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Personality and situational factors differently influence high Mach and low Mach persons' decisions in a social dilemma game



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ABSTRACT

In the present experiment, we simultaneously examine the effect of personality and situational factors on decisions in a social dilemma game. Our first question is what temperament and character factors would make Machiavellian people successful in social interactions? The second question refers to situational factors: how does the composition of the group influence the Machiavellians' decisions? Using Temperament and Character Inventory (TCI) scales, the scores on Mach IV test showed a positive correlation with Novelty Seeking and a negative correlation with Reward Dependence, Self-Directedness, Cooperativeness, and Self-Transcendence. We found that the Mach scores negatively correlated with the players' contribution over the game, and positively with the total profit they gained by the end of the game. Regression analyses revealed that the contribution of high Mach persons (those who had relatively high scores on Mach scale) to the public good were primarily influenced by the number of altruists in the group, whereas low Machs' decisions were influenced more by a temperament factor (Persistence). We assume that, compared to others, Machiavellians may be more sensitive to situational factors and take the behavior of their playmates into account to a greater degree, which may lead to their success in the exploitation of others.

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1. Introduction

Machiavellianism is indicative of an attitudinal personality predisposition to see people as exploitable in interpersonal situations (Christie & Geis, 1970; Sutton & Keogh, 2000). It has three core components: endorsement of deception and manipulation in interpersonal interactions, a cynical view of human nature (seeing others as weak and untrustworthy), and a disregard for conventional morality (Fehr, Samsom, & Paulhus, 1992; Hawley, 2006). Machiavellian people behave in a self-interested way in that they manipulate others for personal gain (Gunnthorsdottir, McCabe, & Smith, 2002; Wilson, Near, & Miller, 1996). Individuals with high scores on Mach-scales (so-called high Mach people) have a tendency to be callous, selfish, and malevolent in their interpersonal dealings (Paulhus & Williams, 2002). They choose the adequate strategy coolly and sensibly in each situation and they do not get involved in emotional decisions (Jones & Paulhus, 2009).

Former studies have revealed that Machiavellianism is associated with certain personality features. Machiavellianism was found to be negatively correlated with Agreeableness (Austin,

Farrelly, Black, & Moore, 2007; Jakobwitz & Egan, 2006; Paulhus & Williams, 2002), which coincides with the findings that Machiavellians have a broadly negative view of other people, and that they are dominant, narcissistic persons who are less likely to be concerned about other people beyond their own self-interest (Christie & Geis, 1970; Hawley, 2006; Jakobwitz & Egan, 2006). Machiavellianism is also negatively correlated with Conscientiousness (Austin et al., 2007; Jakobwitz & Egan, 2006), which reflects the Machiavellians' egocentrism: they have lower ethical standards and stronger intentions to behave unethically, especially in situations that offer various rewards for them (Christie & Geis, 1970; Jones & Kavanagh, 1996). They are considered to be goal oriented rather than person oriented (Christie & Geis, 1970; Hawley, 2006).

These studies found that Machiavellianism is related to certain personality factors, that is, Machiavellian people, in general, can be described as having a low level of prosocial character. However, as far as we know, no study has been conducted so far on the personality correlates of the Machiavellian strategy. The question is what temperament and character factors make Machiavellian people successful in social interactions? What personality scores should correspond with high Mach scores for the efficient exploitation of others? This is the first question that we want to address in the present study.

The second question is linked to the contextual variables involved in the Machiavellians' decisions. Several studies have

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examined the impact of situational factors on the Machiavellians' behavior. One of these factors is the presence of others. In a study, it was found that more than twice as many Machiavellians applied for voluntary charity work when their offers were made in the presence of others than when offers were made anonymously (Bereczkei, Birkaš, & Kerekes, 2010). Thus, they disguised their selfishness and feigned altruism when being observed (which made the non-altruistic behavior costly in the group), but enforced their self-interest when others could not observe their behavior. Another study examined the effect of punishment on decisions in a social dilemma game in which players were allowed, at a certain stage of the game, to punish (impose a fine on) their partner who they believed transferred too little money to them (Spitzer, Fischbacher, Herrnberger, Grön, & Fehr, 2007). By the end of the game, Machiavellians made the largest profit, which was due to the fact that they paid little money in the non-punishable phase (and kept a high amount of money in their private account), while in the punishable phase they increased their contributions in order to avoid punishment.

Although the presence of others and punishment are important factors in determining decisions in the social dilemma task, other situational factors may be equally crucial in this respect. As far as we know, no study has examined the effect of the *composition* of the group on the Machiavellians' decisions: how the particular strategies of playmates influence their behavior over the game. In the present study, we take two types of behavioral strategies into consideration: altruism and defection. When subjects recognize the behavioral styles of the others in the group, do they adjust their decisions accordingly? How do Machiavellians and non-Machiavellians react to the perceived signals of altruism and defection during the game?

In the present experiment, we simultaneously examine the effect of personality and situational factors on decisions in a social dilemma game. The question is which of these factors are crucial in the behavioral tactics of individuals and how do they influence the players' contributions and profits during the game? What is the difference between Machiavellians and non-Machiavellians in their personality features related to their behavioral tactics and in their reactions to the situational factors?

2. Methods

2.1. Participants

One hundred and fifty students (69 males and 81 females, $M_{\text{age}} = 22.2$ years, $SD = 2.61$) participated in the study. All of them were volunteers. They received remuneration in the form of the amounts they won in the experimental games.

2.2. The public good game (PGG)

The participants had to face a social dilemma situation in the experiment. They formed groups of five individuals who were staying in the same room, separated from each other. Each individual was given a monetary endowment and they had to decide how much of this amount of money they would keep for themselves and how much of it they would transfer to the group account. The experimenter then doubled the amount that had been spent on the group and distributed it equally among the members, irrespective of their actual contribution. This process was repeated over five rounds. By the end of the game, the players kept their earned balance and could take it home. Each of the participants could observe the contribution of their group members – identified by a code and listed on a board – to the public account and the

profit they netted. We used folding screens to ensure that the players could not identify who was behind the codes.

We distinguished two types of playmates in a group: altruist and free rider. An altruist is a player who transfers at least 80% of their monetary endowment given at the beginning of each round to the group account. A free rider is a player who contributes a maximum 20% of this initial capital to the public good. This distribution is based on the method applied by Kurzban and Houser (2001). The number of altruists/free riders in a group represents contextual variables in our analysis that are expected to strongly influence the subjects' decisions. The number of altruists and free riders were not experimentally manipulated, and their influence on the others' decision was not controlled.

2.3. Temperament and Character Inventory (TCI)

The Temperament and Character Inventory (TCI) is designed to measure seven personality traits. The temperament factors represent inherited patterns of processing environmental information and define the characteristic patterns of automatic responses by an individual to emotionally loaded stimuli. The four temperament factors (Novelty Seeking, Harm Avoidance, Reward Dependence, and Persistence) are partly innate and relatively stable throughout people's entire life, independent of culture and social influence. The other group of personality traits, the character factors (Self-Directedness, Cooperativeness, and Self-Transcendence), involves individual differences that gradually develop as a result of the interaction between temperament, family environment, and personal experience (Cloninger, Przybeck, Svrakic, & Wetzel, 1994).

2.4. Mach-IV test

Machiavellianism was assessed by using the Mach-IV scale (Christie & Geis, 1970). This scale consists of 20 items which cover the use of deceit in interpersonal relationships, cynical attitude to human nature, and a lack of concern for conventional morality. Participants indicate their response on a seven-point scale ranging from strongly disagree (1) to strongly agree (7), with higher scores indicating higher levels of Machiavellianism.

In the present study, the mean score on Mach-IV was 102.56, the standard deviation was 16.3, and the Cronbach's α was .77. In order to trace Machiavellians' decisions we compared the behavioral outputs of Machiavellians and non-Machiavellians. We selected people with high scores on the Mach-IV test from the total sample and regarded them as Machiavellian people. Following the methods of previous studies (Burks, Carpenter, & Verhoogen, 2003; Christie & Geis, 1970; Gunthorsdottir et al., 2002), we divided the distribution of the total scores into ranges along the half standard deviation above and below the mean. Individuals scoring below 94 were grouped into the low Mach (LM) category and those scoring above 109 were classified as high Mach (HM) persons. By using this transformation, we categorized 49 individuals as low Machs (LM) and 54 individuals as high Machs (HM). In some of the analyses, we used the full continuum of the Mach scale ($N = 150$), while some analyses were made with a narrowed sample containing only HM and LM individuals ($N = 103$).

2.5. Procedure

Five subjects participated in the experiment on each occasion. First, we asked them to fill out the TCI and a 20-item Mach-IV test. Subsequently, they participated in a public goods game (PGG) under the guidance of an experimenter. After the game, the experimenters collected all the test sheets and the sheets with the amounts offered, each of which contained the codes of the

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