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Evil Genius? How Dishonesty Can Lead to Greater Creativity

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Abstract

We propose that dishonest and creative behavior have something in common: they both involve breaking rules. Because of this shared feature, creativity may lead to dishonesty (as shown in prior work), and dishonesty may lead to creativity (the hypothesis we test in this paper). In five experiments, participants had the opportunity to behave dishonestly, and thus earn undeserved money, by over-reporting their performance on different tasks. They then completed a task designed to measure creativity. Those who cheated were more likely to be creative after behaving dishonestly, even when accounting for individual differences in their creative ability (Experiment 1). Using random assignment, we confirmed that acting dishonestly leads to greater creativity in subsequent tasks (Experiments 2 and 3). The link between dishonesty and creativity is explained by a heightened feeling of being unconstrained by rules, as we show both through mediation (Experiment 4) and moderation (Experiment 5).

Keywords: creativity; dishonesty; ethics; moral flexibility; rule breaking

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Researchers across disciplines have become increasingly interested in understanding why even people who care about morality predictably cross ethical boundaries. This heightened interest in unethical behavior, defined as acts that violate widely held moral rules or norms of appropriate conduct (Treviño, Weaver, & Reynolds, 2006), is easily understood. Unethical behavior creates trillions of dollars in financial losses every year and is becoming increasingly commonplace (PWC, 2011).

One form of unethical behavior, dishonesty, seems especially pervasive (Bazerman & Gino, 2012). Like other forms of unethical behavior, dishonesty involves breaking a rule –the social principle that people should tell the truth. Much of the scholarly attention devoted to understanding why individuals behave unethically has therefore focused on the factors that lead people to break rules.

While rule breaking carries a negative connotation in the domain of ethics, it carries a positive connotation in another well-researched domain: creativity. To be creative, it is often said, one must 'think outside the box' and use divergent thinking (Guilford, 1967; Runco, 2010; Simonton, 1999). Divergent thinking requires that people break some (but not all) rules within a domain to construct associations between previously unassociated cognitive elements (Bailin, 1987; Guilford, 1950). The resulting unusual mental associations serve as the basis for novel ideas (Langley & Jones, 1988; Sternberg, 1988). The creative process therefore involves rule breaking, as one must break rules to take advantage of existing opportunities or to create new ones (Brenkert, 2009). Scholars have therefore asserted that organizations may foster creativity by hiring people slow to learn the organizational code (Sutton, 2001; 2002), and by encouraging

people to break from accepted practices (Winslow & Solomon, 1993) or to break rules (Baucus, Norton, Baucus, & Human, 2008; Kelley & Littman, 2001).

Given that both dishonesty and creativity involve rule breaking, the individuals most likely to behave dishonestly and the individuals most likely to be creative may be one and the same. Indeed, creative people are more likely to bend rules or break laws (Cropley, Kaufman, & Cropley, 2003; Sternberg & Lubart, 1995; Sulloway, 1996). Popular tales are replete with images of "evil geniuses," such as Rotwang in *Metropolis* and "Lex" Luthor in *Superman*, who are both creative and nefarious in their attempts to ruin humanity. Similarly, news articles have applied the "evil genius" moniker to Bernard Madoff, who made $20 billion disappear using a creative Ponzi scheme.

The causal relationship between creativity and unethical behavior may take two possible forms: the creative process may trigger dishonesty; alternatively, acting unethically may enhance creativity. Research has demonstrated that enhancing the motivation to think outside the box can drive people toward more dishonest decisions (Beaussart, Andrews, & Kaufman, 2013; Gino & Ariely, 2012). But could acting dishonestly enhance creativity in subsequent tasks?

In five experiments, we provide the first empirical evidence that behaving dishonestly can spur creativity, and examine the psychological mechanism explaining this link. We suggest that after behaving dishonestly people feel less constrained by rules, and are thus more likely to act creatively by constructing associations between previously unassociated cognitive elements.

Experiment 1: Cheaters are Creative

In our first study, we examined whether individuals who behave unethically are more creative on a subsequent task, even after controlling for differences in baseline creative skills.

Method

Participants and tasks. One-hundred fifty-three individuals recruited on MTurk (59% male; M_{age}=30.08, SD=7.12) participated in the study for a $1 show-up fee and the opportunity to earn a $10 performance-based bonus. We told participants that 10% of the study participants would be randomly selected to receive this bonus. The study included four supposedly unrelated tasks: the Duncker candle problem, a 2-min filler task, a problem-solving task, and the Remote Association Task (RAT, Mednick, 1962).

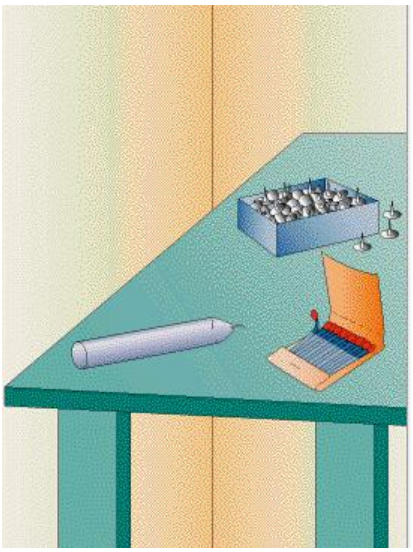
Initial creativity task. Participants completed the Duncker candle problem (Figure 1). They saw a picture containing several objects on a table: a candle, a pack of matches, and a box of tacks, all of which were next to a cardboard wall. Participants had three minutes "to figure out, using only the objects on the table, how to attach the candle to the wall so that the candle burns properly and does not drip wax on the table or the floor." The correct solution consists of emptying the box of tacks, tacking it to the wall, and placing the candle inside, so that the box of tacks is used as a candleholder. Finding the correct solution is considered a measure of insight creativity because it requires people to see objects as capable of performing atypical functions (i.e., the box can function as a stand) (Maddux & Galinsky, 2009). Thus, the hidden solution to the problem is inconsistent with the preexisting associations and expectations individuals bring to the task (Duncker, 1945; Glucksberg & Weisberg, 1966).

Problem-solving task. Participants completed a problem-solving task (consisting of 10 matrices) under time pressure. Each matrix was based on a set of 12 three-digit numbers (e.g., 5.78, see Mazar, Amir, & Ariely, 2008). Participants were presented with one matrix at a time and had 20 seconds to find two numbers per matrix that added up to 10. For each correct solution, participants could receive $1 if they were among those randomly selected. If

participants did not find the solution within the allotted time, the program moved to the next matrix. After participants attempted to solve the 10 matrices, they self-reported their performance. The program recorded participants' answers for each matrix, but the instructions did not explicitly state this. Participants could cheat by inflating their performance on this task.

Creativity measure. Participants completed the RAT, which measures creativity by assessing people's ability to identify associations between words that are normally associated. In this task, participants receive sets of three words (e.g., sore, shoulder, seat) and must find a word that is logically linked to them (cold). Participants had five minutes to solve 17 RAT items. Success on the RAT requires people to break set by thinking of uncommon associations that stimuli words may have instead of focusing on the most common and familiar associations of those words.

Figure 1. Duncker Candle Problem, Experiment 1



Results and Discussion

Forty-eight percent of the participants correctly solved the Duncker candle problem. Almost 59% of the participants cheated on the problem-solving task by reporting a number of solved matrices greater than the number they had actually solved. Cheaters performed better on

the RAT (M=9.00, SD=3.38) than did non-cheaters (M=5.76, SD=3.38), even when controlling for their creative performance on the Duncker candle problem, $F(1,150)=22.03$, $p<.001$, $\eta^2_p=.13$.

Cheating on the matrix task mediated the effect of participants' initial creativity on their RAT performance (Baron & Kenny, 1986). The effect of baseline creativity weakened (from $\beta=.30$, $p<.001$ to $\beta=.15$, $p=.056$) when cheating was included in the regression, and cheating significantly predicted RAT performance ($\beta=.37$, $p<.001$). A bootstrap analysis showed that the 95% bias-corrected confidence interval for the size of the indirect effect excluded zero (0.57, 1.80), suggesting a significant indirect effect (MacKinnon, Fairchild, & Fritz, 2007).

These results provide initial evidence that behaving dishonestly enhances creativity. Individual differences in creative ability between cheaters and non-cheaters do not explain this finding.

Experiment 2: The Act of Cheating Enhances Creativity

One limitation of Experiment 1 is that people selected into cheating. In Experiment 2 we use random assignment to show that acting dishonestly increases creativity in subsequent tasks. We use a task where cheating occurs by omission rather than commission and that involves multiple rounds tempting people to cheat. Because of these features, most people tend to cheat on this task (Shu & Gino, 2012).

Method

Participants and tasks. One-hundred one students from universities in the Southeastern United States (39% male; M_{age}=21.48, SD=7.23) participated in the study for a $5 show-up fee and the opportunity to earn an additional $10 performance-based bonus. The study included two supposedly unrelated tasks: a computer-based arithmetic task and the RAT.

Design. We randomly assigned participants to either the likely-cheating or the control

condition.

Cheating manipulation. Participants completed a computer-based arithmetic game (von Hippel, Lakin, & Shakarchi, 2005; Vohs & Schooler, 2008). This task involved answering 20 different math and logic multiple-choice problems presented individually. Participants had 40 seconds to answer each question, and could earn 50 cents for each correct answer.

In the control condition, participants completed the task with no further instructions. In the likely-cheating condition, the experimenter informed participants that the computer had a programming glitch: While working on each problem, the correct answer would appear on the screen unless they stopped it from being displayed by pressing the space bar right after the problem appeared. The experimenter also informed participants that although no one would be able to tell whether they had pressed the space bar or not, they should try to solve the problems on their own (thus being honest). In actuality, this was a feature of the program and not a glitch, and the number of space-bar presses was recorded. We used the number of times participants did not press the space bar to prevent the correct answer from appearing as our measure of cheating.

Creativity measure. Participants completed twelve RAT problems.

Results and Discussion

Most participants (51/53) cheated in the likely-cheating condition of the arithmetic game. When considering only these 51 participants, we find that RAT performance was higher in the likely-cheating (M=6.20, SD=2.72) than in the control condition (M=4.65, SD=2.98), $t(97)=2.71$, p=.008. Similarly, we find a significant difference in RAT performance ($M_{likely\text{-}cheating}$=6.25, SD=2.70) between conditions when considering all 53 participants, $t(99)=2.83$, p=.006. These results provide further support for our main hypothesis and indicate that cheating increased creativity on a subsequent task.

Experiment 3: Breaking Rules with and without Ethical Implications

One may argue that when people can deviate from the rules, they often do, and this makes them more creative. In Experiment 3, we address this alternative explanation by using two conditions in which participants are just as likely not to follow the rules on how to solve the task at hand, but differ from each other on whether they enable versus not participants to lie. Because of this feature, participants who lie would break another rule, a rule with ethical implications. We propose that breaking rules with ethical implications (i.e., people should not lie) promotes greater creativity than does violating rules without ethical implications because it constitutes a stronger rejection of rules. As a result, we predicted that only the condition that enables lying would enhance creativity, which would provide evidence that *cheating* increases creativity. We also used two different tasks to measure creativity.

Method

Participants. One-hundred twenty-nine individuals recruited on MTurk (58% male; M_{age}=27.72, *SD*=7.86) participated in this study for $2.

Procedure. We described the study as including various tasks, the first of which was a test of verbal abilities through a standard anagram task. To motivate successful performance on this task, we told participants that performance on an anagram task predicts verbal ability, which is highly correlated with career potential. In this task, participants had to complete as many anagrams as they could in three minutes. The instructions specified several rules participants had to follow (see Online Supplemental Materials). For each anagram, participants had to rearrange all the letters in a word to form a new meaningful word (e.g., *tiarst* can make *artist*). Participants had to provide only one answer per anagram, even if the anagram had more than one solution.

Because each anagram had multiple answers, the instructions stated, the program could not validate their answers automatically. Thus, participants had to keep track of how many anagrams they had solved and self-report the number at the end of the task.

Cheating manipulation. After completing the task, participants were randomly assigned to one of two conditions to report their performance: likely-cheating vs. control. A pretest showed that individuals could complete 5-8 anagrams on average in the allotted time. Based on these results, we designed two types of bracketed multiple choices to induce some participants to inflate their performance. In the likely-cheating condition, the options were "0-8: Lower verbal learners, suitable for trade jobs such as factory or machine work." "9-14: Average for college students in good colleges." "15-20: Typical for Ivy League college students.", and "21-higher: Common for English professors and novelists." Most participants would likely fall into the lowest bracket but close to the next level, and thus were tempted to cheat by inflating their performance. In the control condition, the options mirrored the average performance distribution: "0-5: Average for college students in good colleges." "6-10: Typical for Ivy League college students." and "11-higher: Common for English professors and novelists." In this case, most participants would be in an acceptable bracket and relatively far from the next level. Participants in both conditions had the opportunity to break the numerous rules listed in the instructions.

Creativity measure. Participants completed two tasks assessing their creativity: the uses task and seventeen RAT problems as in Experiment 1. For the uses task, they had to generate as many creative uses for a newspaper as possible within 1 minute (Guilford, 1967).

Results and Discussion

Table 1 reports the descriptive statistics of the main variables assessed in the study.

Table 1. Descriptive statistics of the main variables collected in Experiment 3.

	Actual performance	Fluency	Flexibility	Originality	RAT performance
Likely-cheating	4.17	6.02	5.18	3.69	6.85
	(3.26)	(2.02)	(2.01)	(1.21)	(3.82)
Control	4.05	5.20	4.58	3.06	5.47
	(2.89)	(1.70)	(1.78)	(0.97)	(3.38)

Manipulation check. Forty percent of participants (26/65) in the likely-cheating condition cheated, and only 4.7% (3/64) in the control group did, $\chi^2(1,N=129)=23.08$, $p<.001$. Actual performance on the anagram task did not differ between conditions, $t(127)=.23$, $p=.82$.

Creative performance. To assess creativity on the uses task, we coded uses for fluency (i.e., the number of responses), flexibility (i.e., the number of uses that were different from one another), and originality (on average, across the different suggested ideas). RAT performance ($t(127)=2.17$, $p=.032$), fluency ($t(127)=2.47$, $p=.015$), flexibility ($t(127)=1.82$ $p=.072$) and originality ($t(127)=3.24$, $p=.002$) were higher in the likely-cheating than in the control condition, thus demonstrating that cheating enhances creativity.[1]

Experiment 4: Feeling Unconstrained by Rules

We designed Experiment 4 to examine why cheating enhances creativity by measuring people's feeling that they are not constrained by rules. We also used a different task to assess cheating. In our previous studies, we used tasks in which performance was partially due to ability and effort. Such tasks may be cognitively depleting, and behaving honestly may have required greater cognitive effort than behaving dishonestly. In Experiment 4, we used a coin-toss task in which cheating or acting honestly likely involves the same cognitive effort. Finally, we also measured affect to rule out the possibility that emotions partially explain the effects of dishonesty on creativity.

[1] We obtained the same results when comparing the creativity of cheaters vs. non-cheaters (all ps<.01).

Method

Participants. One-hundred seventy-eight individuals recruited on MTurk (47% male; M_{age}=28.59, *SD*=7.72) participated in the study for $1 and the opportunity to earn a $1 bonus.

Procedure. The instructions explained that the goal of the study was to investigate the relationships between people's different abilities like attention, performance under pressure, and luck. Participants also learned that they would receive monetary bonuses based on their performance on different tasks.

Cheating opportunity. We first asked participants to predict the outcome of a virtual coin toss by indicating whether they guessed Heads or Tails. After indicating their prediction, participants had to press a button to actually toss the coin virtually. They were asked to press the button only once. To give participants room for justifying their own cheating, we included a note at the bottom of the screen that stated, "Before moving to the next screen, please press the "Flip!" button a few more times just to make sure the coin is legitimate" (a procedure adapted from Shalvi, Dana, Handgraaf, & De Dreu, 2011). Participants then reported whether they had guessed correctly and received a $1 bonus if they did. The program recorded the outcome of their virtual coin toss so that we could tell whether participants cheated.

Feeling constrained by rules. Afterwards, participants saw each of three pictures (see Figure 2) and used a 7-point scale (1=Not at all, 7=Very much) to respond to the question, "If you were in the situation depicted in the picture, to what extent would you care about following the rules?" We averaged participants' answers across the three items to create a measure for caring about rules (α=.81).

Creativity measure. Participants then completed two creativity tasks as in Experiment 3.

Affect. Participants indicated how they felt right after finishing the coin-flip task. We

measured affect using the twenty-item Positive and Negative Affectivity Schedule (PANAS; Watson, Clark, & Tellegen, 1988), which captured both positive and negative affect (PA: α=.90, NA: α=.90) on a five-point scale (1=Very slightly or not at all to 5=Extremely).

Results and Discussion

Twenty-four percent of participants (43/178) cheated on the coin-toss task. Table 2 reports the descriptive statistics of the main variables assessed in the study.

Table 2. Descriptive statistics of the main variables collected in Experiment 4.

	Fluency	Flexibility	Originality	RAT performance	Care about rules	Positive affect	Negative affect
Cheaters	8.33 (2.80)	6.81 (2.85)	3.60 (1.26)	9.47 (4.38)	3.66 (1.76)	2.52 (0.80)	1.56 (0.62)
Non-cheaters	6.52 (2.31)	5.25 (1.98)	2.33 (1.00)	7.84 (3.38)	5.28 (1.31)	2.42 (0.89)	1.46 (0.63)

Caring about rules. Participants who cheated on the coin-toss task reported caring less about rules than those who didn't, $t(176)=-6.48$, $p<.001$.

Creative performance. Fluency ($t(176)=4.24$, $p<.001$), flexibility ($t(176)=4.02$, $p<.001$), originality ($t(176)=6.85$, $p<.001$) and RAT performance ($t(176)=2.54$, $p=.012$) were all higher for cheaters than they were for non-cheaters.

Affect. Cheaters and non-cheaters reported similar levels of positive and negative affect after the coin-toss task (ps>.36).

Mediation analysis. We tested whether participants' feelings about rules explained the link between cheating and creativity. For this analysis, we standardized the four measures of creative performance and then averaged them into one composite measure. The effect of cheating on subsequent creativity was significantly reduced (from $\beta=.43$, $p<.001$ to $\beta=.35$, $p<.001$) when participants' caring about rules was included in the equation, and such feeling predicted creative

performance (β=-.18, p=.017; 95% bias-corrected CI=[0.02, 0.29]). These results provide evidence for the mechanism explaining the link between dishonesty and cheating: feeling unconstrained by rules.

Experiment 5: Evidence for Mediation through Moderation

In Experiment 4, we tested whether caring about rules explained the relationship between dishonesty and creativity using a traditional mediation approach. In Experiment 5, we provide further evidence for this mediating mechanism using a moderation approach (as recommended by Spencer, Zanna, & Fong, 2005).

Method

Participants. Two-hundred eight individuals from the Northeastern United States (56% male; M_{age}=21.66, SD=2.64; 88% students) participated in the study for $10 and the opportunity to earn additional money.

Design. Participants were randomly assigned to one of four experimental conditions in a 2 (likely cheating [Opaque] vs. no cheating [Transparent]) X 2 (rule-breaking prime vs. neutral prime) between-subjects design.

Procedure. Participants read that they would be completing a series of short tasks involving luck and skill, and that some of them involved a bonus payment.

Cheating manipulation. The first task participants completed was a die-throwing game (Jiang, 2013). In this game, they could throw a virtual online six-side die 20 times for earning points (which then translated to real dollars added to their final payment). Participants were reminded that the pairs of numbers on opposite sides of the die add up to 7: 1 vs. 6, 2 vs. 5 and 3 vs. 4, and vice versa. In the game, we called the visible side facing up of the dice “the up side” (i.e., “U”), and the opposite invisible side facing down “the down side” (i.e., “D”). Participants

received the following instructions:

> In each round, the number of points that you score depends on the throw of the die as well as on the side that you have chosen in that round. Each round consists of one throw. Before throwing, you have to choose the relevant side for that round. Note that the die outcomes are random and the outcome you see on the screen corresponds to the upside. (…) For instance, if you have chosen "D" in your mind and the die outcome turns up to be "4", your earn 3 points for that throw, whereas if you have chosen "U" in your mind, you earn 4 points. Across the 20 rounds you can earn a maximum of 100 points. Each point is worth 20 cents, so you can make a maximum of $20.

Participants were randomly assigned to either the Opaque or Transparent condition.

In the Opaque condition, participants had to make a choice of side in their mind between "U" and "D" before every throw. And, in each round, after throwing the virtual die, they had to indicate the side they had chosen before the throw.

In the Transparent condition, participants were also asked to make a choice of side in their mind before every throw. But, in this case, they had to report their choice before actually throwing the virtual die.

Thus, the Opaque condition tempts participants to cheat (by indicating they had chosen the side of the die that corresponded to the highest number of points in each throw), while the Transparent condition does not allow for cheating.

Breaking-rule manipulation. After the die-throwing task, participants moved onto an ostensibly unrelated task called "Memory Game." Their task was to find matching graphics in a 4X4 grid (i.e., a total of eight different pairs of images). Participants were reminded that we were not interested in how quickly they went through the task, but rather how many clicks it took them to complete it successfully. We used this task to introduce our second manipulation. Half of the participants (those in the rule-breaking prime) were presented with a grid where 5 of the pairs were pictures of people breaking rules (as in Figure 2), and the remaining 3 pairs were neutral pictures (e.g., mountains). Half of the participants (those in the neutral prime) saw 8 pairs of

neutral pictures.[2]

Figure 2. Images used to assess feeling unconstrained by rules, Experiment 4

Creativity measure. Participants completed the same RAT as in Experiment 1.

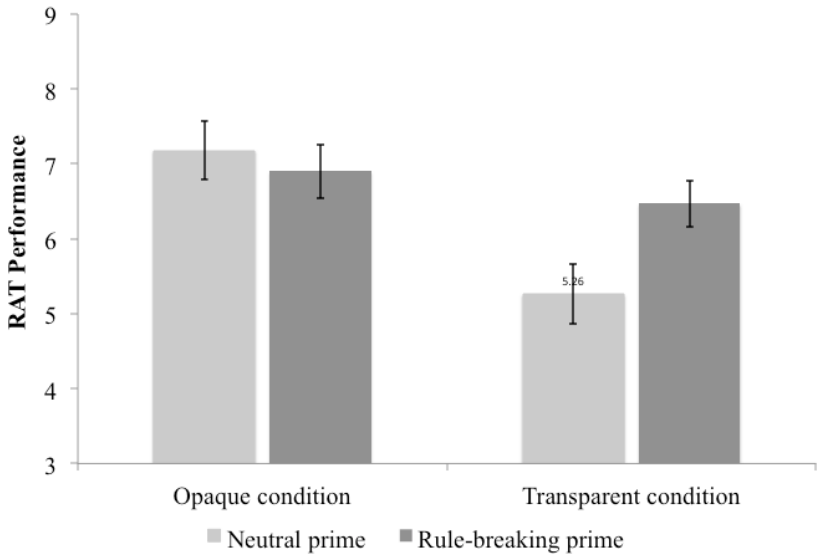
Prediction. We expected the rule-breaking prime to moderate the relationship between cheating and creativity such that this prime would promote creative behavior only in the no-cheating condition. We expected participants in the likely-cheating condition to already feel unconstrained by rules after behaving dishonestly in the mind game.

[2] In pilot study (N=103), we tested the effect of our primes on participants' willingness to follow rules as indicated by their scores on a four-item scale adapted from Tyler and Blader (2005; e.g., "If I received a request from a supervisor or a person with authority right now, I would do as requested"). Participants viewing the rule-breaking prime condition demonstrated less willingness to follow rules (M=5.65, SD=0.79) than did participants viewing the neutral prime (M=6.03, SD=0.91), t(101)=-2.27, p=.025.

Results and Discussion

A 2X2 ANOVA using RAT performance as the dependent measure revealed a significant main effect for the mind-game manipulation, $F(1,204)=10.23$, $p=.002$, $\eta^2_p=.048$, and a non-significant effect for the prime manipulation, $F(1,204)=1.63$, $p=.20$. Importantly, the interaction was significant, $F(1,204)=4.08$, $p=.045$, $\eta^2_p=.02$ (see Figure 3). In the Opaque condition, RAT performance did not vary based on the prime, $F<1$. In the Transparent condition, participants were more creative in the rule-breaking prime condition than in the neutral-prime condition, $F(1,204)=5.29$, $p=.023$. These results provide further evidence that acting dishonestly makes people feel unconstrained by rules, and this lack of constraint enhances creative behavior.

Figure 3. RAT performance across conditions, Experiment 5



General Discussion

There is little doubt that dishonesty creates costs for society. It is less clear whether it produces any positive consequences. This research identifies one such positive consequence. It demonstrates that people may become more creative after behaving dishonestly because acting dishonestly leaves them feeling less constrained by rules.

By identifying potential consequences of acting dishonestly, these findings complement existing research on behavioral ethics and moral psychology, which has focused primarily on identifying the antecedents to unethical behavior (Bazerman & Gino, 2012). These findings also advance our understanding of creative behavior by showing that feeling unconstrained by rules enhances creative sparks. More speculatively, our research raises the possibility that one of the reasons why dishonesty is so widespread in today's society is that by acting dishonestly people become more creative, which allows them to come up with more creative justifications for their immoral behavior and therefore more likely to behave dishonestly (Gino & Ariely, 2012), which may make them more creative, and so on.

In sum, the research shows that the sentiment expressed in the common saying 'rules are meant to be broken' is at the root of both creative performance and dishonest behavior. It also provides new evidence that dishonesty may therefore lead people to become more creative in their subsequent endeavors.

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