Machiavellianism has a dimensional latent structure: Results from taxometric analyses☆

Johannes Beller [*,1], Stefanie Bosse

Braunschweig University of Technology, Germany

ABSTRACT

Despite the importance of Machiavellianism, no study has examined the basic issue of its latent status: Is Machiavellianism a dimensional or a categorical construct? Or equivalently, do people differ in the extent to which they are Machiavellian, or do Machiavellianists differ categorically from non-Machiavellianists? To answer these questions, we analyzed two large online samples of $N_1 = 10{,}918$ participants who completed the MACH-IV questionnaire and $N_2 = 40{,}265$ participants who completed the Machiavellianism subscale of the Dirty Dozen questionnaire. Via taxometric methods, we found that Machiavellianism encompasses quantitative rather than qualitative differences in both samples. Hence, people differ quantitatively to the extent to which they are Machiavellian. These findings have important practical and theoretical implications regarding assessment, classification, causality, and labeling.

© 2017 Elsevier Ltd. All rights reserved.

1. Introduction

The idea of Machiavellianism dates back to the Italian philosopher and politician Niccolò Machiavelli. According to the theme "the ends justify the means", Machiavelli argued that moral aspects should be disregarded in favor of effectiveness and power (Christie & Geis, 1970). Four centuries later, psychologists have begun studying Machiavellianism as a trait. Individuals scoring high in Machiavellianism—often referred to as Machs—manipulate, control and exploit others to further their own intrinsically motivated goals (Jones & Paulhus, 2009; Paulhus & Williams, 2002). Consequently, Machiavellianism predicts a wide range of real-world anti-social and malevolent behavior (e.g. Baughman, Dearing, Giammarco, & Vernon, 2012; Chabrol, Van Leeuwen, Rodgers, & Séjourné, 2009; O'Boyle, Forsyth, Banks, & McDaniel, 2012) and correlates with mental health issues such as alexithymia and interpersonal maladjustment (Hawley, 2006). At the same time, Machiavellianism is also related to positive outcomes: Machs are more successful on the job (Jones & Paulhus, 2009), and individuals scoring high in Machiavellianism are seen as more effective, desirable and charismatic leaders (Deluga, 2001). Recent evolutionary research has even argued that the "Machiavellian Intelligence" of being able to manipulate our social environment enabled the

evolutionary success of *Homo sapiens* as a species (Maestripieri, 2007). Thus Machiavellianism represents an important psychological construct.

1.1. The latent status of Machiavellianism

One central issue for every latent construct (like Machiavellianism) is its latent nature: Is the construct best described as a continuum or as qualitative different categories? Answering this question bears several important implications regarding, inter alia, classification, assessment, causality and labeling (Ruscio, Haslam, & Ruscio, 2006). First, the latent status of a construct is important in classifying individuals. If the underlying construct is continuous rather than categorical—as implied by the practice of forming sum scores—then, any classification in dichotomous groups needs to be considered very carefully and the whole process of classifying individuals based on sum-scores might be questioned. On the other hand, if a true categorical latent structure exists, taxometric analysis can provide and justify different cut scores. Second, information about the latent status is important for the development of assessment procedures. If the latent structure is categorical one would focus on using items which maximally discriminate between groups. Contrary, if the construct under consideration was continuous one would need to include items over the whole spectrum of the latent continuum. Third, the latent status is important in labeling. Whether a construct is communicated as categorical or dimensional in nature, impacts the perceptions, attitudes and behavior of the lay public (Prentice & Miller, 2007). For example, viewing Machiavellianism as categorical—as implied by researchers using the terms "Machs" and "Non-Machs"—may lead the lay public to construe Machiavellianism

as more stable and resistant to change than if it were viewed as dimensional. These beliefs may in turn shape the way members of this supposed category are perceived, approached and evaluated (Prentice & Miller, 2007). Fourth, the latent status might further theoretical insights about the construct, its antecedents and consequences (e.g. Beller & Baier, 2013). Ruscio et al. (2006), for example, suggest that categorical latent constructs might result from specific etiological factors, threshold effects, nonlinear interactions or developmental bifurcation, while dimensional constructs tend to result from numerous additive influences. Thus, analyzing the latent status of Machiavellianism may provide important insights.

Due to these possible important insights numerous taxometric studies have explored the latent status of diverse psychological constructs (see e.g. Kliem et al., 2014; Beller & Kröger, 2016; or for Machiavellism related constructs: Edens, Marcus, Lilienfeld, & Poythress, 2006; Foster & Campbell, 2007). However, no such study exists for Machiavellianism. In the literature Machiavellianism has largely been considered to be a dimensional construct per fiat, but evidence might also suggest Machiavellian categories for at least three reasons: First, evolutionary approaches to Machiavellianism have conceptualized human populations as a mixture of cooperators (or Non-Machs) and exploiters (or Machs) (e.g. Maestripieri, 2007; Wilson, Near, & Miller, 1998). In the same vein, a large part of the vast literature on game theory has been concerned with analyzing categorically distinct cooperative and conflictive strategies, including deception (e.g. Brown, Garwood, & Williamson, 2012; Ettinger & Jehiel, 2010). Therefore it could be argued that these evolutionary strategies might constitute latent categories of Machiavellianism. Second, Machiavellianism has been shown to result mostly from environmental effects, but also from genetics (heritability factor of 0.31; Vernon, Villani, Vickers, & Harris, 2008). Following the aforementioned argument by Ruscio et al. (2006), Machiavellianism could start out as a dimensional construct, but might become a qualitatively different state only when specific genetic and environment or personality factors interact in a non-linear way, thus forming a categorical Mach condition. Third, the Machiavellianism test scores are often dichotomized. For example, Verbeke et al. (2011) suggest that a cut off score might be used to divide the participants into low and high Machiavellians. Other studies have used further strategies like a median split or a certain sum score range to classify participants in distinct Machiavellianism categories (e.g. Porter, Bhanwer, Woodworth, & Black, 2014; Bereczkei & Czibor, 2014; Láng & Birkás, 2014). Thus evolutionary theories and research practices might support a categorical view of Machiavellianism. But despite the importance of Machiavellianism no study exists in which the latent status of Machiavellianism is empirically determined. The current study strives to fill this gap.

1.2. Current study

The current study contributes to the literature by clarifying whether the latent status of Machiavellianism is dimensional or categorical. Clarifying the latent status might provide important insights regarding classification, assessment, causality and labeling. Towards this end three non-redundant taxometric methods are applied to two large online samples (N_1 = 10,918, N_2 = 40,265). We ask: Is the latent status of Machiavellianism categorical or dimensional?

2. Method

2.1. Participants and procedure

2.1.1. Sample 1

Data were collected via an online survey provided on www. personality-testing.org. Participants answered questions regarding the MACH-IV questionnaire and demographic data (N = 13.156). Data collection began in January 2012 and ended June 2012. All participants explicitly agreed that their data might be used for scientific analyses. Prior

to the analyses we removed participants who indicated that they were younger than 18 or older than 80 years. After additionally deleting all participants with missing values on the MACH-IV scale a final sample size of 11,702 participants (65.7% male) ranging in age from 18 to 80 (M = 30.79, SD = 11.41) was obtained.

2.1.2. Sample 2

Data were also collected via an online survey from www. personality-testing.org. Participants answered questions regarding the Dirty Dozen questionnaire and demographic data (N = 53.981). Data collection began in July 2012 and ended in December 2013. Only participants who agreed that their data might be used for further scientific analyses were included in the sample. Additionally, as in the first sample, all participants who indicated that they were younger than 18 or older than 80 years old were removed prior to analyses. After deleting all missing values regarding the Machiavellianism subscale of the Dirty Dozen questionnaire, a final sample size of N_2 = 40,165 participants (65.15% male) ranging in age from 18 to 80 (M = 28.12, SD = 10.53) was obtained (the results reported in this study do not change significantly when no participants are excluded in the analyses).

2.2. Measures

2.2.1. MACH-IV

The 20 item MACH-IV scale by Christie and Geis (1970) has been the most widely used instrument to measure Machiavellianism (Jones & Paulhus, 2009). In previous studies, the Machiavellianism scale test scores showed good psychometric properties with acceptable internal consistencies (e.g. α = 0.71; Christie & Geis, 1970). Previous studies, however, differed in the proposed factor structure of the MACH-IV scale (Rauthmann, 2013). Originally, the MACH-IV was designed to encompass three sub-scales (interpersonal tactics, cynical view of human nature, disregard for conventional morality), which might be combined to form a total score. Subsequent studies challenged this factor structure (Rauthmann, 2013, for an overview). For example, Calvete and Corral (2000) found via confirmatory factor analyses that a four-factor structure (positive interpersonal tactics, negative tactics, positive view of human nature, cynical view of human nature) best fitted their data. Example items of the MACH-IV scale include "Never tell anyone the real reason you did something unless it is useful to do so", "Most people are basically good and kind" (R) and "It is hard to get ahead without cutting corners here and there". Participants responded on a five point scale (coded from 1 to 5), with reversed items recoded so that higher values represented stronger Machiavellianism believes. Additionally, a short version of the MACH-IV, the MACH* has recently been developed based on item response theory (Rauthmann, 2013). Thus, because of the widespread use, high validity and reliability of the MACH-IV scale scores, it seems tenable to use the MACH-IV to examine the latent structure of Machiavellianism.

2.2.2. Dirty Dozen

The 12 item Dirty Dozen questionnaire has been a popular measure of the Dark Triad (Jonason & Webster, 2010) and thus Machiavellianism. Despite its conciseness with 4 items, the Machiavellianism subscale of the Dirty Dozen questionnaire has been shown to have good psychometric properties (e.g. α = 0.72; Jonason & Webster, 2010). The participants indicated how much they agreed (1 = not at all, 5 = very much) with statements such as "I tend to manipulate others to get my way". Thus it seems also tenable to use the Machiavellianism subscale of the Dirty Dozen questionnaire to examine the latent structure of Machiavellianism.

2.3. Taxometric analyses

Regarding the first sample (MACH-IV), we combined the single items into item sum score indicators in accordance with Ruscio et al.