

# The Insightful Manipulator: Machiavellians' Interpersonal Tactics May Be Linked to Their Superior Information Processing Skills

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## Abstract

Recent studies have revealed that Machiavellians are capable of exploiting others effectively even in the long run, using flexible strategies and adjusting their behavior according to the social circumstances. We predicted that information manipulation skills (e.g. memorizing, organization) would play an important role in Machiavellians' reasoning skills and flexible thinking. Subjects (N=114) performed 4 different cognitive tasks measuring ability to memorize, organize and analyze information, and use information in reasoning. We observed a significant positive association between Machiavellianism and information processing and information manipulation skills, which suggests that Machiavellians preferentially use a "rational" thinking style, which is associated with flexible processing. This interpretation is consistent with recent functional magnetic resonance imaging studies showing increased neural activation in areas related to working memory, inference making and anticipation of success in Machiavellians.

**Keywords:** Machiavellianism, working memory, perceptual organization, WAIS, rational processing

## 1. Introduction

Machiavellians exploit others and view them from a goal-oriented perspective, in other words they see people as "a means to an end" (Christie & Geis, 1970; Ali, Amorim, & Chamorro-Premuzic, 2009). They have a tendency to deceive others for personal gain, disregard conventional morality, and attribute negative characteristics to other people (Fehr, Samson, & Paulhus, 1992). They are frequently characterized as rationalist, cold-minded decision makers who remain emotionally detached from a situation and whose behavior is influenced more by the strategic consequences (Wilson, Near, & Miller, 1996). In several experiment Machiavellians were shown to be successful manipulators and liars (Austin, Farrelly, Black, & Moore, 2007). Individuals with high scores on the Mach IV scale frequently outperform those with low scores in tasks related to the acquisition of money, recognition or status (Sakalaki, Richardson, & Thepaut, 2007).

Previous studies suggested that Machiavellians are especially successful in short-term interactions but were less skilled at pursuing long-term strategies (Christie & Geis, 1970; Wilson, Near, & Miller, 1996). A more recent study showed that they could exploit others successfully in the long run, using flexible strategies and adjusting their behavior to changes in social circumstances (Jones & Paulhus, 2009). In economic games Machiavellians often do not reciprocate favors, they also tend to be more successful at avoiding punishment and make higher profits than non-Machiavellians (Spitzer, Fischbacher, Herrnberger, Gron, & Fehr, 2007). In recent studies, they were found to be more sensitive to social context than non-Machiavellians and placed more weight on the behavior of their partners when making decisions (Czibor & Bereczkei, 2012; Bereczkei & Czibor, 2014). In a study of real-life behavior, Machiavellians were found to be more likely to apply for voluntary charity work when their offers were made in the presence of other group members than when offers were made anonymously (Bereczkei, Birkas, & Kerekes, 2007, 2010). Taken together, these results suggest that the behavior of Machiavellians may be more flexible and more context-dependent than that of non-Machiavellians.

The behavioral flexibility of Machiavellians raises the issue of which cognitive abilities underpin their superior social skills. We hypothesized that working memory plays an important role in Machiavellians' exploitative behavior: successful social manipulation requires rapid processing and manipulation of information, and a certain short-term memory capacity, especially in unstable, unpredictable circumstances. Working memory consists of subsystems for storing and manipulating visual and verbal information and a central executive system

controlling attention-related processes (Barrett, Tugade, & Engle, 2004). The related tasks require monitoring (i.e. manipulation of information or behaviors) as a part of completing goal-directed actions. Individuals with greater working memory capacity were found to show a greater preference for a “rational” thinking style associated with superior reasoning skill and flexible processing (Fletcher, Marks, & Hine, 2011). Several studies have demonstrated a high correlation between reasoning ability and working memory capacity (Kyllonen & Christal, 1990; Süß, Oberauer, Wittmann, Wilhelm & Schulze, 2002).

We also hypothesized that Machiavellians have cognitive abilities that enable them to adapt to rapidly changing social circumstances. Abstract problem solving skills, high processing speed, and good mental control might be advantageous to Machiavellians in interpersonal relationships. If high Machs—people with high scores on the Mach IV scale—have above average processing speed for environmental cues, they would be able to analyze interpersonal relationships more quickly and easily than the average individual; this would enhance their behavioral flexibility and give them more opportunity for successful manipulation.

Few studies have examined Machiavellians’ cognitive abilities (O’Boyle, Forsyth, Banks & Story, 2013), and so far there has been no reliable investigation of the relationship between Machiavellianism and working memory or information processing speed. On the basis of previous research—discussed above—we assumed that fluid processing was a crucial feature of Machiavellian decision making. WAIS-R has been found to be a good measure of both fluid intelligence (inductive and deductive reasoning) and crystallized intelligence (knowledge and skills) (Wechsler, 1981). Because of the behavioral flexibility of Machiavellians, we presumed, that measures on fluid intelligence might be associated with their interpersonal tactics. More specifically, the interpersonal tactics of high Machs are predicted to require above average working memory and information manipulation skills. We also investigated whether rational thinking style and manipulative skill was reflected in verbal organization, perceptual organization or both. We tested these predictions using four subtests of the Wechsler Adult Intelligence Scale-Revised (Wechsler, 1981).

## **2. Methods**

### *2.1 Subjects*

One hundred and fourteen subjects (62 women; 52 men) participated in the study anonymously. All subjects were students (age: 19-25 years, average age = 21.3 years, SD = 1.74). At the beginning of the study they provided written, informed consent to participation. Participation was voluntary and subjects received a small sum of money for their contribution. The consent procedure was approved by the National Psychological Research Ethical Committee.

### *2.2 Materials*

Cognitive skills related to fluid information manipulation and processing were assessed using the Working Memory Index (WMI) and the Perceptual Organization Index (POI) from the Wechsler Adult Intelligence Scale-Revised (Wechsler, 1981). The WMI consists of Arithmetic and Digit Span subtests which assess the ability to concentrate and memorize and manipulate information and use information in reasoning. The Arithmetic subtest requires the individual to solve arithmetical word problems within a given time period, it measures working memory, mental manipulation, attention, concentration, sequential processing and numerical reasoning. The Digit Span subtest consists of three tasks: Forward Span, Backward Span and Sequencing. First, the individual repeats numbers spoken by the examiner (Forward Span), next the individual is required to repeat the numbers in reverse order (Backward Span) and finally to repeat the numbers in sequence from lowest to highest (Sequencing task); the Sequencing task also taps attention, auditory processing and mental manipulation.

The POI measures non-verbal, in-the-moment reasoning ability: the ability to analyze a problem, organize thoughts and possible solutions, and then test them. The POI is made up of scores on two tasks: Picture Completion and Block Design. The Picture Completion task requires the individual to identify is the element missing from pictures of common objects or events; it measures ability to differentiate essential and nonessential features and also requires concentration, visual organization and visual memory. In the Block Design task individuals are required to duplicate configurations presented using a set of four or nine, two-color blocks; configurations are presented in ascending order of difficulty. The Block Design task is considered to reflect visuospatial constructional ability (Kaufman, 2001) and is a reasonably good predictor of everyday spatial skills (Wechsler, 1981).

Machiavellianism was assessed using the twenty-item Mach-IV Scale (Christie & Geis, 1970). This self-report scale measures an individual’s tendency to manipulate and deceive other people for personal—often material—gain. In this study the scale showed acceptable internal consistency (Cronbach’s  $\alpha = .77$ ). In our

statistical analysis we used the total scores and subscale scores for (i) Interpersonal Tactics, (ii) Cynical View of Human Nature and (iii) Disregard for Conventional Morality based on Christie and Geis's (1970) original three-factor model.

### 3. Results

Associations (i.e. correlation coefficients and standardized beta values) between Machiavellianism and performance on the WMI tasks and the POI tasks are presented in Table 1. Mach scores were significantly correlated with WMI score ( $r=.32$ ) and Arithmetic score ( $r=.34$ ), and marginally correlated with Digit Span score ( $r=0.17$ ,  $p=0.065$ ). Machiavellianism was also associated with POI score and performance on the Block Design task, but not with performance on the Picture Completion task. A series of multiple linear regressions was used to evaluate the unique contribution of each cognitive variable to variance in Mach scores. Overall WMI and POI scores and score on the four tasks were regressed separately on the Mach IV factors. The Interpersonal Tactics factor was shown to be an independent predictor of WMI and POI scores. The Interpersonal Tactics and Cynical View of Human Nature factors were significant predictors of Arithmetic score, but none of the Mach IV factors were associated with Digit Span score. The Interpersonal Tactics factor was a significant predictor of performance on the Block Design task, but there were no reliable associations between either Mach IV total score or any of its three factors and Picture Completion performance.

Table 1. Correlations and regression coefficients (in brackets) between Machiavellianism score, WMI and POI  
r ( $\beta$ )

	Mach IV total score	Interpersonal Tactics	Cynical View	Disregard for Conv. Morality	R <sup>2</sup>
Working Memory Index	.32** (.48**)	.34** (.25*)	.19* (.14)	.19* (.18)	.12*
Arithmetic	.34** (.32**)	.33** (.30**)	.23* (.23*)	.20* (.18)	.10*
Digit Span	.17 (-.20)	.20* (.12)	.06 (.00)	.10 (.04)	.04
Perceptual Organization Index	.28** (.26*)	.30** (.19*)	.18 (.11)	.10 (.02)	.09*
Picture Completion	.16 (.04)	.12 (.08)	.16 (.14)	.12 (.11)	.03
Block Design	.25** (.23*)	.29** (.28**)	.14 (.12)	.07 (.05)	.09*

*Note.* Correlations between the Index scores and the scores of the contributing tasks were strong (WMI: Arithmetic  $r=.82$ , Digit Span  $r=.77$ ; POI: Picture Completion  $r=.46$ , Block Design  $r=.94$ ).

R<sup>2</sup>: R-squared effect size for regression

\*  $p < .05$

\*\*  $p < .01$ .

Taken together these findings appear to suggest that use of Machiavellian interpersonal tactics is associated with a relatively high ability to focus on a mental manipulation task and above average skills in organization and manipulation of visuospatial information.

### 4. Discussion

#### 4.1 Working Memory

In this study we found a significant positive association between Machiavellianism and WMI. WMI score appeared to be most strongly associated with the Interpersonal Tactics factor of the Mach IV scale. Machiavellianism was associated with performance on the Arithmetic task but not the Digit Span task. In the

light of previous findings we interpret this as evidence that the advanced cognitive skills of high Machs are associated with ability to process information rapidly and with above average skill in manipulating and organizing information.

Recently it has been argued that Machiavellians' success is due to the flexibility of their behavioral responses, which may depend on their outstanding ability to use cognitive heuristics and adaptive problem-solving devices (Berezkei, Deak, Papp, Perlaki, & Orsi, 2013). Machiavellians' success in exploiting others may be due to their skill in drawing inferences from others' behavior, anticipating rewards and threats to their self-interest, and exploiting this information to obtain a relatively large final payoff (Gunnhorsdottir, McCabe, & Smith, 2002; Spitzer et al., 2007; Berezkei & Czibor, 2014).

This interpretation is consistent with the finding that Arithmetic, but not Digit Span performance was related to Machiavellianism. Arithmetical ability has been defined as the ability to reason inductively and deductively when solving quantitative problems and performing new calculations (Mackintosh & Bennett, 2003), whereas Digit Span is related to holding information in a memory store and reproducing it (Lynn & Irving, 2008). One can argue that Machiavellians' behavioral opportunism and fluid adaptation to the changing social circumstances is linked to arithmetical computational ability, but not simple storage of acquired knowledge.

The findings of a recent functional magnetic resonance imaging (fMRI) study (Berezkei et al., 2013) are consistent with the hypothesis that working memory plays a central role in Machiavellians' decision making. Machiavellians showed increased neural activation in areas involved in inference making, anticipation of success and reward-related decision making in a risky environment (social dilemma situation), such as the inferior and middle frontal gyrus, thalamus and anterior cingulate cortex. The middle frontal gyrus was found to be important for abstract reasoning about social situations and manipulation of information for high level planning; it is also known to play an important role in executive control and mental flexibility and is related to the anticipation of positive decisions (Reverberi, Shallice, D'Agostini, Skrap, & Bonatti, 2009).

It has been suggested that the inferior frontal gyrus is involved in selection among competing behavioral alternatives in social situations (Liakakis, Nickel, & Seitz 2011, Polosan, Baciuc, Perrone, Pichat, & Bougerot Polosan 2011). Participants with high working memory capacity showed greater neural activation in the left inferior frontal gyrus area than those with low working memory capacity. People with high working memory capacity are more likely to draw inferences from information available to them, and the authors argued from this that the left inferior frontal gyrus plays a critical role in inference generation. Inference making plays a crucial role in determining behavior in complex interpersonal situations, so from this it was argued that the inferior frontal gyrus may be involved in selection among competing behavioral alternatives in a social dilemma situation. If these arguments are accepted it is not surprising that in the role of second player in Ultimate Game, high Machs show greater activity in the overlapping brain areas of the dorsal anterior insula and right inferior frontal gyrus than low Machs (Berezkei et al., 2013). In a social dilemma situation these brain areas may play a crucial role in adjusting decisions to take account of others' actions.

#### *4.2 Perceptual Organization*

In this study we also found a significant relationship between Mach IV score and score on the Block Design subtest, and a marginally significant correlation between Machiavellianism and performance on the Picture Completion task. The POI is the second most reliable index of WAIS-R, and measures spatial perception and visual abstract processing (Rönnlund & Nilsson, 2006). It is not clear how Machiavellians take advantage of their good visual-spatial constructional ability. However, several authors have argued that the POI should also be regarded as a measure of non-verbal, in-the-moment reasoning (see Atkinson, 1991; Kaufman & Lichtenberger, 2006). It assesses the ability to examine a problem, apply visual-motor and visual-spatial skills quickly, organize thoughts and use information to solve problems (Wechsler, 1997). Performance on the Block Design task is related to ability to process abstract symbols and handle unexpected situations, whereas performance on the Picture Completion task depend on ability to perceive visual details and spatial relationships. This is consistent with the results of our linear regression analysis, namely that performance on the Block Design task, but not Picture Completion, was predicted by Mach IV total score and by the Interpersonal Tactics factor. It is possible that the cognitive abilities related to performance on the Block Design task may contribute to Machiavellians' capacity for rapid, flexible decision making in a complex social environment. On the other hand, the selective capacity to differentiate essential from nonessential details of visual information and visual memory does not appear to affect Machiavellian decision-making processes.

#### 4.3 Summary and Limitations

Our results are consistent with the flexible and opportunistic style associated with Machiavellians, they monitor the others' behavior, exploit interpersonal relationships and change tactics frequently in social dilemma situations, where there is always element of unpredictability and risk, and no single individual can explicitly control others' decisions. Naturally, further research is needed to explore the social and cognitive skills underlying Machiavellian behavioral strategies in complex, unpredictable social situations.

Our study has some limitations, as well. First, we utilized college-aged participants, which may lead to more general and less specific results. Collecting data solely from subjects performing high on Mach scale could reveal more information about the context of cognitive abilities and behavioral outcomes of Machiavellianism. Second, according to a former study, in which no associations were found between the Mach scores and the Spatial, Digit Symbol, Similarities and Comprehension subscales of WAIS (Bogaert, 2001), we selected another four subscales from WAIS, which have not been examined yet in relation to Machiavellianism. However, next studies should include all the variables of the WAIS to be examined.

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