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The Dark Side of Creativity: Original Thinkers Can be More Dishonest

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Abstract

Creativity is a common aspiration for individuals, organizations, and societies. Here, however, we test whether creativity increases dishonesty. We propose that a creative personality and creativity primes promote individuals' motivation to think outside the box and that this increased motivation leads to unethical behavior. In four studies, we show that participants with creative personalities who scored high on a test measuring divergent thinking tended to cheat more (Study 1); that dispositional creativity is a better predictor of unethical behavior than intelligence (Study 2); and that participants who were primed to think creatively were more likely to behave dishonestly because of their creativity motivation (Study 3) and greater ability to justify their dishonest behavior (Study 4). Finally, a field study constructively replicates these effects and demonstrates that individuals who work in more creative positions are also more morally flexible (Study 5). The results provide evidence for an association between creativity and dishonesty, thus highlighting a dark side of creativity.

Key words: creativity, creative thinking, dishonesty, intelligence, unethical behavior

"*Evil always turns up in this world through some genius or other.*" - *Denis Diderot (1713-1784)*

The ability to generate novel ideas and think creatively about problems has long been considered an important skill for individuals, as well as for organizations and societies. Individuals' creative problem solving can generate new products and services, which, in turn, create jobs for others (Sternberg, 1999a; 1999b). Creative thinking allows people to solve problems effectively (Mumford & Gustafson, 1988) and also to remain flexible (Flach, 1990) so that they can cope with the advantages, opportunities, technologies, and changes that are a part of their day-to-day lives (Runco, 2004). Societies need new inventions, original scientific findings, and novel social programs to advance, and organizations need them to adapt to changing environments and succeed in the marketplace (Oldham & Cummings, 1996; Goldenberg & Mazursky, 2001; Goldenberg, Mazursky, & Solomon, 1999). The importance of creativity for both human progress and adaptation is likely one reason why scholars across disciplines have been interested for many decades in understanding how creative thinking occurs and how it can be fostered (Simonton, 2003).

Creativity research in psychology has been conducted from different perspectives (Csikszentmihalyi, 1988; Goldenberg & Mazursky, 2000; Wolfradt & Pretz, 2001). Some work has focused on evaluating the creativity of products and accomplishments (e.g., Amabile, 1983; Baer, Kaufman, & Gentile, 2004; Kaufman, Baer, Cole, & Sexton, 2008; Plucker, & Renzulli, 1999); other work has explored the cognitive and motivational processes that lead to creative ideas (e.g., Friedman & Forster, 2001; Hirt, McDonald, & Melton, 1996; Smith, Ward, & Finke, 1995; Sternberg, 1999a) and the contextual factors that influence creative thinking and problem solving (e.g., Forster, Friedman, & Liberman, 2004; Galinsky & Moskowitz, 2000; Markman,

Lindberg, Kray, & Galinsky, 2007; Maddux & Galinsky, 2009); and still other research has examined the relationship between individuals' personality and their creativity (Kershner & Ledger, 1985; for reviews, see Feist, 1998, 1999; Simonton, 2000, 2003).

Despite their varying focus, these approaches share a basic premise: because creativity improves problem solving and opens doors to new solutions and opportunities, creativity should be stimulated. But is creativity always beneficial? While the positive aspects of creativity have been praised and tested empirically (e.g., Goldenberg & Mazursky, 2001; Sternberg, 1999a, 1999b), it is possible that creative thinking may also have a hidden cost in the form of increased dishonesty. In this paper, we test for this possibility and propose that creativity has a dark side when applied to ethical behavior.

Anecdotal evidence hinting at an association between creativity and dishonesty comes from the image of "evil genius" that is often portrayed in movies, novels, comic books, and in the popular media. For instance, in the 1927 movie *Metropolis*, Fritz Lang brought this archetype to the screen in the form of Rotwang, the scientist whose machines gave life to the dystopian city of the title. Likewise, in the novel *Evil Genius* by Catherine Jinks, the protagonist is an only child named Cadel Piggott who has an unusual gift for creative thinking and problem solving. Through his creative insight, he creates a world based on evil, full of embezzlement, fraud, disguise and computer hacking. Another well-known evil genius is "Lex" Luthor of comic-book fame, "a power-mad, evil scientist" of high intelligence and technological prowess whose goal is to kill Superman, usually as a stepping stone to world domination. Finally, news articles have recently used the label "evil genius" to refer to Bernard Madoff, who, over many years, made more than $20 billion disappear in a creative Ponzi scheme that pretended to be a hedge fund.

These examples suggest there could be something about the creative process that triggers dishonest behavior—specifically, that enhancing the motivation to think outside the box can drive individuals toward more dishonest decisions when facing ethical dilemmas. Of course, it could also be the case that dishonest people are more likely to think creatively than are less dishonest ones. Both directions are certainly possible. In this article, we disentangle the causal direction of this relationship and provide the first empirical evidence for the impact of creativity on dishonest behavior. To do so, we conduct five studies using a multi-method approach to investigate whether there is a positive and reliable relationship between creativity and dishonesty. In addition, we examine the psychological mechanisms explaining this link.

Creativity and Dishonest Behavior

Creativity is defined as the ability to produce ideas that are both novel (i.e., original, unexpected) and appropriate (i.e., useful, adaptive to task constraints) (Amabile, 1983, 1988). Over the past several decades, researchers have explored many of the psychological factors that are considered vital to the creative process. These factors include both personal characteristics, such as attraction to complexity or tolerance for ambiguity (Barron & Harrington, 1981; Gough, 1979; Martindale, 1989), and contextual factors, such as deadlines or expected evaluations of creative performance (Amabile, 1979; 1982; Koestner, Ryan, Bernieri, & Holt, 1984; Shalley, 1995; for a review, see Amabile, 1996). Several studies have explored the influence of these factors on creative performance by studying them separately or in combination (e.g., Oldham & Cummings, 1996; Shalley, Zhou, & Oldham, 2004; Woodman, Sawyer, & Griffin, 1993).

Related research has suggested that two main components underlie creative performance: divergent thinking (Guilford, 1968, 1982) and cognitive flexibility (Spiro & Jehng, 1990). Divergent thinking refers to the ability of individuals to develop original ideas and to envision

multiple solutions to a given problem. It involves thinking "without boundaries," or "outside the box" (Thompson, 2008, p. 226). Cognitive flexibility, by contrast, describes the ability of individuals to restructure knowledge in multiple ways depending on changing situational demands (i.e., the complexity of the situation).

We propose that high levels of divergent thinking and cognitive flexibility are likely to be associated with dishonest behavior when individuals are motivated to think creatively, either because of their own personalities or because of cues in the surrounding environment. Divergent thinking is likely to help individuals develop original ways to bypass moral rules. Similarly, cognitive flexibility is likely to help them reinterpret available information in a self-serving way (e.g., when justifying their immoral actions or choices). Thus, both a creative personality and creative thinking may lead individuals to relax their ethical standards or moral values, especially when self interest is activated.

As an example, consider a person's process of figuring out what tax deductions he is comfortable with and what lies beyond his ethically acceptable boundaries. A person who is highly creative or has been asked to think creativity about this task may be more likely to identify creative steps to follow and to justify misreporting on taxes in several novel ways. Indeed, as prior research has suggested, creative people are able to perceive and describe what remains hidden from the view of others (Carson, Peterson, & Higgins, 2003), and they are also able to develop original ideas and to envision multiple solutions to a given problem (Guilford, 1968, 1982). Both creative individuals and those motivated to be creative are able to think "without boundaries" or "outside the box" (Thompson, 2008: 226), and they are also able to restructure existing knowledge in multiple ways depending on changing situational demands (Spiro & Jehng, 1990).

We propose that creativity helps individuals develop original ways to bypass moral rules while allowing them to reinterpret available information in a self-serving way as they attempt to justify their immoral actions. That is, we expect creativity to be positively associated with dishonest behaviors when people face ethical dilemmas (*Hypothesis 1*). We expect this relationship to hold both in the case of dispositional creativity and in the case of cues or primes activating individuals' goals to think outside the box. Several studies have demonstrated that various cues can automatically activate certain goal and need states (Chartrand & Bargh, 1996; Schaller, 2003), and that such states can influence perception and behavior without explicit conscious awareness (Bargh, 1990; Bargh & Chartrand, 1999). Similarly, we expect that creativity primes or cues will increase individuals' motivation to be creative by activating the goal to think outside the box. We propose that the ability to be creative, combined with the motivation to think outside the box, explains the proposed relationship between creative thinking and dishonesty (*Hypothesis 2*).

When their motivation to think outside the box is heightened, individuals may find creative loopholes to solve difficult tasks they are facing, even if that entails crossing ethical boundaries. For instance, in the field of professional legal services, lawyers motivated to think outside the box often end up exploiting the loopholes and ambiguities of the law on behalf of clients, and their "creative compliance" with regulatory requirements undermines the purpose and effectiveness of existing regulations (McBarnet, 1988; McBarnet & Whelan, 1991). In addition, individuals' heightened motivation to be creative may help them generate various credible reasons to justify their own behavior. Creativity is often assessed using measures of fluency, originality, and flexibility (Guilford, 1967; Torrance, 1966). Fluency refers to the number of non-redundant ideas, insights, or problem solutions generated. Originality refers to the

uncommonness or infrequency of these ideas, insights, and solutions (Amabile, 1983; Guilford, 1967; Sternberg & Lubart, 1999; Torrance, 1966). Flexibility refers to the use of different cognitive categories and perspectives (Amabile, 1983; Mednick, 1962). When the goal to think outside the box is activated, individuals are likely to produce ideas and solutions characterized by greater fluency, originality, and flexibility. Given their creative mindset, they are likely to be able to produce novel solutions to problems, as well as novel justifications for their actions – even when those actions are unethical. As robustly demonstrated by recent research, when facing the opportunity to behave dishonestly, individuals tend to cheat, if only by a "little bit" (Ayal & Gino, 2011; Gino, Ayal, & Ariely, 2009). Mazar, Amir, and Ariely (2008) explain this tendency to cheat a little bit, but not as much as one possibly could, by proposing that people cheat to some degree to increase their profit, but not so much as to threaten their positive self-concept as honest human beings. When individuals behave dishonestly, a creative mindset is likely to lead them to more freely categorize their own actions in positive terms and avoid negative updating of their moral self-image, as their creativity can allow them to generate novel justifications for their own behavior (*Hypothesis 3*).

Overview of the Present Research

We tested our main hypotheses in four laboratory studies in which participants had the opportunity to behave dishonestly by overstating their performance and, as a result, earn more money. Furthermore, we collected field data to examine whether individuals in jobs that require high levels of creativity are also more morally flexible than others.

In Studies 1 and 2, we measured creativity as an individual difference and examined whether this personality trait was associated with increased dishonest behavior. In Study 3, we primed cognitions associated with creativity, examined whether they can temporarily promote

dishonesty, and tested whether the motivation to think outside the box mediates the link between creativity and dishonesty. In Study 4, we explored whether participants who are primed to think creatively, as compared to participants in a control condition, are better able to justify their dishonest behavior and thus are more likely to cheat. Finally, in Study 5, we used field data to explore whether individuals who work in more creative positions are also more morally flexible. Across all five studies, we consistently found that the motivation to think outside the box triggered by a creative personality or creativity prime was associated with greater dishonesty and with a greater ability to justify one's own unethical actions.

Study 1: Effects of a Creative Personality

Our first study tests the hypothesis that individuals who naturally have a more creative personality are also more likely to behave dishonestly.

Method

Participants. Seventy-one students from local universities in the Southeastern United States (37 male; M_{age}=21, SD=3.44) enrolled in the study for payment.

Procedure. Participants were told that the study included two different tasks that had been combined for convenience. The first task was a personality questionnaire, which included measures of creative personality in addition to various filler questions about participants' habits and their general experience as students. The second task was a visual perception task that has been previously used to measure dishonesty (Gino, Norton, & Ariely, 2010). Participants learned about what this second task entailed only after they completed the first task. In the visual perception task, participants were presented with a square that was divided into two triangles by a diagonal line (see Figure 1 for an example). In each trial, a total of 20 dots appeared inside the square for one second and then disappeared. The dots were distributed between the two triangles,

and the participants were asked to identify which of the two triangles (right or left) contained more dots by clicking either on a button labeled “more on left” or on a button labeled “more on right.”

The instructions participants received explained how the task worked and gave them an example. The instructions informed participants that their task was “to indicate whether there were more dots on the right side of the square or on the left side of the square” in each round. They were also informed that sometimes a dot may be on the box’s diagonal line.

Importantly, the payout in each trial was determined by the following rule: For each left decision (“more on left”), participants earned 0.5 cents, while for each right decision (“more on right”), they earned ten times as much (i.e., 5 cents). Using this payment structure, on every trial where there were in fact more dots on the left, the task presented a conflict between providing an accurate answer (indicating left) and profit maximization (indicating right). Thus, this payment structure triggered a motivation to find more dots on the right side, given that participants received the payoff simply on the basis of their responses (“more on the left” or “more on the right”) and not on the basis of accuracy.

To make sure participants understood the task, they first played 100 practice trials and received feedback on each trial about what their earnings would be on that trial and cumulatively up to that point if the trials were for real payment. Once the task was clear, participants played 200 trials (which were based on two blocks of 100 identical trials) on which they earned real money. On each trial, they received feedback about their earnings on that trial and on their cumulative earnings up to that point. Given the structure of this task, participants could earn a maximum of $10 on this perceptual task (by always pressing the “more on the right” button), to be added to their $2 show-up fee. Once participants completed this task, they reported their

performance as indicated on the computer on a collection slip, which they were to hand to the experimenter at the end of the study so they could be paid.

We used this task since we wanted to give participants the opportunity to generate reasons to interpret the information they saw on the screen (i.e., the red dots in the square) in a self-serving manner – by convincing themselves that more dots appeared on the right where the payoff was higher. Justification is an important driver of unethical behavior (Bok, 1978; Lewicki & Litterer, 1985; see also Tenbrunsel & Messick, 2004). Schweitzer and Hsee (2002) found evidence consistent with this statement in a study in which sellers of a car provided a buyer with a mileage estimate from a range of possible values. The results indicated that sellers lied to a greater extent when the provided range was wide rather than narrow; they could justify the lie by using their increased uncertainty about the true mileage. Sellers processed the information about the car's mileage in a self-serving manner, allowing them to gain financially. Our task allows for a similar self-serving justification process.

Measures

The questionnaire included several measures of creative personality. The first measure was Gough's *creative personality scale* (Gough, 1979). This measure asked participants to check all the adjectives that best described them from a list of 30 adjectives. The scoring key was such that participants received a point every time they checked an adjective related to creative personality (e.g., insightful, inventive, original, resourceful, unconventional).

The second measure consisted of Hocevar's *creative behavior inventory* (Hocevar, 1980). This inventory includes a list of 77 activities and accomplishments that are commonly considered to be creative (e.g., painted an original picture, wrote an original computer program, excluding school or university work). For each item, participants indicated the frequency of the

behavior in their adolescent and adult life. The scoring rule was to sum up each participant's ratings for the activities included in the inventory.

Finally, the third measure of creative personality was a scale assessing an individual's *creative cognitive style* (Kirton, 1976). This scale includes five items (e.g., "I have a lot of creative ideas"; "I prefer tasks that enable me to think creatively"; "I like to do things in an original way"; α=.82). Participants indicated the extent to which they agreed with each item using a 7-point scale, ranging from 1=strongly disagree to 7=strongly agree. The scoring rule was to average each participant's ratings across the items.

Results and Discussion

As Table 1 shows, the different measures of creative personality were significantly and positively correlated with one another.

Next, we tested our prediction that a creative personality would be associated with high levels of dishonesty. In the perception task, each trial included screens with a different number of dots in the left and right triangles. In 50 of the trials (out of each block of 100), it was clear that one triangle had more dots than the other, while in the remaining 50 trials, it was somewhat ambiguous whether there was a larger number of dots in the left or right triangles. We refer to these trials as "ambiguous," and we focus on them in our analysis since these are the trials that allowed for self-serving interpretation of the information presented (the position of the dots). In particular, in every ambiguous trial, the participants could benefit from unethical behavior by self-servingly and creatively misinterpreting the ambiguous information they were asked to evaluate. That is, participants could intentionally misrepresent their actual perception of these ambiguous trials and report "more on the right" simply because they realized that by doing so

they would earn a higher payoff. Thus, these ambiguous trials can be used to measure dishonesty.

Our first hypothesis implies an interaction effect between our measures for creative personality and financial motivation (practice with zero reward vs. real trials with real reward) in predicting dishonesty in ambiguous trials. Specifically, we predicted that a creative personality would strengthen the relationship between the presence of rewards and participants' level of cheating.

We first conducted regression analyses to examine whether such interaction was significant. In each regression, we included the measure for creative personality of interest, the type of trials (practice trials vs. trials for real money), and their interaction. The analyses produced consistent results independent of the creativity-personality measure considered. When considering Gough's creative personality scale, the interaction was significant ($B_{interaction}$=-.72 [SE=.18], t=-3.95, p<.001) and the effects of the personality scale and the type of trials (whether the trials involved rewards or were practice trials) were significant as well (B_{Gough}=1.00 [SE=.34], t=2.96, p<.01 and B_{trials}=6.31 [SE=2.28], t=2.76, p<.01, respectively). When considering creative cognitive style, the interaction was also significant ($B_{interaction}$=-2.26 [SE=.94], t=-2.41, p<.02), and the two main effects were as well (B_{style}=3.47 [SE=1.71], t=2.03, p<.05 and B_{trials}=7.25 [SE=3.65], t=1.99, p<.05, respectively). Finally, when considering creative behavior inventory, we found the same results regarding the interaction between this third measure for creative personality and the type of trials ($B_{interaction}$=-.04 [SE=.01], t=-2.70, p=.008). In this case, the effect of creative personality was significant ($B_{inventory}$=.08 [SE=.02], t=3.43, p<.01), while that of type of trials was not (B_{trials}=2.45 [SE=1.88], t=1.31, p=.19).

Next, we computed the z-scores for each of the three measures for creative personality. We then averaged the individual scores and created a composite measure of creativity. Using regression analyses, we found a significant interaction between this composite measure for creativity and reward level in predicting dishonesty, $B_{interaction}$=3.71 (*SE*=.92), *t*=4.06, *p*<.001. Thus, once participants moved from practice to real trials, they chose right in ambiguous trials more frequently as their scores on the creative-personality scales rose.

To better interpret this significant interaction, we examined the simple slopes for the relationships between creative personality, reward level, and dishonesty at one standard deviation above and below the means (Aiken & West, 1991). As Figure 2 shows, the introduction of payment after the practice trials was strongly related to the level of cheating when participants had high scores on our composite measure for creative personality (β=.31, *p*<.01), but not when they had low scores (β =.02, *p*=.87).

Taken together, these results are consistent with Hypothesis 1 and suggest that participants with a highly creative personality cheated significantly more than participants with less creative personalities.

Study 2: Effects of Creativity versus Intelligence

Our first study provides evidence for a link between creative personality and dishonesty. Study 2 examines whether creative personality is a better predictor of dishonesty than another dispositional factor often linked to creativity: intelligence. While prior personality research has found a negative relationship between intelligence and academic cheating (Hetherington & Feldman, 1964; Johnson & Gormly, 1971), Sternberg (2001) proposed that there is a dialectical relationship between creativity and intelligence. In his view, intelligence is a necessary condition for creativity, which depends both on generation of novel ideas and critical analysis of novel

ideas. If Sternberg's proposed positive link between intelligence and creativity does in fact exist, one might also wonder whether it is intelligence and not creativity that leads to dishonesty. Study 2 jointly tested the links between intelligence, creativity, and dishonest behavior.

Method

Participants

Ninety-seven students from local universities in the Southeastern United States (45 male; M_{age}=21, SD=3.59) enrolled in the study for payment. Participants were paid a $2 show-up fee and then could earn an additional $20 based on the choices they made throughout the study.

Procedure

A week before they came to the lab to take part in tasks that tempted them to cheat, participants completed an online survey that included dispositional measures of both intelligence and creativity. On the day they showed up at the lab, participants were told the study included three different tasks testing their problem-solving abilities, general knowledge, and perceptual skills, which had been combined for convenience. We randomized the order in which the three tasks were presented to participants. The three tasks were: a problem-solving task (matrix task), a perceptual task (the same task used in Study 1), and a multiple-choice task. Participants had the opportunity to cheat on each of the three tasks.

Dispositional Measures

To assess participants' creativity, we included the same measures used in Study 1. As for intelligence, we used two different measures. The first measure was the Cognitive Reflection Test (CRT), which consisted of three questions designed to test individuals' reliance on logic versus intuition; the questions are correlated with IQ (Frederick, 2005). Each question presents an easy "intuitive" answer that is actually incorrect. For instance, one of the questions asked "A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball

cost?" One might intuitively say, "$0.10." However, this answer is incorrect. A person who is more thorough might respond that the ball actually costs $0.05 (.05+(1+.05)=1.1). Those with higher IQs tend to notice that the intuitive answer contains inconsistencies that deserve a further (and more time-consuming) examination. The second measure used was the Mill Hill Vocabulary Scale, which assesses verbal intelligence (Raven, Raven, & Court, 1998). In this task, participants were presented with a series of ten words (e.g., dwindle, palliate); for each word, they were asked to choose which of six answer options was closest in meaning to the target word.

Tasks

Perception task. This task was the same perception task used in Study 1. Participants could earn up to $10 on this task.

Problem-solving task. Each participant received two sheets of paper. The first was a worksheet containing 20 matrices, each based on a set of 12 three-digit numbers (e.g., 5.78, see Mazar et al., 2008). The second sheet was a collection slip on which participants were asked to report their performance. In this task, participants had five minutes to find two numbers per matrix that added up to 10, but this duration was not sufficient for anyone to solve all 20 matrices. For each pair of numbers correctly identified, participants received $0.25 (for a maximum payment of $5). After the five minutes had passed, participants were told to fold their worksheets and place them in a recycling box positioned in a corner of the room; next, they were asked to write down their performance scores on their collection slip. There were no identifiers on the worksheets so that participants could feel anonymous as they reported their performance on the task. However, we changed the last two digits in one of the matrices on the worksheet and

in the example provided on the back of the collection slip so that we could compare actual to reported performance.

Multiple-choice task. This task consisted of a general knowledge quiz with fifty multiple-choice questions of varying difficulty (e.g., How far can a kangaroo jump? What is the capital of Italy?). Participants received $.10 per correct answer (for a maximum payment of $5). The experimenter told them to circle their answers on the question sheet and explained that they would transfer their answers to a bubble sheet after finishing. When participants finished the quiz, the experimenter told them that, by mistake, she had photocopied bubble sheets that already had the correct answers lightly marked on them. She then asked the participants to use these pre-marked bubble sheets, shred the test sheets with their original responses, and submit the bubble sheets for payment. From these instructions, it was clear that participants could use the pre-marked bubble sheets to cheat when transferring their responses.

Results and Discussion

As Table 2 shows, the different measures of creative personality were significantly and positively correlated with one another, as were the two measures of intelligence. Consistent with the results of Study 1, the measures assessing participants' creative personality were also positively and significantly correlated with the level of dishonesty on each of the three tasks included in the study. However, we did not find evidence for a link between creativity and intelligence, nor a link between intelligence and dishonesty.

In order to examine creativity and intelligence more holistically, we computed a z-score for each of our measures and averaged the individual scores to create one composite measure for creative personality and another for intelligence. We used these composite measures to test whether participants who cheated on the three tasks scored more highly on these dimensions than

those who reported their performance honestly. Compared to non-cheaters, cheaters on the problem-solving task had higher scores on the creativity tests (M=0.22, SD=0.80 vs. M=-0.27, SD=0.77, t[95]=3.06, p=.003), but did not have higher scores on the intelligence tests (M=0.08, SD=0.74 vs. M=-0.10, SD=0.88, t[95]=1.07, p=.29). Similarly, cheaters on the general knowledge quiz had higher creativity scores as compared to non-cheaters (M=0.23, SD=0.90 vs. M=-0.11, SD=0.76, t[95]=1.94, p=.055), but this was not true on the intelligence tests (M=-0.06, SD=0.70 vs. M=0.03, SD=0.86, t[95]<1, p=.62). Finally, cheaters on the perception task had higher creativity scores as compared to non-cheaters (M=0.38, SD=0.81 vs. M=-0.14, SD=0.79, t[95]=2.84, p=.005), but this was not the case on the intelligence tests (M=0.16, SD=0.79 vs. M=-0.06, SD=0.81, t[95]=1.18, p=.24).

We next examined the scores of "extreme cheaters"– namely, participants who cheated close to the maximum extent possible. In each of the three tasks, extreme cheaters had higher scores on the creative-personality tests than people who cheated at a moderate level (problem-solving task: M=0.79, SD=0.80 vs. M=-0.05, SD=0.66, t[51]=4.05, p<.001; general knowledge quiz: M=0.73, SD=0.90 vs. M=-0.34, SD=0.76, t[47]=4.23, p<.001; perception task: M=0.60, SD=0.89 vs. M=0.05, SD=0.71, t[51]=2.42, p<.05). Yet, extreme cheaters had similar scores compared to people who cheated not as much on the two intelligence tests (problem-solving task: M=0.13, SD=0.66 vs. M=-0.06, SD=0.78, t[51]<1, p=.76; general knowledge quiz: M=-0.19, SD=0.75 vs. M=0.08, SD=0.65, t[47]=-1.25, p=.22; perception task: M=0.04, SD=0.70 vs. M=0.10, SD=0.77, t[51]<1, p=.77).

Overall, these findings provide further evidence for creativity as a predictor of dishonest behavior (as predicted by Hypothesis 1) and suggest that highly creative individuals can use this ability when it comes to rationalizing their unethical and self-interested actions.

Study 3: Effects of Priming Individuals to Think Creatively

Our first two studies show that individuals with creative personalities are also more likely to act dishonestly. Study 3 examines whether priming individuals' creative mindset can increase cheating. Specifically, we test the hypothesis that individuals who are primed to think creatively are also going to be more likely to behave dishonestly. In addition, we examine whether this relationship is mediated by an increased motivation to think outside the box.

Method

Participants. Eigthy-three undergraduates from local universities in the Southeastern United States (43 male; M_{age}=21, SD=1.56) enrolled in the study for payment. They were paid a $2 show-up fee and could earn an additional $10 based on their reported performance.

Procedure. Participants engaged in three presumably unrelated tasks: the visual perception task used in Studies 1 and 2 (used to assess dishonest behavior), an anagram task (used to prime creativity), and a creativity test (used to measure participants' motivation to think outside the box).

Practice trials and creativity prime. As in Study 1, participants were given the instructions to the visual perception task and asked to complete 100 practice trials (with no real payoff) so that they could get familiar with the task. After completing the practice phase of the visual perception task, and before engaging in the trials for real payment, participants were randomly assigned to one of two creativity priming conditions. We used a scrambled sentence test, a frequently used method (Bargh & Chartrand, 1999; Chartrand & Bargh, 1996; Vohs, Mead, & Goode, 2006) for manipulating respondents' momentary mindset. All participants were asked to construct grammatically correct four-word sentences (e.g., the sky is blue) from a set of five randomly positioned words (e.g., sky, is, the, why, blue). For the participants in the creative-

thinking condition, 12 of the 20 sentences included words related to creativity (creative, original, inventiveness, novel, new, innovative, invention, creativity, ingenious, imagination, originality, and ideas), while for the participants in the control condition, no words related to creativity were included.

Creativity task. After completing this manipulation, participants completed the Remote Association Task (RAT, Mednick, 1962), a measure commonly used to assess creativity. This task requires individuals to form "mutually distant associative elements into new combinations which are useful and meet specified as well as unforeseen requirements" (Mednick, 1962). The RAT was developed to measure divergent and creative thinking by testing the ability of individuals to identify associations between words that are normally associated. In this task, participants are asked to find a word that is logically linked to all of three words provided. For instance, "cold" is the common word linking the words "sore-shoulder-seat." Participants were given four minutes to solve ten RAT items. Based on instructions developed by Mednick (1962), we counted the number of correct responses for each individual and used this number as our measure of creativity in the analyses presented below.

Trials with real payoff. Next, participants played the perceptual task with real payoffs. At the end of the experiment, participants were asked to fill out a post-experimental awareness questionnaire consisting of six questions (Bargh & Chartrand, 2000). Participants were excluded from the data if they did not complete the priming manipulation correctly (if they missed a prime) or if they indicated awareness of the priming (e.g., "Something to do with creativity, originality, novelty"; "Words like creativity, originality used often") or the purpose of the experiment. Two participants disqualified under these exclusion criteria. Data for the remaining 81 participants were analyzed.

Results and Discussion

Motivation to think outside the box. We first examined whether the creativity prime influenced participants' creative performance on the RAT. Indeed, participants solved a significantly higher number of RAT problems in the creative-thinking condition (M=5.73, SD=2.26) than in the control condition (M=2.12, SD=2.13), $t(81)=7.50$, $p<.001$.

Dishonest behavior. Next, we examined the number of times participants chose right in ambiguous trials. A repeated-measure ANOVA with experimental condition as a between-subjects factor identified a significant effect for blocks ($F[2,158]=33.40$, $p<.001$, $\eta^2=.30$), indicating that dishonest behavior increased across trials. The main effect for condition was marginally significant ($F[1,79]=3.09$, $p=.08$, $\eta^2=.04$). Most importantly, and consistent with our prediction, the interaction between blocks and experimental condition was significant ($F[2,158]=5.19$, $p<.01$, $\eta^2=.06$). As expected, the two groups did not differ in their behavior in the practice trials ($t[79]<1$, $p=.75$), but they did cheat to a different degree after our priming manipulation ($F[1,79]=4.93$, $p<.03$, $\eta^2=.06$). As depicted in Figure 3, the number of times participants chose right in ambiguous trials was significantly higher in the creative-thinking condition than in the control condition – and this pattern persisted during the first and second set of 100 trials.

Mediation analysis. Hypothesis 2 predicted that participants' motivation to be creative (as measured by number of correct solutions in the RAT) would mediate the relationship between the creativity prime and dishonesty. We tested this mediation hypothesis (Baron & Kenny, 1986) using bootstrapping procedures, which establish a confidence interval for the indirect effect; mediation is established when the confidence interval does not include zero (MacKinnon, Fairchild, & Fritz, 2007; Shrout & Bolger, 2002). In the regressions, we used participants' choice

of right on ambiguous trials for real payoff and controlled for their choice of right on ambiguous practice trials. The effect of the creativity prime was reduced to non-significance (from β=.19, p<.01, to β=.06, p=.49) when participants' motivation to be creative was included in the equation, and this heightened motivation was a significant predictor of dishonest behavior on the visual perception task (β=.20, p<.05). A bootstrap analysis showed that the 95% bias-corrected confidence interval for the size of the indirect effect excluded zero (5.77, 23.45), suggesting a significant indirect effect of our creativity manipulation on dishonesty (MacKinnon e al., 2007; Shrout & Bolger, 2002).

Taken together, these results suggest that, compared to participants in the control condition, those in the creative-thinking condition were more motivated to think outside the box and cheated more after the priming manipulation (for at least the next few minutes). The heightened motivation to be creative mediated the effect of the creativity prime on dishonest behavior. Thus, it seems that stimulating creative thinking can lead to increased levels of dishonesty.

Study 4: Creativity, Original Justifications and Dishonesty

So far, we have found consistent evidence for the impact of creativity on dishonest behavior. In Study 4, we examine whether creativity influences people's ability to justify their unethical actions and thus leads them to behave more dishonestly, as predicted by Hypothesis 3.

Method

Participants. One-hundred-eleven undergraduate and graduate students from local universities in the Southeastern United States (52 male; M_{age}=23.27, SD=3.32) enrolled in the study for payment. They were paid a $4 show-up fee and could earn an additional $10 based on their reported performance.

Procedure. Participants engaged in four presumably unrelated tasks: a creativity prime (our manipulation) followed by a two-minute filler task, a creativity task (used to promote participants' motivation to think outside the box), a questionnaire (used to assess participants' ability to justify their actions), and the problem-solving task with the 20 matrices employed in Study 2 (used to assess dishonest behavior).

Creativity prime. Participants were randomly assigned to one of two creativity priming conditions. We used the same scrambled sentence test employed in Study 3 to manipulate respondents' momentary creative mindset. This priming task was followed by a two-minute filler task to distract participants.

Creativity task. We measured creativity using the Duncker candle problem (see Figure 4). Participants were shown 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 were given 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. In this task, finding the correct solution is considered a measure of insight creativity because it involves the ability to see objects as performing atypical functions (i.e., the box is not just a repository for tacks but can also be used as a stand) (Maddux & Galinsky, 2009). Thus, there is a hidden solution to the problem that is inconsistent with the preexisting associations and expectations individuals bring to the task (Duncker, 1945; Glucksberg & Weisberg, 1966).

Questionnaire. Next, participants were asked to share their opinions on a questionnaire. Participants were presented with items from a scale measuring moral disengagement about

cheating. This scale, developed by Shu, Gino, and Bazerman (2011), includes six items measuring people's attitudes about cheating (e.g., "Sometimes getting ahead of the curve is more important than adhering to rules," and "Cheating is appropriate behavior because no one gets hurt"). Participants were asked to read each item and then think about why the statement could be true. Next, they were asked to provide a few reasons and then indicate their agreement with each of the six items using a seven-point scale (1=strongly disagree, 7=strongly agree). We averaged participants' responses across the six items into a moral disengagement score (α=.90). The higher the score, the higher the level of moral disengagement, indicating that participants considered cheating to be morally appropriate. The questionnaire also included various filler questions, which were presented to participants after this moral disengagement scale.

Problem-solving task. Finally, participants completed the problem-solving task with the 20 matrices we employed in Study 2. As before, this task allowed us to measure cheating by computing the difference between participants' self-reported performance and their actual performance.

Results and Discussion

Candle task. A larger percentage of participants correctly solved the candle task in the creative-thinking condition (47.3%, 26/55) as compared to the control condition (26.8%, 15/56), $\chi^2(1,N=111)=5.00$, $p<.05$. This result suggests that our manipulation was effective and enhanced participants' creative insight.

Cheating on the problem-solving task. We computed the difference between each participant's self-reported performance and actual performance on the problem-solving task. Positive differences indicate that participants over-reported their performance and thus cheated on the task in order to make more money. We used this difference score as our dependent

variable. The average number of matrices by which participants overstated their performance was greater in the creative-thinking condition (M=2.71, SD=3.15) than in the control condition, (M=1.09, SD=1.98), $t(109)=3.25$, $p<.01$. Furthermore, the percentage of participants who overstated their performance was also higher (49% vs. 27%, $\chi^2[1,N=111]=5.87$, $p<.05$).

Moral disengagement about cheating. Next, we tested whether our manipulation of creativity affected participants' moral disengagement scores. Participants in the creative-thinking condition reported significantly higher levels of moral disengagement (M=4.98, SD=1.35) than did participants in the control condition (M=3.70, SD=1.51), $t(109)=4.72$, $p<.001$, demonstrating that creativity promoted more reasons and justifications to believe that cheating is morally appropriate.

Mediation analysis. Hypothesis 3 predicted that participants' tendency to justify their unethical actions would mediate the relationship between the creativity prime and dishonesty (i.e., the difference between self-reported performance and actual performance on the problem-solving task). The effect of the creativity prime was significantly reduced (from β=.30, $p<.01$, to β=.19, p=.05) when participants' moral disengagement score was included in the equation, and their moral disengagement score was a significant predictor of dishonest behavior (β=.25, $p<.05$). A bootstrap analysis showed that the 95% bias-corrected confidence interval for the size of the indirect effect excluded zero (0.15, 1.09), suggesting a significant indirect effect of our creativity manipulation on dishonesty (MacKinnon et al., 2007; Shrout & Bolger, 2002). Note that we find the same results in support of mediation when considering who correctly solved the candle task as the independent variable rather than our manipulation for creativity.

Taken together, these results provide further support for the relationship between primed creativity and dishonest behavior. Compared to participants in the control condition, those in the

creative-thinking condition were more motivated to think outside the box, were more likely to justify cheating, and actually behaved more dishonestly on the problem-solving task. Consistent with Hypothesis 3, participants' greater ability to justify cheating triggered by our creativity prime mediated the effect of creativity on dishonesty.

Study 5: Creativity and Dishonesty in the Field

Our first four studies provide evidence for a link between creativity and dishonesty. To increase the external validity of our findings, we collected data from an advertising agency located in the Southern United States. Ninety-nine employees (40 male; M_{age}=33.48, SD=8.16) across seventeen different departments within the same company responded to an online survey that asked them to reflect on their own behavior and state how likely they would be to engage in each of eight ethically questionable behaviors on a seven-point scale (1=Not likely, 7=Very likely). The items included: "Inflate your business expense report," "Tell your supervisor that progress has been made on a project, when none has been made at all," and "Take home office supplies from work" (α=.78). In addition, the survey asked respondents to read two scenarios describing a person who has the opportunity to behave dishonestly (see Appendix) and to indicate on a seven-point scale (1=Not likely, 7=Very likely) how likely they would be to behave unethically if they were in the actor's shoes. Finally, the survey asked respondents to identify their department within the company and to indicate how much creativity they thought was required on their job using a seven-point scale (1=Not at all, 7=Very much). Using a 10-point scale (1=Not at all, 10=Very much), three managers in the executive office also provided ratings for the level of creativity required in each department.

We computed the z-scores for the three measures, namely employees' reported likelihood to behave dishonestly, employees' perceived level of creativity required on the job, and

managers' rated level of creativity required in each department. The ratings provided by managers for the level of creativity required in each department and the ratings provided by employees for the level of creativity required in their job were positively and significantly correlated (r=.53, p<.001). More interestingly, the ratings employees provided for their likelihood to behave dishonestly were positively and significantly correlated with both the level of creativity required in their department (r=.30, p<.01) and the level of creativity required on their job (r=.20, p<.05). Similarly, across the two ethical dilemmas, the higher the level of creativity required in their department (r=.46, p<.01) and the higher the level of creativity required on their job (r=.24, p<.05), participants reported being more likely to act unethically if they were in the actor's shoes. These results provide further evidence for an association between creativity and dishonesty.

General Discussion

Over the last three decades, an increasing number of studies have highlighted the importance of creativity for individuals, organizations, and societies. The majority of this work has stressed the potential and real benefits of creative thinking. For instance, research has shown that creative products generate an average return that is significantly higher than that of "common" products (Horibe, 2001), and investments in creativity and innovation positively impact organizational performance (Lev, 2004). Creativity is also beneficial at the individual level, as it helps us manage our daily life and find creative solutions to both ordinary and difficult problems.

This paper casts a shadow on the widespread view that creativity always leads to "good." In five studies, we demonstrated that creativity might also produce negative effects by leading individuals to more frequently engage in dishonest behavior. Our first study found a significant

relationship between creative personality and dishonesty, while our second study demonstrated that creativity is a better predictor of dishonest behavior than intelligence. The third and fourth studies showed that participants who were primed with a creative mindset were more likely to cheat than were participants in a control condition. These studies also demonstrated that participants who were primed to think creatively were more likely to behave dishonestly because of their enhanced motivation to be creative (Study 3) and their greater ability to justify their dishonest behavior (Study 4). Finally, a field study demonstrated that employees who are in positions that require creativity are more likely to do wrong in the workplace.

Theoretical Contributions

The contributions of this research are threefold. First, we contribute to the creativity literature by offering new insights on the potential dark side of creative thinking. Prior work has identified several variables that significantly promote or inhibit creative performance and has argued for the importance of enhancing these factors with the primary goal of increasing creativity. Here, we highlight the potential unintended consequences of creativity. A heightened motivation to be creative helps individuals solve difficult tasks across many domains, but creative sparks may lead individuals to take unethical routes when searching for solutions to problems and tasks.

Second, we contribute to prior work on moral psychology and ethical decision making. Our findings are consistent with research highlighting the importance of psychological factors in driving people's unethical behavior. An emerging literature has begun to identify when these often-subtle factors influence, consciously and unconsciously, decisions to behave unethically (Chugh, Bazerman, & Banaji, 2005; Gino & Pierce, 2009; Mazar et al., 2008; Monin, Sawyer, & Marquez, 2008; Jordan & Monin, 2008; Tenbrunsel & Messick, 2004). Here, we extend this

body of work by showing that greater creativity can lead to greater dishonesty and that greater ability to justify one's own actions modifies perceptions of ethicality.

Finally, the present work plants a first step in a research domain that is highly relevant to the increasingly changing, innovative, and competitive world of the 21st century. As innovation has increased, this century has weathered a series of accounting scandals as well as the collapse of several billion-dollar companies, dramatically changing the business landscape in the process. Dishonesty and innovation are two of the topics most widely written about in the popular press. Yet, to date, the relationship between creativity and dishonest behavior has not been studied empirically. We believe that an understanding of this relationship has several important implications for education, business, and policy. The results from the current paper offer the first empirical demonstrations of the association between creativity and dishonesty, as well as evidence of the important role of motivation in explaining this relationship. However, given the fact that these studies are the first to explore this phenomenon, future research is needed to better clarify the nature and consequences of this relationship and to resolve limitations inherent in the present studies.

Limitations and Directions for Future Research

These contributions must be qualified in light of several important limitations of our research. First, in our studies we measured creativity with validated personality scales, with a priming task, or by considering how much creativity a certain job requires. Although the use of different measures and manipulations strengthen the generalizability of our findings, we did not measure whether these manipulations differently affect the motivation to think outside the box and thus have effects on dishonest behaviors that vary in strength. Future research could explore whether other types of manipulations for creativity operate in the same manner as the one

observed in our studies and directly compare the effects of dispositional creativity and primed creativity.

In addition to such explorations, our work points to many other avenues for future research. The four studies presented in the paper emphasize the importance of further examining the consequences of creativity. Scholars need to gain more knowledge regarding both the positive and negative consequences of thinking outside the box before fully embracing the recommendation to stimulate creativity in organizations and society more broadly. With this goal in mind, future research could investigate the boundary conditions of the effects observed in our studies and examine how people, organizations, and society can foster creativity and benefit from individuals' creative sparks while avoiding unintended evil solutions.

By calling attention to a previously underexplored relationship, the one between creativity and dishonesty, our studies have uncovered findings of both theoretical and practical importance. We hope this research will stimulate future endeavors that can further our understanding of how the motivation to think outside the box, triggered by creativity primes or a creative personality, can lead to dishonest behavior.

Conclusions

In the current studies, we found a robust relationship between creativity and dishonesty. This research provides a critical first step toward understanding how creative thinking is associated with unethical behavior, two often-discussed ingredients of our complex world. Across five studies, we demonstrated that both a creative personality and creativity primes promote individuals' motivation to think creatively, such that higher scores on dispositional creativity or exposure to creativity primes lead to an increased motivation to think outside the box. In turn, this increased motivation promotes dishonesty. Our results suggest that there is a

link between creativity and rationalization. As Mazar et al. (2008) proposed, the ability of most people to behave dishonestly might be bounded by their ability to cheat and at the same time feel that they are behaving as moral individuals. To the extent that creativity allows people to more easily behave dishonestly and rationalize this behavior, creativity might be a more general driver of this type of dishonesty and play a useful role in understanding unethical behavior.

Appendix

Scenarios used in Study 4

1. Steve is the Operations manager of a firm that produces pesticides and fertilizers for lawns and gardens. A certain toxic chemical is going to be banned in a year, and for this reason is extremely cheap now. If Steve buys this chemical, produces and distributes his product fast enough, he will be able to make a very nice profit. *If you were Steve, how likely is it you would use this chemical while it is still legal?*

2. Dale is the Operations manager of a firm that produces health food. Their organic fruit beverage has 109 calories per serving. Dale knows people are sensitive to crossing the critical threshold of one hundred calories. He could decrease the serving size by 10%. The label will say each serving has 98 calories, and the fine print will say each bottle contains 2.2 servings. *If you were Dale, how likely is it you would cut the serving size to avoid crossing the 100 threshold?*

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Tables

Table 1

Descriptive statistics and correlations of the measures for creative personality, Study 1

	M	SD	1	2
1. Gough's creative personality scale	9.90	3.82		
2. Creative cognitive style	3.58	0.77	.45***	
3. Creative behavior inventory	87.70	51.57	.32***	.32***

*** $p<.001$

Table 2

Descriptive statistics and correlations, Study 2

		M	SD	1	2	3	4	5	6	7
Creative personality	1. Gough's creative personality	11.24	2.81							
	2. Creative cognitive style	3.74	0.75	.54***						
	3. Creative behavior inventory	147.29	40.74	.45***	.54***					
Intelligence	4. Cognitive Reflection Test score	1.22	1.10	.003	-.04	-.04				
	5. Mill vocabulary test score	6.49	1.67	.001	-.08	.02	.30**			
Tasks	6. Cheating level on problem solving task	2.92	4.54	.53***	.35**	.42***	.04	.04		
	7. Cheating level on multiple-choice task	3.33	5.86	.31**	.25*	.25*	.02	-.11	.62**	
	8. Cheating level on perceptual task	837.51	186.85	.33**	.25*	.29**	.06	.05	.34**	.27**

*** $p<.001$; ** $p<.01$; * $p<.05$

Note. The dark rectangle depicts the relationship between the creativity measures and dishonesty. The dark square depicts the relationship between the intelligence measures and dishonesty.

Figure Captions

Figure 1. Example of perceptual task, Studies 1-3.

Figure 2. Study 1 regression slopes for creative personality. The y-axis reports the number of times participants pressed the "more on the right" button on ambiguous trials (our proxy for participants' level of dishonesty).

Figure 3. Number of times participants pressed the "more on the right" button on ambiguous trials, Study 3. Error bars represent standard errors.

Figure 4. Duncker Candle Problem, Study 4.

Figure 1.

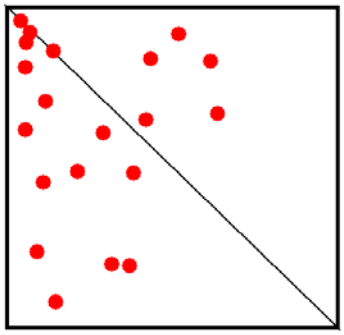

Figure 2.

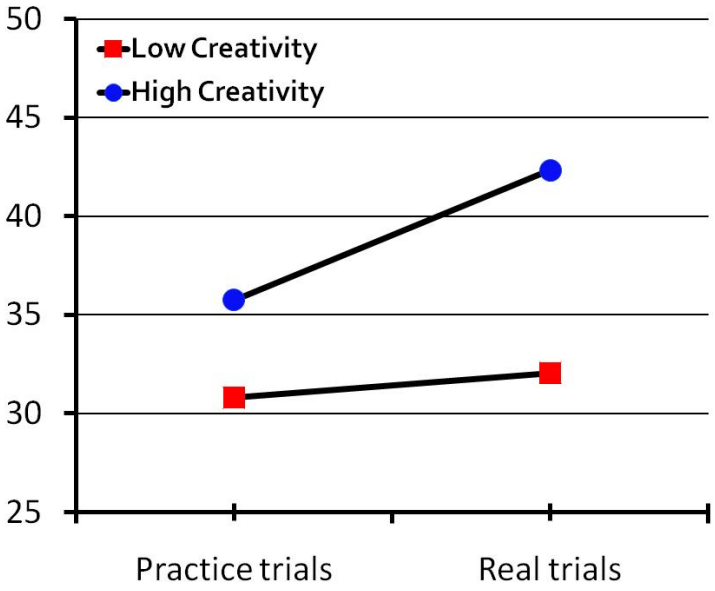

Figure 3.

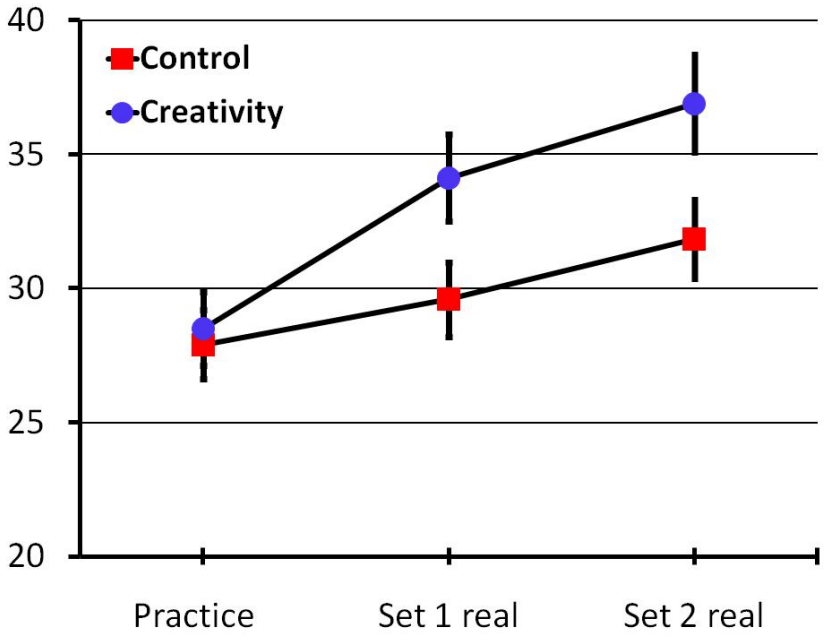

Figure 4.