Authentic leadership and followers' cheating behavior – A laboratory experiment from a self-concept maintenance perspective

Susanne Braun

Durham University Business School, Durham University, and Center for Leadership and People Management, Ludwig Maximilian University Munich

Lars Hornuf

University of Trier, Department of Economics and Institute for Labour Law and Industrial Relations in the European Union, and Max Planck Institute for Innovation and Competition

Abstract

This chapter presents insights into the question of whether followers' perceptions of authentic leadership attenuate cheating. From the perspective of self-concept maintenance theory, followers will cheat as long as they can maintain a positive self-concept. We suggested that authentic leadership lowers the perceptual threshold under which followers can still consider themselves honest. A laboratory experiment combined video-based variations of authentic leadership with a cheating-of-mind experiment. We collected data from 343 students at a German university. Results indicate that participants cheated, but not to the fullest possible extent. Authentic leadership did not affect the extent to which participants cheated. These results held when we tested moderating variables (e.g., cheating norm, victimization). Hence, findings do not support the notion that a short-term authentic leadership intervention attenuates cheating. *(125 words)*

Keywords: Authentic leadership; cheating; experiment; self-concept maintenance; unethical conduct

Length: 5,533 words (without references)

Acknowledgements. We gratefully acknowledge the support of David Schindler and the team of the Munich Experimental Laboratory for Economic and Social Sciences. We also thank Ximena Garcia-Rada and the participants in the Workshop on Experimental Labour and Personnel Economics (Institute for Labour Law and Industrial Relations in the European Union) as well as the Workshop on the Autonomy at Work and Employee Involvement: Causes and Consequences (Institute for Employment Research) for their helpful comments and suggestions. We are highly indebted to Anna Fuhrmann and Xueqian Chen for their excellent research assistance. We also thank Matthias Schmitt, Karolina Nieberle, David Goretzko, and Mark Bärthel for their help in running the experiment. Finally, we gratefully acknowledge the financial support of the Fritz Thyssen Foundation.

Unethical conduct is a prevailing phenomenon in organizations. The Association of Certified Fraud Examiners (2014) projects a potential global fraud loss of more than $3.7 trillion per year. Losses are estimated to comprise 5% of organizational revenues and to last for an average of 18 months before detection. Among the most tangible costs are losses related to theft. Retail businesses in the United States have inventory losses of approximately $42 billion per year, with employee theft accounting for 43% of lost revenue (Deyle, 2014). Means to reduce unethical conduct in organizations are needed. We studied whether authentic leadership buffers followers' unethical behavior in the form of cheating in professional contexts (i.e., work related settings; Djawadi & Fahr, 2015).

The behavioral ethics literature is concerned with factors that influence how individuals make ethical decisions (Bazerman & Gino, 2012), individuals' compliance with generally accepted moral norms in organizations (Treviño, Weaver, & Reynolds, 2006), moral identity (Shao, Aquino, & Freeman, 2008), and the normalization of unethical behavior (Ashforth & Anand, 2003) in organizations. According to this literature, unethical conduct encompasses specific unethical behaviors (e.g., lying, cheating, stealing) or behaviors that do not reach some minimal moral standard (e.g., dishonesty, disobedience of the law; Treviño et al., 2006). In behavioral economics, scholars have systematically analyzed individuals' cheating behavior in laboratory studies (Conrads, Irlenbusch, Rilke, & Walkowitz, 2013; Fischbacher & Föllmi-Heusi, 2013; Houser, Vetter, & Winter, 2012), in online experiments (Gill, Prowse, & Vlassopoulos, 2013), and in the field (Abeler, Becker, & Falk, 2014; Ariely, Garcia-Rada, Hornuf, & Mann, 2014; Djawadi & Fahr, 2015; Ichino & Maggi, 2000). The majority of this work addressed the question of whether individuals cheat and how pervasive cheating is across contexts. With some notable exceptions (Abeler et al., 2014; Erat & Gneezy, 2012; Lundquist, Ellingsen, Gribbe, & Johannesson, 2009), extensive evidence shows that individuals cheat (Alberti & Güth, 2013; Bucciol, Landini, & Piovesan, 2013; Djwadi & Fahr, 2015; Gino, Ayal, & Ariely, 2009; Mann, Garcia-Rada, Houser, & Ariely, 2014), especially when the risk of detection is low (Effron, Bryan, & Murnighan, 2015).

Rather than questioning whether individuals cheat, we analyzed whether cheating persists under the influence of intervening factors. We specifically focused on the influence of authentic leadership as described in the following paragraph. Previous research showed that the extent to which

followers perceive their leaders as being authentic related positively to followers' satisfaction in their job and with their leader, trusting and effective relations between leaders and followers as well as within teams, and followers' job-related engagement (Banks, McCauley, Gardner, & Guler, 2016; Gardner, Cogliser, Davis, & Dickens, 2011; Peus, Wesche, Streicher, Braun, & Frey, 2012). Authentic leadership "extends well beyond bottom-line success" and thereby contributes to advancements "in the greater society by tackling public policy issues and addressing organizational and societal problems" (Avolio, Gardner, Walumbwa, Luthans, & May, 2004, p. 802). With regard to followers' unethical conduct (e.g., cheating), however, very little is known about variations in response to perceptions of authentic leadership (Cianci, Hannah, Roberts, & Tsakumis, 2014).

Our study served to contribute to a better theoretical and practical understanding of authentic leadership in four ways. First, we addressed the question of which factors reduce the probability that individuals will engage in unethical conduct in the face of spontaneous opportunities to cheat for their own benefit, but at the expense of their organization. Second, the study integrated authentic leadership literature with behavioral economics. Third, we analyzed cheating in a carefully designed laboratory experiment. Study designs that allow causal conclusions have provided relevant insights into the effects of followers' perceptions of authentic leadership (Braun & Peus, 2016). Fourth, we tested a range of variables that may affect cheating in interaction with authentic leadership (i.e., gender, cheating norm, victimization). Overall, based on the results of this research, we cannot conclude that authentic leadership attenuates followers' cheating.

Theory and Hypotheses

Based on self-concept maintenance theory (Ariely, 2012; Mazar, Amir, & Ariely, 2008), this research aimed to contribute to a better understanding of the phenomenon of cheating as well as the influencing factors in professional contexts, including perceptions of authentic leadership, cheating norms, and victimization. The economic standard model of crime and punishment predicts cheating as the result of cost–benefit calculations (Becker, 1968, 1993). It includes three main predictors: (a) the expected benefits, (b) the probability of detection, and (c) the magnitude of punishment expected in case of detection. Results from behavioral law and economics underscore the relevance of these three variables, which differ in their impact on cheating (Nagin & Pogarsky, 2003).

A growing body of research has been devoted to studying influence factors on unethical conduct in organizational contexts. Cohn, Fehr and Maréchal (2014) demonstrated that the professional background of the banking industry increases dishonesty, although not necessarily through competition or competitive incentives but through the prevalence of materialistic values. Treviño (1986) proposed a person-situation interactionist model suggesting that individual as well as contextual factors influence whether unethical behavior occurs in organizations. The immediate job context (e.g., reward structures, time pressure) and organizational culture form part of the contextual factors. Brass, Butterfield, and Skaggs (1998) reviewed factors that influence unethical conduct at multiple organizational levels. Their model of unethical decision-making included the types of relationships (e.g., strength, status, asymmetry) in organizations. Strong ties between leaders and followers are likely to increase the buffering effects of leadership on cheating behavior. A recent review confirmed the relevance of factors at multiple levels, including individual-level cognitive moral development, moral identity or emotional states (e.g., guilt, shame), and ethical group climates, organizational climates, and leadership (Treviño et al., 2006). Accordingly, we considered authentic leadership as one of the contextual factors to reduce cheating.

Self-Concept Maintenance

The theory of self-concept maintenance (Ariely, 2012; Mazar et al., 2008) suggests that individuals' self-concept predicts cheating. According to this theory, individuals engage in dishonest behaviors as long as they can maintain a positive self-concept. The self-concept consists of all inferences that individuals make about themselves and is inherently relational. Individuals' "sense of self, including thoughts, feelings, motives, and self-regulatory strategies may thus vary as a function of relations with significant others" (Anderson & Chen, 2002, p. 619). We reasoned that authentic leaders are significant others, who influence followers' self-concepts and affect cheating behavior.

Individuals internalize norms and standards (e.g., honesty, diligence, community) of the society that surrounds them. Compliance with such norms is rewarding, while non-compliance is likely to result in social punishment. Mazar et al. (2008) proposed that (dis)honesty is part of an internal reward and punishment system, which influences individuals' self-concept. If individuals transgress against honesty norms, their self-concept is negatively affected. Accordingly, self-concept

maintenance theory suggests "a magnitude range of dishonesty within which people can cheat, but their behaviors, which they would usually consider dishonest, do not bear negatively on their self-concept" (Mazar et al., 2008, p. 634). That is, as long as they can still consider themselves honest below a certain perceptual threshold, individuals are likely to cheat. This theory has received initial empirical support (Mazar et al., 2008), but also opens up controversy around the question of which factors promote or prevent cheating.

Authentic Leadership

Previous research indicated that specific forms of leadership in organizations promote desirable outcomes and prevent undesirable ones (Hiller, DeChurch, Murase, & Doty, 2011). Authentic leaders "know who they are, what they believe and value, and they act upon those values and beliefs while transparently interacting with others" (Avolio et al., 2004, p. 802). Kernis (2003, p. 13) describes the modern understanding of authenticity as "reflecting the unobscured operation of one's true, or core, self in one's daily enterprise." Authentic leadership goes beyond the idea of 'being true to oneself'. Four dimensions characterize authentic leadership (Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008) as implemented in this research: (a) self-awareness (i.e., leaders who are aware of their own strengths and weaknesses), (b) relational transparency (i.e., leaders who emphasize open and transparent communication), (c) internalized moral perspective (i.e., leaders who act in accordance with strong moral convictions and values), and (d) balanced processing (i.e., leaders who consider multiple perspectives before decision making).

Authentic leaders take on a positive role modeling function for their followers (Gini, 1997). Followers' perceptions of authentic leadership relate to a variety of positive behaviors, such as followers' work engagement (Wang & Hsieh, 2013), extra-effort (Peus et al., 2012), creativity (Rego, Sousa, Marques, & Pina e Cunha, 2012), and job performance (Leroy, Palanski, & Simons, 2011). Furthermore, authentic leadership facilitates positive attitudes, such as followers' own authenticity (Leroy, Anseel, Gardner, & Sels, 2015) and feelings of empowerment and satisfaction (Wong & Laschinger, 2013). Studies of the mechanisms through which followers' perceptions of authentic leadership support these positive outcomes revealed trust in the leader (Clapp-Smith, Vogelgesang, & Avey, 2009) and predictability of the leader (Peus et al., 2012) as relevant variables.

Authenticity is directly linked to morality (Gino, Kouchaki, & Galinsky, 2015). The inherent value system of authentic leaders comprises universal and self-transcendent values, which emphasize collective functioning (e.g., justice, responsibility, honesty) rather than egocentric concerns (Howell & Avolio, 1992). Followers' perceptions of authentic leadership in turn drive perceptions of leaders' behavioral integrity (Leroy et al., 2011). Initial empirical evidence suggests that authentic leadership reduces followers' unethical decision making in the face of temptation (Cianci et al., 2014) and relates positively to followers' fairness perceptions (Kiersch & Byrne, 2015). Moreover, authentic leadership appears to be negatively related to organizational deviance (Erkutlu & Chafra, 2013).

Drawing on the four dimensions of authentic leadership introduced above, authentic leaders fulfill positive ethical role modeling functions (internalized moral perspective). They influence followers' ethical views through close trusting relationships (relational transparency). Authentic leaders are also ethical in that they realize what their own limitations are (self-awareness), and that they explicitly consider different views that underlie difficult ethical decisions (balanced processing).

In summary, in line with self-concept maintenance theory, we expected that authentic leaders lower the threshold under which followers can still consider themselves honest, and hence followers are less likely to cheat when given opportunities to do so. We assumed that followers who perceive their leaders as authentic are less likely to cheat.

Hypothesis 1. Followers' perceptions of authentic leadership negatively predict cheating. Participants in the authentic leadership condition are less likely to cheat than participants in the non-authentic leadership condition.

Cheating Norm

Our second hypothesis concerns interactions between followers' perceptions of authentic leadership and a cheating norm as predictors of unethical conduct in organizations. The theory of self-concept maintenance implies that cheating depends on internalized norms and standards. These are established through socialization (interaction with meaningful others, such as parents, siblings, friends, and colleagues). Therefore, it is likely that social interaction also increases or decreases internally held thresholds of acceptable conduct in professional contexts (e.g., Cohn et al., 2014). This assumption is in line with social learning theory (Bandura, 1965) and social norms theory (Cialdini,

Reno, & Kallgren, 1990). It also concurs with Gino et al.'s (2009) findings that cheating is contagious. In their studies, cheating increased when participants witnessed in-group members cheating successfully. However, when the possibility of cheating was made salient, but not enacted by an in-group member, cheating decreased (Gino et al., 2009).

We concurred with the view that social contagion positively influences unethical conduct. We expected that participants who become aware of a cheating norm are more likely to cheat. However, we also proposed that the values set by authentic leadership counteract this influence. The buffering influence of authentic leadership on followers' unethical behavior will be stronger than a perceived cheating norm. Followers who perceive their leaders as authentic should be less likely to cheat when they observe successful cheating behavior.

Hypothesis 2. Cheating norm and followers' perceptions of authentic leadership interact to predict cheating. Authentic leadership moderates the impact of a cheating norm on cheating. When participants observe cheating, they are less likely to cheat in the authentic leadership condition than in the non-authentic leadership condition.

Victimization

Our third hypothesis concerns interactions between followers' perceptions of authentic leadership and victimization as predictors of unethical conduct in organizations. We analyzed the influence of victimization and subsequent retaliation through cheating. This view builds on the concept of social reciprocity. Evolutionary game theory suggests that the tit-for-tat strategy, in which a party will first cooperate and then subsequently replicate an opponent's previous move, is the most successful in many cases of direct competition (Axelrod, 1984). Research in organizational psychology suggests that retaliation occurs in response to perceived fairness violations (Skarlicki & Folger, 1997). Thus, we expected that participants are more likely to retaliate through cheating when they experience being cheated by others (i.e., victimization).

However, we again proposed that perceptions of authentic leadership counteract this influence. Even if others cheat them, followers of authentic leaders will be unlikely to retaliate through cheating. The buffering influence of authentic leadership on followers' unethical behavior should be stronger than the perceived victimization. Followers who see their leaders as authentic

should be less likely to cheat when they are victimized than followers under the influence of non-authentic leadership.

Hypothesis 3. Victimization and followers' perceptions of authentic leadership interact to predict cheating. Authentic leadership moderates the impact of victimization on cheating. When participants are victimized, they are less likely to cheat in the authentic leadership condition than in the non-authentic leadership condition.

Methods

We tested the above stated hypotheses in a laboratory experiment with students at a German university. We analyzed data with t-tests, Mann–Whitney U-tests, and conducted robustness checks.

Sample and Procedure

We recruited participants over the course of two weeks in April 2015 at a German university. Our initial sample was 424 participants. To ensure that participants were not excessively familiar with experimental research methods, we *ex ante* decided to limit our study to individuals who reported being students of fields different from psychology (57 psychology students or non-students were excluded). 24 participants who were interrupted during the study due to technical problems or personal issues were also excluded. Four students repeatedly took part in our study. We counted only their first appearance. With these constraints, our final sample included 343 individuals.

Table 2 provides demographic data of the participants. Participants differed in age (25% were under 21 years of age, 50% were between 21 and 25 years, and 25% were above 25 years of age), gender (117 men vs. 218 women), previous work experience (191 experience vs. 147 no experience), marital status (155 single vs. 168 in a relationship), and current standard of living (278 very well-off or living comfortably vs. 53 just getting along or poor). A male leader was randomly assigned to instruct 50% of the participants through a video message, while a female leader instructed the other 50%. Finally, 25% of participants believed that less than 31% of participants had earned more than they themselves did, 50% believed that 31% to 60% had earned more, and 25% believed that 61% or more had earned more. On average, participants believed that only 45% had earned more than they themselves did, providing a first indication that they must have been aware of their cheating behavior.

TABLE 2 ABOUT HERE

Design and Manipulations

Study setup. A fictitious supervisor supposedly from a personnel economics institute at the university instructed the participants in our study. The instruction was delivered through a video message, which we recorded with two professional actors (male and female). Participants were randomly assigned to receive the video message from a male or female supervisor. In a first step, the supervisors introduced themselves and made clear that instructions would be delivered through a video message owing to time constrains. While the content of the message explaining the task was the same in all study conditions, the supervisors' self-introduction varied in authentic leadership.

Authentic leadership. Participants were randomly assigned to a supervisor who made a self-introduction with either high or low levels of authentic leadership or no further information about the leadership style was provided. In a second step, the supervisor explained the task, which participants would subsequently undertake. Through the video message format, we ensured that the instruction was uniformly delivered to all participants and only varied in authentic leadership expressed.

We developed variations of high and low levels of authentic leadership based on existing, validated study materials (Braun & Peus, 2016; Cianci et al., 2014). The ways in which supervisors described themselves in the video referred to the four dimensions of authentic leadership: (a) self-awareness (e.g., wanting to know about one's strengths and weaknesses vs. avoiding others' feedback), (b) relational transparency (e.g., asking for others' opinions, even if they run counter to one's own views vs. asking to consent with one's views), (c) internalized moral perspective (i.e., aligning actions with personal values vs. compliance with external pressures), and (d) balanced processing (e.g., integrating all perspectives vs. following one's own opinion). In the third video, where participants received no further information about the authentic leadership style, the supervisor described their general role (e.g., professional background, expertise, research and teaching goals).

Cheating target. As part of the video message, participants were informed that their earnings would be paid from the supervisor's project budget. We also made clear that any profits on the participants' side would result in equal levels of losses on the supervisors' side. Thus, in contrast with previous studies, this setup made explicit who would be the beneficiary (participants) and who would be the target (supervisors and organizations) of possible cheating. After the task was explained, 97%

of participants indicated having understood the video message and the task. The remaining 3% asked for a written explanation and read the instructions again until they fully understood the task.

Cheating norm and victimization. Recent research has shown that cheating behavior can be contagious (Gino et al., 2009; Weisel & Shalvi, 2015). To determine whether authentic leadership can mitigate such tendencies, we introduced two additional influencing factors: cheating norm and victimization, both of which make the possibility of cheating behavior more salient. For this purpose, we distributed participants randomly across two rooms in the experimental laboratory with six (room 1) and four (room 2) individual workstations. Each room had one experimenter supervising the study. Participants worked on mobile tablets equipped with keyboards and headsets.

At a standardized point in time during the study, participants received an online message that the chat function of their tablet had been activated. Participants in the *cheating norm* condition then received a fake message supposedly from another participant in the second room. The message read that the other participant had discovered how to cheat on the task and would cheat from now on. Participants in the *victimization* condition received a fake message supposedly from an experimenter in the second room. The message read that the experimenter had discovered that another participant had taken the participant's €2 show-up fee for arriving on time at the experimental laboratory. Seven study conditions resulted from the variations of authentic leadership, cheating norm, victimization, and a neutral baseline condition. Table 1 summarizes the conditions.

TABLE 1 ABOUT HERE

Dependent Measure

To examine cheating, we adapted a task developed by Jiang (2013), which we refer to as the die task. The die task involves rolling a physical die over 40 repeated trials. On each trial, participants were instructed to mentally choose a side of the die (top or bottom) before rolling it. They were asked to remember their choice, roll the die, and, when the outcome was visible, report the outcome on the chosen side in a box on their screen. Participants knew that they would be paid 5 cents per dot on the chosen side. If a participant selected the "top" side of the die before rolling it and consequently rolled only one dot on that side of the die, they faced a trade-off to honestly report having rolled one dot or to dishonestly report having chosen "bottom" and report six dots. Thus, on any roll for which the

unfavorable side is initially chosen, participants can cheat by claiming to have chosen the higher-earning side. While it is impossible to identify whether a participant cheated on any given trial, in a large sample choosing the favorable earnings side should statistically not occur on more than 50% of the trials (see Mann, Garcia-Rada, Hornuf, Tafurt, & Ariely, 2016; Mann, Garcia-Rada, Hornuf, & Tafurt, 2016 for a virtual version of the test).

Results

Descriptive Statistics

Differences in reported high rolls for the first 10 trials (before additional information was given in Condition 4–7, cheating norm and victimization) revealed that individual characteristics had no significant effect on cheating. Women reported the favorable side with the larger number of dots 2.7% more frequently than men. This difference was, however, only marginally significant for the non-parametric test and not significant for the t-test (t-test, $p = 0.1809$, Mann–Whitney U-test, $P > |z| = 0.0733$). Singles cheated 2.9% less than those in a relationship (t-test, $p = 0.1314$, Mann–Whitney U-test, $P > |z| = 0.0687$), and participants who were (self-reported) poorer cheated as much as those who lived comfortably or were very well-off (t-test, $p = 0.9273$, Mann–Whitney U-test, $P > |z| = 0.9960$). Likewise, we found no difference for participants with and without previous work experience (t-test, $p = 0.7939$, Mann–Whitney U-test, $P > |z| = 0.8496$).

Self-Concept Maintenance

In line with previous field and laboratory experiments (Ariely et al., 2014; Jiang, 2013), we found that participants cheated, but not to the fullest extent possible. In the baseline Condition 1, the distribution of reported outcomes shifted to the right of the binomial distribution (Figure 1, Panel A), with participants declaring 61.8% high rolls on average, which is statistically different from the fair outcome of 50.0% (Table 3, Column [1]). Moreover, we found no significant change in cheating behavior when splitting the sample at the mean of 20 rolls ($p = 0.1178$). Thus, there is no indication that participants adapted to the die task the longer they took part in it. These findings are in line with self-concept maintenance theory, and previous findings by Mazar et al. (2008).

FIGURE 1 ABOUT HERE

TABLE 3 ABOUT HERE

Authentic Leadership

To determine whether authentic leadership negatively predicted cheating, in Condition 2 and Condition 3 an authentic and non-authentic leader, respectively, presented the die task through a video message. As a manipulation check, we asked participants 16 questions from a validated version (Hörner, Weisweiler, & Braun, 2015) of the Authentic Leadership Inventory (Neider & Schriesheim, 2011). For each of the questions, participants evaluated how authentic the leader appeared to them on a scale from 0% to 100%. When averaging the results of these 16 questions, we found that participants in the authentic leader condition rated the authenticity of the actors twice as high (67%) as those in the non-authentic leader condition (33%). The baseline condition, which did not include a specific introductory statement by the leader, was perceived statistically different and in-between (60%) the non-authentic (t-test, $p = 0.0000$) and authentic leader conditions (t-test, $p = 0.0031$). Participants indeed perceived the actors in the video more or less authentic in line with the condition under which they were instructed.

However, for Conditions 2 and 3 we found that participants cheated just as much as participants in the baseline Condition 1 (see Figure 1, Panel B, and Table 3, Column [2]). Authentic leadership did not affect individual cheating behavior, as participants in Condition 2 reported, on average, just as many high rolls as those in the baseline condition. Participants in Condition 3 reported 63.7% high rolls, which represented no significant statistical difference from Condition 2 (Table 3, Column [3]). Instruction by an authentic leader did not *per se* change individual cheating. Therefore, our results did not support Hypothesis 1.

Cheating Norm

In the next step, we tested the interaction between a cheating norm and authentic leadership. For this purpose, we showed individuals a chat message in which another participant informed them that it was possible to cheat during the die task. The other participant indicated having decided to report only the high side as an outcome (cheating norm). Under an authentic leader, participants in Condition 4 cheated with 63.5% high rolls in a similar magnitude to those in the baseline condition (see Figure 1, Panel C). When a non-authentic leader delivered the instructions and participants were informed about the possibility of cheating, participants reported 63.3% high rolls, which was no

different from those in either the baseline condition or Condition 5 (Table 3, Columns [2] and [3]). We also tested whether cheating behavior varied within subject rather than between conditions. We therefore compared the first 10 rolls with the next 30 rolls (i.e., after participants had received the cheating norm information). Participants did not change their cheating behavior after being informed about cheating by others (Table 3, Column [4]). Therefore, our results did not support Hypothesis 2.

Victimization

Finally, we tested the interaction between being cheated by a fellow participant (victimization) and authentic leadership. We found that participants reported 61.3% high rolls in the authentic leadership condition and 59.2% in the non-authentic condition (see Figure 1, Panel D), which was not statistically different from either those in the baseline condition or each other (Table 3, Columns [2] and [3]). Finally, we again compared the first 10 rolls with the next 30 rolls when participants received the information about being the victim of others' cheating. Again, participants did not change their cheating behavior when being cheated by others (Table 3, Column [4]). Therefore, our results did not support Hypothesis 3.

Robustness

As a robustness check, we investigated whether the gender of the participants or the leader or a combination of the two had a significant impact on cheating. The results showed that participants perceived the male actor on average no more or less authentic than the female actor ($p = 0.7484$). We again found no differences in outcomes. Cheating occurred at the same magnitude regardless of whether the participants or leaders were male or female (Figure 2, Panel B and C).

Finally, we tested whether the expectations of others' cheating influenced the individual propensity to cheat. We found that individuals, who believed that less than 31% of the other participants had earned more than they themselves did, cheated about the same as those who believed that more than 61% of the other participants had earned more than they themselves did (Table 2, columns [4] and [6]).

FIGURE 2 ABOUT HERE

Discussion and Conclusion

We investigated authentic leadership as a potential remedy for followers' cheating as well as moderating factors of the environment (i.e., a cheating norm and victimization). In doing so, we integrated leadership research and behavioral economics, used a carefully designed laboratory experiment with video variations of authentic leadership and a cheating-of-mind task, and tested a range of variables that may affect cheating. In line with self-concept maintenance theory (Ariely, 2012; Mazar et al., 2008), we found participants to engage in minor acts of cheating, but not to the fullest extent possible. This finding reflects organizational practice, where people may not "necessarily do something that is totally dishonest, but in small ways let things slide that they really should not let slide" (Mathys, 2002, p. 90f.).

Cheating did not change significantly under the influence of authentic leadership, contingent on a cheating norm or the experience of being cheated. Cheating at low levels seems difficult to prevent at least in the short term. Previous research indicated that authentic leadership prevents employees from unethical decision-making (Cianci et al., 2014). While this might hold true in general, restrictions to this assumption must be made in light of our findings. First, cheating at low levels (e.g., taking smaller items from one's organization) may not induce cheating costs; rather, followers may perceive minor theft or dishonesty as acts of trivial offense, and those who engage in such acts will likely maintain their positive self-concept. Consequently, cheating at low levels continues and, in sum, negatively affects organizational functioning. Second, while we assumed that authentic leadership affects unethical conduct, this might not be the case in the short term. In our experimental study that included a short-term relationship between a follower and a newly introduced supervisor, authentic leadership did not impede followers' cheating behavior.

Perceptions of leadership vary between countries and are influenced by implicit assumptions about what good leadership is (Javidan & Dastmalchian, 2009). While we conducted this research in Germany, the concept of authentic leadership was first introduced in the United States (Avolio et al., 2004) and the majority of studies originated in this context (Gardner et al., 2011). Schneider and Schröder (2012) compared cultural representations of managers in Germany and the United States over time. While in the United States, perceptions of managers as charismatic figures increased, the

German sample shifted toward a view of managers as coercive figures. Similarly, Peus, Braun and Knipfer (2015) showed in an interview study, that women managers in the United States placed more emphasis on authentic leadership than women in other countries (especially China and India). Future studies need to analyze whether cultural contexts attenuate positive effects of authentic leadership.

Taken together, the above interpretations are useful to think about further developments in the field of authentic leadership. Firstly, we consistently found that participants cheated despite a short-term authentic leadership intervention. However, other forms of interventions may counteract unethical behavior in professional contexts. Secondly, while experimental variations of authentic leadership are generally effective, future research needs to test more specific theoretical predictions as to which types of outcomes authentic leadership affects, and which ones it does not. A recent network analysis of leadership by Meuser et al. (2016) suggested that this specific leadership style may be impactful in promoting positive emotions (e.g., enjoyment at work) and preventing negative ones (e.g., fear of failure), but less directly related to specific unethical behaviors such as cheating.

Advanced theoretical models should also consider the conditions under which authentic leadership is more or less effective in response to cheating. Vidyarthi, Anand, and Liden (2014) suggested that "individuals' conformity to social influence is positively related to the strength and immediacy of influencers" (p. 233). Previous research found that the impact of leadership on group performance increased with task interdependence (e.g., leader-member exchange differentiation; Liden, Erdogan, Wayne, & Sparrowe, 2006). Ibarra (2015) criticized that current views describe authentic leadership as a gold standard, which may hinder its impact. The paradox of authenticity is that if leaders apply a too rigid strategy, they may actually appear as less rather than more authentic. Since leaders need to accommodate a range of different roles, they also have different selves in the present as well as in the future. Being authentic means not sticking to one of these selves rigidly, but rather developing a sense of a complex, multifaceted self that provides room for adaptation.

Limitations and Future Research

We conducted an experimental laboratory study with a student sample and one specific measure of cheating. The majority of students were 25 years of age or younger (81%) and many did not have work experience to date (44%). Hence, their experience with leaders was likely limited and a

more experienced working adult sample may have responded differently to authentic leadership. Moreover, we tested the impact of one specific authentic leadership variation. While this variation built on existing, validated study materials (Braun & Peus, 2016; Cianci et al., 2014), it represented only a small part of organizational reality. Leaders and followers typically interact on a daily basis over longer periods of time. The video recording with actors did not enable two-way interactions between leaders and followers over time. Also, participants did not have any opportunities to validate the leaders' self-descriptions (e.g., to compare them to colleagues' opinions). We cannot answer the question whether specific dimensions of authentic leadership (e.g., internalized moral perspective) buffer cheating more than others. Future research can advance the current variation of authentic leadership to test this. Finally, we cannot rule out the possibility that long-term exposure to authentic leadership in organizations does indeed reduce unethical conduct (Shamir, 2011).

Practical Implications

Based on our findings we cannot conclude that followers' perceptions of authentic leadership are an immediate remedy in the face of tendencies toward unethical conduct, such as followers' cheating. Nevertheless, many previous studies demonstrated the positive impact of authentic leadership (Banks et al., 2016; Gardner et al., 2011). In general, management training often covers approaches to increase self-knowledge and self-consistency, factors that precede authentic leadership (Peus et al., 2012). Opportunities for self-reflection support self-concept clarity, including clarity about one's values and moral convictions (e.g., constructing one's life story; Shamir & Eilam, 2005).

Given the findings of this research, we caution against the conclusion that simply training managers in authentic leadership will prevent followers from cheating for their own gain. Instead, organizations need to consider the impact of the interaction between authentic leaders and their followers in the long run (Shamir, 2011). Moreover, previous literature suggested that successful prevention of unethical conduct in organizations requires addressing factors such as opportunity, incentives or pressures, and rationalization of inappropriate actions (Murphy & Dacin, 2011). To avoid organizational members' lacking awareness of or rationalizing their cheating behavior, organizations' ethical values, code of conduct, and sanctions must be aligned (McCabe, Treviño, & Butterfield, 1996; Nitsch, Baetz, & Hughes, 2005).

References

Abeler, J., Becker, A., & Falk, A. (2014). Representative evidence on lying costs. *Journal of Public Economics*, 113, 96–104. doi:10.1016/j.jpubeco.2014.01.005

Alberti, F., & Güth, W. (2013). Studying deception without deceiving participants: An experiment of deception experiments. *Journal of Economic Behavior & Organization, 93*, 196–204. doi:10.1016/j.jebo.2013.04.001

Andersen, S. M., & Chen, S. (2002). The relational self: An interpersonal social-cognitive theory. *Psychological Review, 109*, 619–645. doi:10.1037/0033-295X.109.4.619

Ariely, D. (2012). *The (honest) truth about dishonesty*. New York, NY: HarperCollins Publishers.

Ariely, D., Garcia-Rada, X., Hornuf, L., & Mann, H. (2014). The (true) legacy of two really existing economic systems. *Munich Discussion Papers in Economics 2014-26*. Retrieved from SSRN: http://ssrn.com/abstract=2457000

Ashforth, B. E., & Anand, V. (2003). The normalization of corruption in organizations. *Research in Organizational Behavior, 25*, 1–52. doi:10.1016/S0191-3085(03)25001-2

Association of Certified Fraud Examiners. (2014). *Report to the nations on occupational fraud and abuse*. Austin, TX: Association of Certified Fraud Examiners. Retrieved from https://www.acfe.com/rttn/docs/2014-report-to-nations.pdf

Avolio, B. J., Gardner, W. L., Walumbwa, F. O., Luthans, F., & May, D. R. (2004). Unlocking the mask: A look at the process by which authentic leaders impact follower attitudes and behaviors. *The Leadership Quarterly, 15*, 801–823. doi:10.1016/j.leaqua.2004.09.003

Axelrod, R. (1984). *The evolution of cooperation*. Cambridge, MA: Basic Books.

Bandura, A. (1965). Influence of models' reinforcement contingencies on the acquisition of imitative responses. *Journal of Personality and Social Psychology, 1*, 589–595. doi:10.1037/h0022070

Banks, G. C., McCauley, K. D., Gardner, W. L., & Guler, C. E. (2016). A meta-analytic review of authentic and transformational leadership: A test for redundancy. *The Leadership Quarterly, 27*, 634–652. doi:10.1016/j.leaqua.2016.02.006

Bazerman, M. H., & Gino, F. (2012). Behavioral ethics: Toward a deeper understanding of moral judgment and dishonesty. *Annual Review of Law and Social Science, 8*, 85–104. doi:10.1146/annurev-lawsocsci-102811-173815

Becker, G. S. (1968). Crime and punishment: An economic approach. *Journal of Political Economy, 76*, 169–217.

Becker, G. S. (1993). Nobel lecture: The economic way of looking at behavior. *Journal of Political Economy, 101*, 385–409. doi:10.1086/259394

Brass, D. J., Butterfield, K. D., & Skaggs, B. C. (1998). Relationships and unethical behavior: A social network perspective. *Academy of Management Review, 23*, 14–31. Retrieved from http://amr.aom.org/content/23/1.toc

Braun, S., & Peus, C. (2016). Crossover of work–life balance perceptions: Does authentic leadership matter? *Journal of Business Ethics*, 1–19. doi: 10.1007/s10551-016-3078-x

Bucciol, A., Landini, F., & Piovesan, M. (2013). Unethical behavior in the field: Demographic characteristics and beliefs of the cheater. *Journal of Economic Behavior & Organization, 93*, 248–257. doi:10.1016/j.jebo.2013.03.018

Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology, 58*, 1015–1026. doi:10.1037/0022-3514.58.6.1015

Cianci, A. M., Hannah, S. T., Roberts, R. P., & Tsakumis, G. T. (2014). The effects of authentic leadership on followers' ethical decision-making in the face of temptation: An experimental study. *The Leadership Quarterly, 25*, 581–594. doi: 10.1016/j.leaqua.2013.12.001

Clapp-Smith, R., Vogelgesang, G. R., & Avey, J. B. (2009). Authentic leadership and positive psychological capital: The mediating role of trust at the group level of analysis. *Journal of Leadership & Organizational Studies, 15*, 227–240. doi:10.1177/1548051808326596

Cohn, A., Fehr, E., & Maréchal, M. A. (2014). Business culture and dishonesty in the banking industry. *Nature, 516*, 86–89. doi:10.1038/nature13977

Conrads, J., Irlenbusch, B., Rilke, R. M., & Walkowitz, G. (2013). Lying and team incentives. *Journal of Economic Psychology, 34*, 1–7. doi:10.1016/j.joep.2012.10.011

Conrads, J., & Lotz, S. (2015). The effect of communication channels on dishonest behavior. *Journal of Economic Behavior & Organization, 58*, 88–93. doi:10.1016/j.socec.2015.06.006

Djawadi, B. M., & Fahr, R. (2015). "… and they are really lying": Clean evidence on the pervasiveness of cheating in professional contexts from a field experiment. *Journal of Economic Psychology, 48*, 48–59. doi:10.1016/j.joep.2015.03.002

Effron, D. A., Bryan, C. J., & Murnighan, J. K. (2015). Cheating at the end to avoid regret. *Journal of Personality and Social Psychology, 109*, 395–414. doi:10.1037/pspa0000026

Erat, S., & Gneezy, U. (2012). White lies. *Management Science, 58*, 723–733. doi: 10.1287/mnsc.1110.1449

Erkutlu, H., & Chafra, J. (2013). Effects of trust and psychological contract violation on authentic leadership and organizational deviance. *Management Research Review, 36*, 828–848. doi:10.1108/MRR-06-2012-0136

Fischbacher, U., & Föllmi-Heusi, F. (2013). Lies in disguise—An experimental study on cheating. *Journal of the European Economic Association, 11*, 525–547. doi: 10.1111/jeea.12014

Gardner, W. L., Cogliser, C. C., Davis, K. M., & Dickens, M. P. (2011). Authentic leadership: A review of the literature and research agenda. *The Leadership Quarterly, 22*, 1120–1145. doi:10.1016/j.leaqua.2011.09.007

Gill, D., Prowse, V., & Vlassopoulos, M. (2013). Cheating in the workplace: An experimental study of the impact of bonuses and productivity. *Journal of Economic Behavior & Organization, 96*, 120–134. doi:10.1016/j.jebo.2013.09.011

Gini, A. (1997). Moral leadership and business ethics. *Journal of Leadership & Organizational Studies, 4*, 64-81. doi:10.1177/107179199700400406

Gino, F., Ayal, S., & Ariely, D. (2009). Contagion and differentiation in unethical behavior: The effect of one bad apple on the barrel. *Psychological Science, 20*, 393–398. doi: 10.1111/j.1467-9280.2009.02306.x

Gino, F., Kouchaki, M., & Galinsky, A. D. (2015). The moral virtue of authenticity. How inauthenticity produces feelings of immorality and impurity. *Psychological Science, 26*, 1–14. doi:10.1177/0956797615575277

Deyle, E. (2014). *The new barometer: The global retail theft barometer*. Retrieved from http://www.odesus.gr/images/nea/eidhseis/2015/3.Global-Retail-Theft-Barometer-2015/GRTB%202015_web.pdf

Hiller, N. J., DeChurch, L. A., Murase, T., & Doty, D. (2011). Searching for outcomes of leadership: A 25-year review. *Journal of Management, 37*, 1137–1177. doi: 10.1177/0149206310393520

Hörner, K., Weisweiler, S., & Braun, S. (2015). *Authentic leadership and follower stress perception and coping – Model testing and validation of the Authentic Leadership Inventory.* 75th Annual Meeting of the Academy of Management, Vancouver, BC, Canada. Retrieved from http://proceedings.aom.org/content/2015/1/10922.short

Houser, D., Vetter, S., & Winter, J. (2012). Fairness and cheating. *European Economic Review, 56*, 1645–1655. doi:10.1016/j.euroecorev.2012.08.001

Howell, J. M., & Avolio, B. J. 1992. The ethics of charismatic leadership: Submission or liberation? *Academy of Management Review, 6*, 43–54. doi: 10.5465/ame.1992.4274395

Ibarra, H. (2015). The authenticity paradox. *Harvard Business Review, 93*, 52–59. Retrieved from https://hbr.org/2015/01/the-authenticity-paradox

Ichino, A., & Maggi, G. (2000). Work environment and individual background: Explaining regional shirking differentials in a large Italian firm. *Quarterly Journal of Economics 115*, 1057–1090. doi:10.1162/003355300554890

Javidan, M., & Dastmalchian, A. (2009). Managerial implications of the GLOBE project: A study of 62 societies. *Asia Pacific Journal of Human Resources, 47*, 41–58. doi: 10.1177/1038411108099289

Jiang, T. (2013). Cheating in mind games: The subtlety of rules matters. *Journal of Economic Behavior & Organization, 93*, 328–336. doi:10.1016/j.jebo.2013.04.003

Kernis, M. H. (2003). Toward a conceptualization of optimal self-esteem. *Psychological Inquiry, 14*, 1–26. doi:10.1207/S15327965PLI1401_01

Kiersch, C. E., & Byrne, Z. S. (2015). Is being authentic being fair? Multilevel examination of authentic leadership, justice, and employee outcomes. *Journal of Leadership & Organizational Studies, 22*, 292–303. doi:10.1177/1548051815570035

Leroy, H., Anseel, F., Gardner, W. L., & Sels, L. (2015). Authentic leadership, authentic followership, basic need satisfaction, and work role performance: A cross-level study. *Journal of Management, 41*, 1677–1697. doi:10.1177/0149206312457822

Leroy, H., Palanski, M. E., & Simons, T. (2011). Authentic leadership and behavioral integrity as drivers of follower commitment and performance. *Journal of Business Ethics, 107*, 255–264. doi:10.1007/s10551-011-1036-1

Liden, R. C., Erdogan, B., Wayne, S. J., & Sparrowe, R. T. (2006). Leader-member exchange, differentiation, and task interdependence: Implications for individual and group performance. *Journal of Organizational Behavior, 27*, 723–746. doi: 10.1002/job.409

Lundquist, T., Ellingsen, T., Gribbe, E., & Johannesson, M. (2009). The aversion to lying. *Journal of Economic Behavior & Organization, 70*, 81–92. doi: 10.1016/j.jebo.2009.02.010

Mann, H., Garcia-Rada, X., Houser, D., & Ariely, D. (2014). Everybody else is doing it: Exploring social transmission of lying behavior. *PLoS ONE 9*(10): e109591. doi:10.1371/journal.pone.0109591

Mann, H., Garcia-Rada, X., Hornuf, L., Tafurt, J., & Ariely, D. (2016). Cut from the same cloth: Similarly dishonest individuals across countries. *Journal of Cross-Cultural Psychology, 47*, 858–874. doi:10.1177/0022022116648211

Mann, H., Garcia-Rada, X., Hornuf, L., & Tafurt, J. (2016). What deters crime? Comparing the effectiveness of legal, social, and internal sanctions across countries. *Frontiers in Psychology*, *7,* 1–13. doi:10.3389/fpsyg.2016.00085

Mathys, N. J. (2002). A conversation with C. Richard Panico: Leading an ethically-based organization. *Journal of Leadership & Organizational Studies, 9*, 89-101. doi: 10.1177/107179190200900208

Mazar, N., Amir, O., & Ariely, D. (2008). The dishonesty of honest people: A theory of self-concept maintenance. *Journal of Marketing Research, 45*, 633–644. doi: 10.1509/jmkr.45.6.633

McCabe, D. L., Treviño, L. K., & Butterfield, K. D. (1996). The influence of collegiate and corporate codes of conduct on ethics-related behavior in the workplace. *Business Ethics Quarterly, 6*, 461–476. doi:10.2307/3857499

Meuser, J. D., Gardner, W. L., Dinh, J. E., Hu, J., Liden, R. C., & Lord, R. G. (2016). A network analysis of leadership theory: The infancy of integration. *Journal of Management, 42*, 1374–1403. doi:10.1177/0149206316647099

Murphy, P. R., & Dacin, M. T. (2011). Psychological pathways to fraud: Understanding and preventing fraud in organizations. *Journal of Business Ethics, 101*, 601–618. doi:10.1007/s10551-011-0741-0

Nagin, D. S., & Pogarsky, G. (2003). An experimental investigation of deterrence: Cheating, self-serving bias, and impulsivity. *Criminology, 41*, 167–194. doi:10.1111/j.1745-9125.2003.tb00985.x

Neider, L. L., & Schriesheim, C. A. (2011). The authentic leadership inventory (ALI): Development and empirical tests. *The Leadership Quarterly, 22*, 1146–1164. doi: 10.1016/j.leaqua.2011.09.008

Nitsch, D., Baetz, M., & Hughes, J. C. (2005). Why code of conduct violations go unreported: A conceptual framework to guide intervention and future research. *Journal of Business Ethics, 57*, 327–341. doi:10.1007/s10551-004-8203-6

Peus, C., Braun, S., & Knipfer, K. (2015). On becoming a leader in Asia and America: Empirical evidence from women managers. *The Leadership Quarterly, 26*, 55–67. doi: 10.1016/j.leaqua.2014.08.004

Peus, C., Wesche, J. S., Streicher, B., Braun, S., & Frey, D. (2012). Authentic leadership: An empirical test of its antecedents, consequences, and mediating mechanisms. *Journal of Business Ethics, 107*, 331–348. doi:10.1007/s10551-011-1042-3

Rego, A., Sousa, F., Marques, C., & Pina e Cunha, M. (2012). Authentic leadership promoting employees' psychological capital and creativity. *Journal of Business Research, 65*, 429–437. doi:10.1016/j.jbusres.2011.10.003

Schneider, A., & Schröder, T. (2012). Ideal types of leadership as patterns of affective meaning: A cross-cultural and over-time perspective. *Social Psychology Quarterly, 75*, 268–287. doi:10.1177/0190272512446755

Shamir, B. (2011). Leadership takes time: Some implications of (not) taking time seriously in leadership research. *The Leadership Quarterly, 22*, 307–315. doi: 10.1016/j.leaqua.2011.02.006

Shamir, B., & Eilam, G. (2005). "What's your story?" A life-stories approach to authentic leadership development. *The Leadership Quarterly, 16*, 395–417. doi: 10.1016/j.leaqua.2005.03.005

Shao, R., Aquino, K., & Freeman, D. (2008). Beyond moral reasoning: A review of moral identity research and its implications for business ethics. *Business Ethics Quarterly, 18*, 513–540. doi:10.5840/beq200818436

Skarlicki, D. P., & Folger, R. (1997). Retaliation in the workplace: The roles of distributive, procedural, and interactional justice. *Journal of Applied Psychology*, *82*, 434–443. doi:10.1037/0021-9010.82.3.434

Treviño, L. K. (1986). Ethical decision making in organizations: A person-situation interactionist model. *Academy of Management Review, 11*, 601–617. Retrieved from http://wweb.uta.edu/management/lavelle/New%20Folder/Trevino%201986.pdf

Treviño, L. K., Weaver, G. R., & Reynolds, S. J. (2006). Behavioral ethics in organizations: A review. *Journal of Management, 32*, 951–990. doi:10.1177/0149206306294258

Vidyarthi, P. R., Anand, S., & Liden, R. C. (2014). Do emotionally perceptive leaders motivate higher employee performance? The moderating role of task interdependence and power distance. *The Leadership Quarterly, 25*, 232–244. doi: 10.1016/j.leaqua.2013.08.003

Walumbwa, F. O., Avolio, B. J., Gardner, W. L., Wernsing, T. S., & Peterson, S. J. (2008). Authentic leadership: Development and validation of a theory-based measure. *Journal of Management, 34*, 89–126. doi:10.1177/0149206307308913

Wang, D. S., & Hsieh, C.C. (2013). The effect of authentic leadership on employee trust and employee engagement. *Social Behavior and Personality: An International Journal, 41*, 613–624. doi:10.2224/sbp.2013.41.4.613

Weisel, O., & Shalvi, S. (2015). The collaborative roots of corruption. *Proceedings of the National Academy of Sciences, 112*, 10651–10656. doi:10.1073/pnas.1423035112

Wong, C. A., & Laschinger, H. K. (2013). Authentic leadership, performance, and job satisfaction: The mediating role of empowerment. *Journal of Nursing Management, 69*, 947–959. doi:10.1111/j.1365-2648.2012.06089.x

Table 1. Study conditions.

Condition	No.	Factor 1: Authentic		Factor 2: Cheating norm		Factor 3: Victimization	
		High	Low	Yes	No	Yes	No
Baseline	**[1]**				X		X
Authentic	**[2]**	X					
Non-authentic	**[3]**		X				
Authentic & cheating norm	**[4]**	X		X			X
Non-authentic & cheating norm	**[5]**		X	X			X
Authentic & victimization	**[6]**	X			X	X	
Non-authentic & victimization	**[7]**		X		X	X	

Table 2. Descriptive statistics.

		N	Mean	Median	SD	Min	Max
Age		333	23.35	22	5.06	17	57
Under 21	[1]	92					
Between 21 and 25	[2]	177	[1] vs. [3]: p = 0.0619, P > |z| = 0.0802				
Over 25	[3]	74					
Expectations		337	44.56	45	19.49	0	91
Less than 31%	[4]	96					
Between 31% and 60%	[5]	163	[4] vs. [6]: p = 0.6890, P > |z| = 0.6198				
Over 61%	[6]	82					
Semester		327	5.82	5	3.73	1	22
Work experience		338	0.57	1	0.50	0	1
Yes	[7]	191	[7] vs. [8]: p = 0.7939, P > |z| = 0.8496				
No	[8]	147					
Gender		335	0.35	0	0.48	0	1
Male	[9]	117	[9] vs. [10]: p = 0.1809, P > |z| = 0.0733				
Female	[10]	218					
Marital status							
Single	[11]	155	[11] vs. [12]: p = 0.1314, P > |z| = 0.0687				
In a relationship	[12]	168					
Married	[13]	6					
Divorced	[14]	2					
Other	[15]	2					
Prefer not to answer	[16]	10					
Living standard							
Very well-off	[17]	6					
Living very comfortably	[18]	149					
Living comfortably	[19]	123	[17-19] vs. [20-22]: p = 0.9273, P > |z| = 0.9960				
Just getting along	[20]	43					
Nearly poor	[21]	4					
Poor	[22]	6					
Prefer not to answer	[23]	12					

Differences report p-values on a two-sided t-test between means as well as Prob > z for Mann–Whitney U-tests.

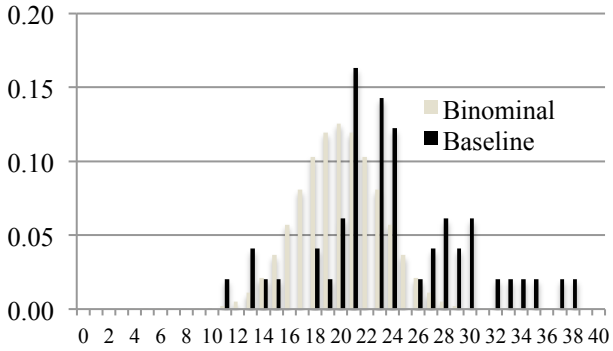
Table 3. Differences in cheating.

		High rolls in %					(1)	(2)	(3)	(4)
		N	Mean	SD	Min	Max	Diff. 50%	Diff. [1]	Diff. Cond.	Diff. 10 vs. 30
Condition 1 (baseline)	**[1]**	49	61.8	13.8	32.5	95.0	$p = 0.0000$***			p=0.9109
Condition 2 (authentic)	**[2]**	47	61.8	12.1	40.0	97.5	$p = 0.0000$***	$p = 0.9755$ P>|z|=0.8802	**[2] vs. [3]** $p = 0.4752$	$p = 0.1909$
Condition 3 (non-authentic)	**[3]**	42	63.5	12.3	40.0	100.0	$p = 0.0000$***	$p = 0.5101$ P>|z|=0.8066	P>|z|=0.7315	$p = 0.4670$
Condition 4 (authentic & cheating norm)	**[4]**	46	61.5	13.1	42.5	92.5	$p = 0.0000$***	$p = 0.5596$ P>|z|=0.6035	**[4] vs. [5]** $p = 0.7529$	$p = 0.7062$
Condition 5 (non-authentic & cheating norm)	**[5]**	55	63.7	15.2	40.0	100.0	$p = 0.0000$***	$p = 0.3854$ P>|z|=0.6287	P>|z|=0.9362	$p = 0.1972$
Condition 6 (authentic & victimization)	**[6]**	52	64.4	15.4	40.0	100.0	$p = 0.0000$***	$p = 0.9096$ P>|z|=0.6353	**[6] vs. [7]** $p = 0.4606$	$p = 0.1222$
Condition 7 (non-authentic & victimization)	**[7]**	51	59.7	11.0	40.0	95.0	$p = 0.0000$***	$p = 0.3936$ P>|z|=0.2001	P>|z|=0.6400	$p = 0.3429$

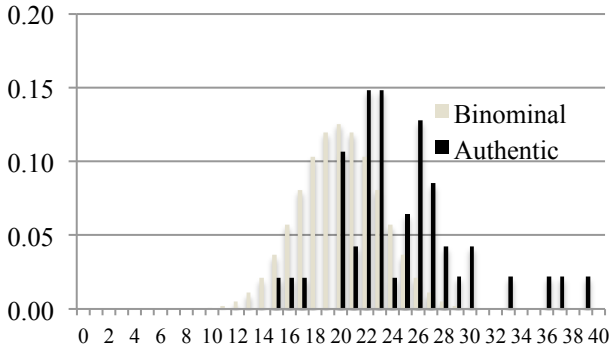
Differences report p-values on a two-sided t-tests as well as Prob > z for a Mann–Whitney U-tests. (1) is the between-subjects variation for rolls 1–40 from the fair outcome of 50% high rolls, (2) is the between-subjects variation for rolls 1–40 from the baseline condition, (3) is the between-subjects variation for rolls 1–40 between the authentic and non-authentic leadership conditions, and (4) reports the difference for the within-subject variation for rolls 1–10 and rolls 11–40 for the respective condition.

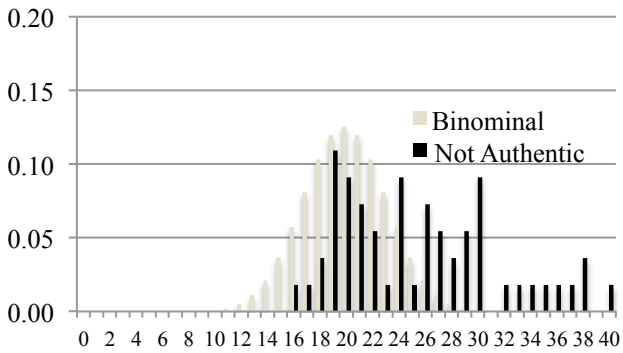
Figure 1. Distribution of average reported outcomes in the cheating-of-mind task

Panel A: Baseline (C1)

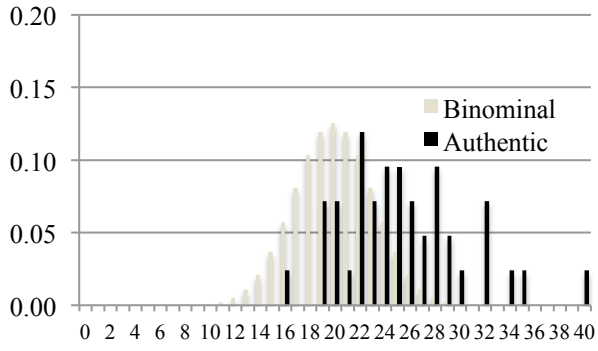


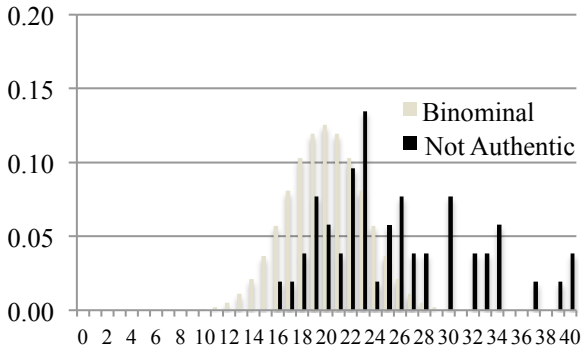
Panel B: Authentic vs. non-authentic leadership (C2 vs. C3)



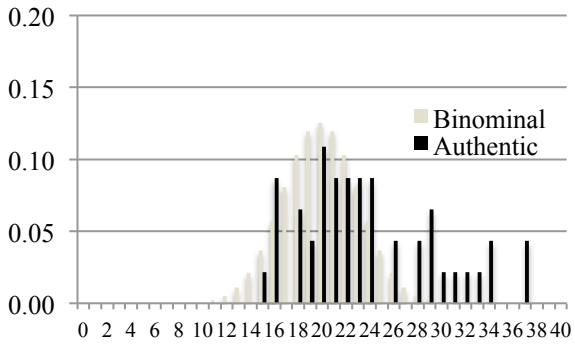


Panel C: Authentic vs. non-authentic leadership and cheating norm (C4 vs. C5)





Panel D: Authentic vs. non-authentic leadership and victimization (C6 vs. C7)



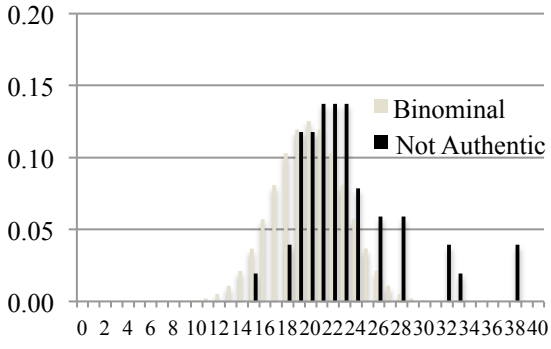
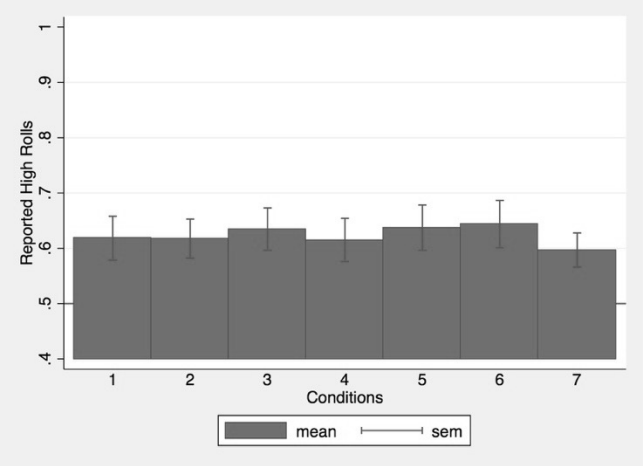
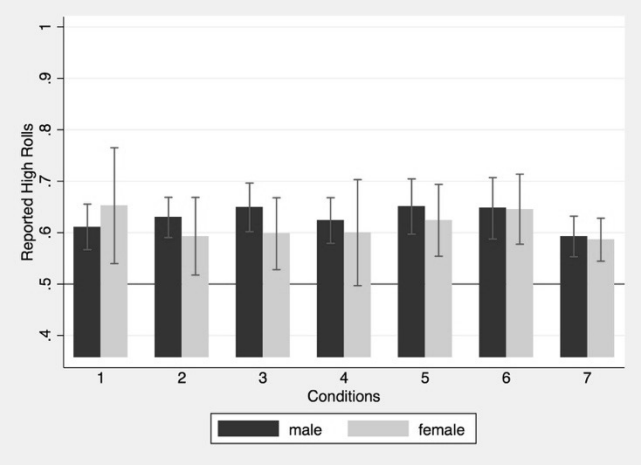


Figure 2. Differences in cheating behavior by conditions and gender

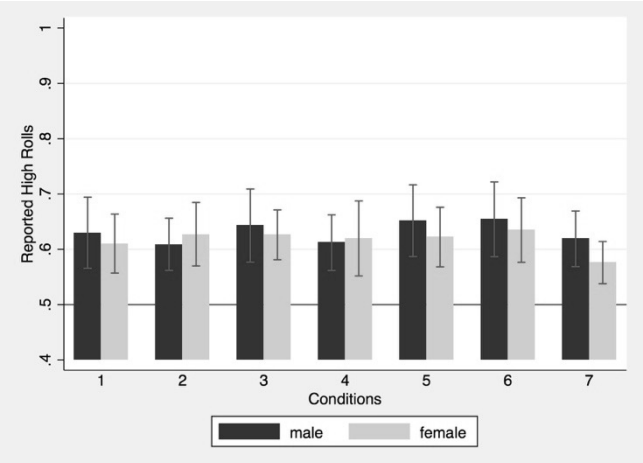
Panel A: Conditions 1–7



Panel B: Conditions 1–7 Gender of participants



Panel C: Conditions 1–7 Gender of supervisor



Appendix. List and definition of variables

Dependent variable:

High roll: 0 = Participants reported that they had rolled a 1, 2, or 3. 1 = Participants reported that they had rolled a 4, 5, or 6.

Explanatory variables

Age: Participants' age as of April 2015.

Education: Reply to the question 'What is the highest level of education you have completed?' 0 = none, 1 = 'Hauptschule' (lower-level high school), 2 = 'Realschule' (high school), 3 = 'Abitur / Fachabitur' (college), 4 = 'Bachelor / Fachhochschulabschluss' (3–4 years of university), 5 = 'Master / Diplom' (4–5 years of university) and 6 = 'Promotion / Aufbaustudium' (doctoral degree, post-graduate degree).

Expectations: Reply to the question 'What is the percentage of participants who have earned more than you in the die task?'

Gender: Gender, 0 = female, 1 = male.

Living standard: Reply to the question 'What describes your standard of living?' on a scale from 1 = very well-off to 6 = poor.

Material standard: Reply to the question 'What is your marital status'. 1 = single, 2 = In a relationship, 3 = married, 4 = divorced, 5 = other, 6 = prefer not to answer.

Semester: Number of semester participants had studied as of April 2015.

Work experience: Reply to the question whether the participant had previous work experience in an organization, 0 = no, 1 = yes.