Lastly, we also found support for Hypothesis 4, which stated that NACh-C would relate positively with the MPS ($\beta = .48, p < .01$). Indeed, Mach accounted for an additional 27% of the variance in NACh-C than the control variables alone (Table 7).

Discriminant validity hypotheses. We chose to demonstrate discriminant validity between the overall MPS and NACh-E and GMA using Bagozzi et al.'s (1991) method of comparing nested models. The results of these analyses are shown in Table 8. Hypothesis 5 stated that the MPS would be discriminant from NACh-E. Inspection of Table 8 supports this hypothesis as the model with a freely estimated covariance between Mach and NACh-E fit significantly better than the model wherein this covariance was fixed to one, $\Delta\chi^2(1) = 22.87, p < .001$. Similarly, Hypothesis 6 stated that the MPS would be discriminant from GMA. In accordance with our expectations, the model with a free covariance fit significantly better, $\Delta\chi^2(1) = 18.28, p < .001$, supporting Hypothesis 6.

Thus, both discriminant validity hypotheses were supported (Hypotheses 5 and 6), indicating that Mach is distinct from NACh-E and GMA, respectively. Furthermore, as noted in our initial HCFA, our a priori model displayed better fit than a null model and a common factor model, providing further support for discriminant validity (Lance & Vandenberg, 2002).

Criterion-related validity hypotheses. Table 9 shows the results of our tests of criterion-related validity. Hypothesis 7 predicted that the MPS total score would be negatively related to subordinates' self-report of job satisfaction. Table 9 indicates that Hypothesis 7 was supported ($\beta = -.17, p < .01$). Similarly, Hypothesis 8 stated that the MPS total score would be positively related to self-reports of work-related emotional distress. As shown in Table 9, the

Table 7
Results of Hierarchical Regression Analysis for
Convergent Validity (Study 2)

| | | | Dependent Variable | | |
|--------------|---------|-------------------------|---|-------|--------------|
| | | | Political Skill | | |
| Hypothesis 1 | Step | Variable | β | R^2 | ΔR^2 |
| | Block 1 | Gender | .02 | | |
| | | Ethnicity | .16*** | | |
| | | Age | -.12** | .04 | |
| | Block 2 | Machiavellianism (Mach) | .10* | .05 | .01* |
| | | | Self-Monitoring | | |
| Hypothesis 2 | Step | Variable | β | R^2 | ΔR^2 |
| | Block 1 | Gender | .02 | | |
| | | Ethnicity | .04 | | |
| | | Age | -.08 | .01 | |
| | Block 2 | Mach | .10 | .02 | .01 |
| | | | Narcissism | | |
| Hypothesis 3 | Step | Variable | β | R^2 | ΔR^2 |
| | Block 1 | Gender | -.03 | | |
| | | Ethnicity | .13** | | |
| | | Age | -.19*** | .05 | |
| | Block 2 | Mach | .54*** | .32 | .26*** |
| | | | Need for Achievement (Competition Subscale) | | |
| Hypothesis 4 | Step | Variable | β | R^2 | ΔR^2 |
| | Block 1 | Gender | -.21*** | | |
| | | Ethnicity | .10 | | |
| | | Age | -.01 | .07 | |
| | Block 2 | Mach | .48*** | .27 | .20*** |

* $p < .10$. ** $p < .05$. *** $p < .01$.

relationship between Mach and work-related emotional distress was significant and positive ($\beta = .18, p < .01$), thus supporting Hypothesis 8.

Hypothesis 9 predicted that the MPS score would positively relate to the frequency to which one engages in CWBs. This relationship was supported ($\beta = .34, p < .01$), explaining an additional 11% of the variance in CWBs over the demographic control variables. To supplement this hypothesis test, we conducted additional exploratory analyses on the four

Table 8
Results of Nested Model Comparisons for Discriminant Validity (Study 2)

| Hypothesis | Model | χ^2 | <i>df</i> | Standardized Root Mean Square Residual | Root Mean Square Error of Approximation | Comparative Fit Index | $\Delta\chi^2$ | Δdf |
|--------------|--------------|----------|-----------|--|---|--------------------------|----------------|-------------|
| Hypothesis 5 | Unitary | 485.62 | 226 | .15 | .10 | .82 | — | — |
| | Discriminant | 462.75 | 225 | .08 | .07 | .89 | 22.87*** | 1 |
| Hypothesis 6 | Unitary | 285.29 | 116 | .18 | .14 | .75 | — | — |
| | Discriminant | 267.01 | 115 | .11 | .13 | .79 | 18.28*** | 1 |

*** $p < .01$.

dimensions of CWBs. The MPS significantly predicted all four dimensions of CWBs over the demographics: minor interpersonal ($\beta = .30, p < .01$), major interpersonal ($\beta = .27, p < .01$), minor organizational ($\beta = .26, p < .01$), and major organizational ($\beta = .23, p < .01$).

Hypothesis 10 stated that tenure would moderate the relationship between the MPS and task performance such that the task performance ratings of high Machs with greater tenure would be higher than those with less tenure. This hypothesis was tested using a hierarchical moderated multiple regression framework (Stone & Hollenbeck, 1984). As shown in Table 9, the effect of the interaction term on task performance was significant ($\beta = .20, p < .05$) after entering demographics and the centered main effect variables at the first and second steps, respectively. Neither of the main effects had a significant effect on task performance. Using procedures outlined by Aiken and West (1991) to plot the interaction, Figure 4 shows that high Machs with greater tenure do obtain elevated task performance ratings relative to those with less tenure, thus providing support for Hypothesis 10.

Finally, Hypothesis 11 stated that the MPS should be negatively related to contextual performance. However, inspection of Table 9 illustrates that Mach is unrelated to contextual performance ($\beta = .02, ns$). As such, we found no support for Hypothesis 11. We conducted additional exploratory analyses with our two more specific dimensions of contextual performance, but neither contextual performance directed toward the organization ($\beta = .01, ns$) nor contextual performance directed toward individuals ($\beta = .03, ns$) were influenced by MPS scores.

General Discussion

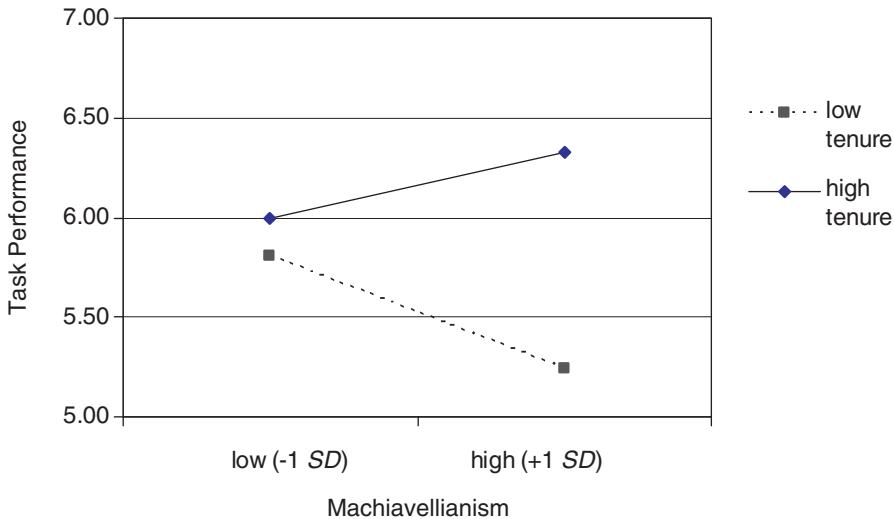
In summary, the purpose of this study was to advocate for the importance of Mach for management research and develop and validate a new measure of Mach, the Machiavellian Personality Scale, to facilitate future research. We expanded the Mach construct to include an active distrust of others, a willingness to engage in amoral manipulation, a desire for control over others in interpersonal situations, and a desire to accumulate status for oneself. Our results indicated that a hierarchical four-factor structure was supported, consistent with our theory.

Table 9
Results of Hierarchical Regression Analysis for
Criterion-Related Validity (Study 2)

| | | | Job Satisfaction | | |
|---------------|---------|-------------------------|----------------------------------|-------|--------------|
| Hypothesis 7 | Step | Variable | β | R^2 | ΔR^2 |
| | Block 1 | Gender | .16** | | |
| | | Ethnicity | -.03 | | |
| | | Age | .02 | .03 | |
| | Block 2 | Machiavellianism (Mach) | -.17*** | .05 | .02*** |
| | | | Work-Related Stress | | |
| Hypothesis 8 | Step | Variable | β | R^2 | ΔR^2 |
| | Block 1 | Gender | -.04 | | |
| | | Ethnicity | .05 | | |
| | | Age | .09 | .01 | |
| | Block 2 | Mach | .18*** | .04 | .03*** |
| | | | Counterproductive Work Behaviors | | |
| Hypothesis 9 | Step | Variable | β | R^2 | ΔR^2 |
| | Block 1 | Gender | -.34*** | | |
| | | Ethnicity | -.04 | | |
| | | Age | -.07 | .12 | |
| | Block 2 | Mach | .34*** | .23 | .11*** |
| | | | Task Performance | | |
| Hypothesis 10 | Step | Variable | β | R^2 | ΔR^2 |
| | Block 1 | Gender | .10 | | |
| | | Ethnicity | .04 | | |
| | | Age | .10 | .02 | |
| | Block 2 | Mach (centered) | -.09 | | |
| | | Tenure (centered) | .10 | .03 | .01 |
| | Block 3 | Mach \times Tenure | .20** | .07 | .04** |
| | | | Contextual Performance | | |
| Hypothesis 11 | Step | Variable | β | R^2 | ΔR^2 |
| | Block 1 | Gender | .02 | | |
| | | Ethnicity | .03 | | |
| | | Age | .09 | .01 | |
| | Block 2 | Mach | .02 | .01 | .00 |

** $p < .05$. *** $p < .01$.

Figure 4
Interaction of Machiavellianism and Tenure on Task Performance (Hypothesis 10)



Furthermore, our validation results demonstrated that our new measure of Mach is similar to but distinct from related variables (several dimensions of political skill, narcissism, and NACH-C), and it is different from conceptually discriminant variables (NACH-E and GMA). Furthermore, we found that our new measure was related to self-reported job satisfaction, job stress, and CWBs and that it interacts with tenure to influence supervisor-reported task performance. Our findings are noteworthy as ours is the first new Likert scale of Mach developed and validated since the initial development of the construct more than 35 years ago. Moreover, our scale was validated against a robust combination of self-report measures, performance tests, and supervisor ratings. The MPS therefore shows considerable promise for use in future research and applied settings.

However, we found it disappointing that the MPS was unrelated to contextual performance. In retrospect, we see several potential reasons for this null finding. First, Wilson et al. (1996) applied evolutionary game theory to Mach behavior to demonstrate that Machs are unlikely to succeed through deception and manipulation alone and that some cooperation may be necessary over time. In other words, although high Machs may be primarily concerned with benefits for the self, beneficial outcomes are sometimes best attained through genuine cooperative efforts that may take the form of contextual performance. Furthermore, high Mach subordinates are likely eager to impress upon supervisors that they engage in contextual performance, but supervisors vary in the extent to which they perceive manipulative motivations behind such behaviors. For example, research indicates that performance appraisals are influenced by the attributions that supervisors make for subordinate behaviors (Struthers, Weiner, & Allred, 1998). We think it is possible that supervisors varied in the extent to which the contextual performance of their high Mach subordinates was seen as genuine or manipulative.

Our tests of criterion-related validity in Table 9 indicate that the MPS explained between 2% and 11% of the variance in the criteria above the demographic control variables.

Although the magnitude of these variances is not large, these findings are very practically meaningful to organizations. For example, researchers have estimated that CWBs, such as theft, cost U.S. organizations hundreds of billions of dollars annually (Buss, 1993; Greenberg, 1997). Job attitudes, such as stress and satisfaction, influence fundamental job behaviors, such as turnover (Hom & Kinicki, 2001; Wright & Bonett, 2007). Thus, providing organizations with the means to predict even small percentages of the variance in these criteria can yield important financial results.

Implications for Practice

This initial study suggests that Mach as measured by the MPS is an important construct in applied settings. Perhaps our most compelling finding was that Mach predicted overall CWBs ($\beta = .34$). We find it particularly noteworthy that Mach relates to major CWBs, as shown in our exploratory analyses. Major CWBs include behaviors such as “purposefully damaged a valuable piece of property or equipment belonging to your employer” and “verbally abused a coworker.” Thus, the MPS has the potential to help identify individuals especially prone to committing CWBs with serious financial and social consequences in the workplace.

Our findings also indicate that high Machs are prone to feeling negative job attitudes, such as low job satisfaction and high work-related emotional distress. Thus, high Machs may be predisposed to be dissatisfied with jobs across a variety of tasks and settings (Staw & Ross, 1985). This dissatisfaction may have a variety of implications for practitioners, particularly as low satisfaction is an antecedent of many models of turnover (e.g., Hom & Griffeth, 1991). Wilson et al. (1996) suggested that high Machs are best served by moving between groups frequently rather than remaining in a single group that can learn to recognize, and retaliate against, manipulation and deception. Applied to the workplace, our finding that Machs tend to be dissatisfied and distressed also suggests that they may be especially prone to frequent turnover.

However, we also found that the task performance of high Machs improves over longer tenure on the job. High Mach employees may need time to learn the politics and history of an organization (Chao et al., 1994) and to integrate themselves into social networks (Rentsch, 1990) before they can leverage their skills to contribute to performance. We expect that social network mapping of organizations (Rentsch, 1990; Seibert, Kraimer, & Liden, 2001) would likely show that Machs with long tenure are prone to hold key strategic positions that help them boost their own performance and potentially hinder the performance of others. This type of positioning may permit Machs to avoid defection; even if their manipulative tendencies are well known, they may be entrenched enough to continue to prosper. Thus, practitioners should be aware that high Machs with a long tenure may ultimately have strong performance appraisals that could mask their propensity to commit a wide variety of CWBs and political behaviors.

Future Research Directions

Although we offered a number of important theoretical links between Mach and topics such as politics and ethical management at the beginning of this article, we see many other interesting directions for future research involving the Mach construct based on the results of our validation process. Next, we outline some questions pertaining to performance, goal

orientation, organizational commitment, and injustice in the workplace that should be addressed in future studies.

Performance. Although we found evidence that the task performance of high Machs improves over greater tenures, evidence that Mach contributes to long-term success in occupational settings is mixed (e.g., Hunt & Chonko, 1984; Turner & Martinez, 1977). The context of performance may play an important role in clarifying this relationship. For example, high Machs might be able to better capitalize on their abilities in loosely structured organizations (Shultz, 1993), but other contextual factors, such as exploitable structural holes and loose ties in social networks (Seibert et al., 2001) or organizational politics (Ferris, Harrell-Cook, & Dulebohn, 2000), may also facilitate the performance of high Machs.

Furthermore, team-based performance settings also raise some interesting implications for the Mach-performance relationship. Wilson et al. (1996) theorized that the behaviors of high Machs are likely to be discouraged within groups but desirable between groups. In other words, manipulative behaviors engaged against teammates have a strong potential to detract from team performance, but manipulative behaviors leveraged against other competing teams, such as a rival organization, have the potential to improve team performance at the expense of the rival. However, the role of high Machs as desirable teammates has yet to be explored in field research.

We also note that we used general measures of task and contextual performance in this study. Research indicates that task and contextual performance are both multidimensional, and it may be that Mach is related to different dimensions of each criterion. For example, Campbell, Gasser, and Oswald (1996) developed a taxonomy of task performance consisting of job-specific task proficiency, non-job-specific task proficiency, written and oral communication, demonstration of effort, maintenance of personal discipline, facilitation of peer and team performance, supervision/leadership, and administration/management. Based on these dimensions, we might expect that high Machs would show high levels of task proficiency, but they would probably not facilitate team performance or function well as leaders. Similarly, Podsakoff, MacKenzie, Paine, and Bachrach (2000) identified seven types of contextual performance: helping behavior, sportsmanship, organizational loyalty, organizational compliance, individual initiative, civic virtue, and self-development. Our expectation is that high Machs might find it convenient to at least occasionally engage in some forms of contextual performance, such as compliance with organizational policies and demonstrating individual initiative. In contrast, other dimensions, such as sportsmanship and organizational loyalty, are likely seen as little else than impediments to personal success.

Organizational commitment. The Mach construct also has implications for organizational commitment. Allen and Meyer's (1996) conceptualization of commitment includes three components: affective commitment, driven by one's emotional involvement with the organization; normative commitment, driven by one's sense of obligation to the organization; and continuance commitment, driven by one's sunk costs in the organization that discourage leaving. Our findings suggest that high Machs likely feel very little emotional connectedness or normative obligation toward others at work, implying that their affective and normative commitment should be quite low. However, high Machs' interest in status and power likely

make sunk costs highly salient. This continuance commitment could encourage Machs to remain in jobs about which they care very little but that provide rewards in the form of status, wealth, or power over others.

Goal orientation. We found an interesting parallel between our findings regarding need for achievement and the different dimensions of goal orientation (Dweck & Leggett, 1988). Elliot and McGregor (2001) distinguished between *performance-approach goal orientation* and *performance-avoid goal orientation*. Performance-approach goal orientation involves a concern with proving one's ability to others to gain favorable judgments of one's competence. In contrast, performance-avoid goal orientation involves a concern with avoiding displays of incompetence that could damage favorable judgments of one's competence. A third dimension is *mastery goal orientation*, which involves attempts to increase one's mastery of performance irrespective of how one is judged by others.

We see mastery goal orientation as quite similar to NACH-E due to their common emphasis on excelling and performing to the best of one's ability. In contrast, performance-approach goal orientation seems most similar to NACH-C because both involve maintaining a public image of being superior to others. Thus, on the basis of these similarities, we might expect that Mach would relate strongly to performance-approach goal orientation, moderately to performance-avoid goal orientation, and modestly with mastery goal orientation.

Organizational injustice. Some recent research indicates that high Machs may be sensitive to justice violations (Foote & Harmon, 2006; Schmitt, Gollwitzer, Maes, & Arbach, 2005). Research on organizational justice indicates that individuals who experience actual injustice begin to anticipate injustice in the future, making them increasingly sensitive to perceiving unfairness (Shapiro & Kirkman, 2001). For example, Davidson and Friedman (1998) presented some evidence that racial minorities are more prone to experience actual injustice and accordingly may report higher levels of anticipatory injustice. An unexpected finding in our study was that racial minorities reported stronger agreement with Mach beliefs ($r = .15$). Despite a large body of research that indicates that Mach is rooted in stable personality (Wastell & Booth, 2003; Wilson et al., 1996), this finding suggests that future research should explore the extent to which Mach beliefs, like many individual differences, are malleable by experiences over the life span (Figueredo et al., 2005; Hawley, 2006).

Limitations

We see the potential for new Mach research contributing to the literature in a wide variety of settings, and our findings suggest that the MPS is a useful tool for future research. However, our study does have several limitations to acknowledge.

One limitation of this study was our use of a student sample, which limits generalizability. However, as we noted earlier, our validation sample was composed of older student employees with significant work experience; the mean age of the subordinates was 22.6 with an average tenure of approximately 24.3 months, working an average of 24.4 hours per week. In addition, these students held a variety of occupations, such as nurses, customer

service representatives, and restaurant managers, suggesting that our sample was unlike the typical student sample.

Table 6 indicates that several of our scales had internal consistency reliabilities in the .70s (e.g., distrust of others at .74, narcissism at .77, NAch-E at .78, and NAch-C at .79). Although Nunnally's (1978) guideline of .70 is commonly accepted in the literature as an acceptable reliability, as Lance, Butts, and Michels (2006) noted, Nunnally actually recommended internal consistencies of at least .80 for applied research. Thus, although we do not believe that our constructs were measured at an unacceptable level of reliability, we recommend that researchers reexamine these relationships in future studies to confirm our findings.

Another potential limitation of this study involves our decision to test the Mach variable as a latent construct. We noted previously that we selected a latent variable structure instead of an aggregate variable structure because we anticipated the dimensions of Mach to be highly interrelated and to share similar relationships with antecedents and consequences (Edwards, 2003; MacKenzie et al., 2005). Although we did find that the dimensions shared similar relationships with correlates and consequences, indicative of a latent variable structure, Table 6 indicates that the dimensions are not as highly interrelated as we expected ($r = .17$ to $.41$). Although we still feel that a latent variable structure is most consistent with our theory, future researchers may want to explore tests of the measure as an aggregate variable due to these conflicting criteria.

We also took the stance of developing and measuring a new construct in this article despite the existence of an extant, albeit heavily flawed, Mach measure. The Mach-IV is riddled with methodological problems, and as we demonstrated earlier, it misspecifies the construct as we have defined it. Because of these problems and its relative absence in the management literature, we chose to leave the Mach-IV out of our study because we felt it contributed little to demonstrating the utility and validity of the MPS. Accordingly, future researchers may choose to include the original Mach-IV for comparison when employing the new MPS, but survey space and time constraints may not lend themselves to this practice. In particular, an interesting future research direction might be to analyze the extent to which respondents perceive the MPS items to be invasive compared to the items in the Mach-IV.

Conclusion

Mach is a unique and underrepresented construct in the literature. We have contributed to its revitalization by developing a valid, useful scale for its measurement. Further consideration of its role as an important antecedent to organizational outcomes can help practitioners and researchers alike in predicting and controlling performance, satisfaction, and other work-related outcomes.

Appendix

Machiavellian Personality Scale Item Pool from Study 1

Amorality subscale

1. I always let people know my honest intentions before I take action.^a (R)
 2. I understand how to best present myself to be seen the way I want to be seen.^a
 3. **I believe that lying is necessary to maintain a competitive advantage over others.**
 4. I can be quite charming when I need to be.^a
 5. I am talented at flattering powerful people.^a
 6. There is no excuse for deceiving another person.^a (R)
 7. I really only pay attention to what others say to find out if they know something that affects me.^d
 8. **The only good reason to talk to others is to get information that I can use to my benefit.**
 9. **I am willing to be unethical if I believe it will help me succeed.**
 10. **I am willing to sabotage the efforts of other people if they threaten my own goals.**
 11. **I would cheat if there was a low chance of getting caught.**
 12. I won't violate my moral standards to get ahead.^a (R)
 13. I agree with the saying, "cheaters never win."^a (R)
 14. It is easy to take advantage of people who always play by the rules.^c
-

Desire for Control subscale

1. I think that fear and threats are sometimes necessary to motivate people to do what I want.^c
 2. **I like to give the orders in interpersonal situations.**
 3. Telling people what they want to hear is a good way to control others.^d
 4. **I enjoy having control over other people.**
 5. If the situation calls for it, I don't mind "playing a part" in order to get people to do what I want.^c
 6. Other people have a big influence over what happens to me.^c
 7. Success usually depends on pleasing other people.^a
 8. The actions of other people constantly influence my chances of success.^b
 9. I control the course of events in my life.^a (R)
 10. **I enjoy being able to control the situation.**
 11. I determine what happens in my life.^b (R)
-

Desire for Status subscale

1. **Status is a good sign of success in life.**
 2. **Accumulating wealth is an important goal for me.**
 3. I assume that most people are out for their own success.^d
 4. Most people are concerned more about "the greater good" than personal success.^c (R)
 5. A big personal victory justifies anything that I had to do to attain it.^b
 6. Most people who succeed lead clean, moral lives.^a (R)
 7. Personal development is one of my most important goals.^a (R)
 8. **I want to be rich and powerful someday.**
 9. Being a good person is more important to me than having money in the bank.^b (R)
-

Distrust of Others subscale

1. I do not get emotionally attached to the people that I have to work with.^b
 2. I can manage the way that other people see me.^a
 3. I prefer to work alone rather than counting on the performance of others.^b
 4. **People are only motivated by personal gain.**
 5. I think that most people are essentially trustworthy.^b (R)
 6. When I get a promising idea, I keep it to myself to prevent others from stealing it.^d
 7. I like to share my plans and ideas with other people.^b (R)
 8. **I dislike committing to groups because I don't trust others.**
 9. **Team members backstab each other all the time to get ahead.**
 10. **If I show any weakness at work, other people will take advantage of it.**
 11. **Other people are always planning ways to take advantage of the situation at my expense.**
-

Note: Items in bold were retained in the final scale. (R) = reversed-scored item.

a. Dropped due to primary loading on non-Machiavellianism factors.

b. Dropped due to insufficiently loading on any factor.

c. Dropped due to cross-loading on two or more factors.

d. Dropped in the interest of parsimony due to conceptual overlap with other retained items.

Notes

1. Consistent with previous research, henceforth we will abbreviate *Machiavellianism* as *Mach* and *Machiavellians* as *Machs* (e.g., Christie & Geis, 1970; Fehr, Samson, & Paulhus, 1992).
2. Please note that the percentage of variance accounted for by each factor is not independent due to the correlations permitted between factors.

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