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# Malevolent Creativity: A Cross-Cultural Study

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Malevolent Creativity: A Cross-Cultural Study

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### Abstract

Creativity is most often perceived to be a highly desirable and exclusively positive attribute, yet both history and a growing body of research remind us that creativity is not always benevolent. When creativity is deliberately used to cause harm, it is known as “malevolent creativity.” An extreme example of malevolent creativity is the development of the atomic bomb. To better understand the mechanisms underlying the production of malevolently creative products and problem solutions, this study investigated the degree to which demonstrations of benevolent creativity (commonly referred to simply as creativity), creative self-efficacy (a personal judgment of one’s own creative ability), and psychological entitlement (feelings that one is more deserving than others) influenced demonstrations of malevolent creativity among college students. Additionally, the potential role played by culture in the manifestation of malevolent creativity was explored by recruiting participants from the US ( $n_1 = 60$ ) and China ( $n_2 = 60$ ). In the present study, creative self-efficacy was found to be a significant predictor of malevolent creativity for both US and Chinese participants. However, benevolent creativity only predicted malevolent creativity for US participants, suggesting that malevolent creativity emerged as a more separate construct from benevolent creativity in China than in the US.

*Keywords:* creativity, malevolent creativity, creative self-efficacy, cross-cultural study

### Malevolent Creativity: A Cross-Cultural Study

Creativity solves problems large and small, and often brings joy to both the creator and the recipients of the creative act. It is little wonder that this ephemeral construct is most often perceived to be a highly desirable and exclusively positive attribute of a person, an organization, or a society as a whole. Although researchers have yet to arrive at a universal definition, creativity is generally viewed as the cognitive ability to connect previously unrelated ideas in a novel and useful way (Guilford, 1950), an ability seen as the key to innovation and progress in the world today. However, a growing body of research reminds us that creativity is not always benevolent. Negative applications of creativity are frequently seen in crime and terrorism, where perpetrators use novel means to achieve negative and harmful goals and spread fear. Extreme examples such as the development of the atomic bomb also demonstrate how people can creatively cause harm to others and to themselves.

When researchers investigate dark sides of creativity, they make a distinction between negative creativity (NC) and malevolent creativity (MC) (Cropley, 2010; Cropley, Kaufman, & Cropley, 2008; Harris, Reiter-Palmon, & Kaufman, 2013; James, Clark, & Cropanzano, 1999). NC refers to creativity that is harmful to others without malevolent intentions (James, Clark, & Cropanzano, 1999). Clark and James (1999) showed examples of NC in organizational settings, including finding novel ways of stealing from a company or of avoiding doing unpleasant work at the expense of others. While employees who might steal from their company or avoid work can be said to negatively apply their creativity, they are not necessarily performing those actions with destructive or malevolent intent. Employees who steal or shirk their work responsibilities are focused on benefiting themselves but are not necessarily acting with the intention of bringing down their company or organization. They have a vested interest in the success and growth of

that company. In fact, NC may sometimes arise from well-intentioned creativity or inventions intended for the common good. For example, it is argued that Pasteur and Jenner's discoveries about the role of germs in disease and the efficacy of vaccinations led to the use of biological toxins in wars (Cropley et al., 2008). On the other hand, when creativity is *intentionally* employed as a means to nefarious ends, it is characterized as MC (Cropley et al., 2008). Common malevolently creative behaviors include novel instances of deception, bullying, and theft with the intention to harm others (Harris & Reiter-Palmon, 2015). In the example of stealing from a company, if employees steal secrets from their company and sell them to its competitors, this action would be a demonstration of MC.

The recent recognition of MC by academics and theorists has resulted in many new research directions and questions. For example, researchers have recently begun to examine the relationship between MC and personality, and have found that trait physical aggression as well as implicit aggression, an aggression beyond one's conscious awareness, are both positively correlated with demonstrations of MC (Harris & Reiter-Palmon, 2015; Lee & Dow, 2011). In addition, Gutworth, Cushenbery, and Hunter (2016) applied social information processing theory (Salancik & Pfeffer, 1978) to their data and found that, controlling for individual differences in personality and cognitive ability, situational factors are also predicative of MC.

While these studies and a few others like them lay a foundation for understanding the antecedents of MC, the experimental and theoretical exploration of MC is still in its infancy. More empirical work is needed to further explore the precursors of MC and the mechanisms underlying its development. A more complete, more nuanced understanding of MC would ultimately elucidate how creative problem-solving skills and innovation can be fostered while minimizing the chances that creative breakthroughs and insights will be used toward malevolent

ends. The current study investigated the degree to which both individual difference variables (i.e., creative performance, creative self-efficacy, and psychological entitlement) and environmental factors (i.e., culture) influence demonstrations of MC among college students.

### **Benevolent Creativity**

Since investigations of MC and NC are relatively recent, the majority of the studies and theories contributing to the empirical investigation of creativity have been focused on benevolent creativity (BC), which is often simply referred to as “creativity” with the assumption that creativity is an entirely benevolent construct. Single-factor theories of BC are based on the premise that individual differences in BC can be explained by a general trait or a single set of cognitive skills, similar to the so-called *g* factor of intelligence (Spearman, 1904). This view has been very popular for many years (Baer, 2012; Lee & Dow, 2011). However, while the operationalization of BC as a relatively stable trait that cuts across a variety of performance domains might make the training, promotion, and assessment of BC much simpler, there is considerable empirical evidence to suggest that a multi-domain or even a domain-specific view of BC is needed (Dow & Mayer, 2004; Plucker, Beghetto, & Dow, 2004; Silvia, Kaufman, & Pretz, 2009). For example, research into the creativity of products suggests that the level of creative performance attained by an individual in one performance domain, be that verbal, mathematical, or artistic, is often unrelated to level of creative performance reached in other performance domains (Baer, 2012).

In addition to categorizing creative performance according to specific domain, creative performance can also be explored in terms of underlying cognitive processes. When BC is viewed as a cognitive process, a distinction is often made between convergent thinking and divergent thinking. Convergent thinking involves the bringing together of different ideas and

perspectives to determine a single solution to a problem, whereas divergent thinking entails searching for multiple solutions to a single problem (Zmigrod, Colzato, & Hommel, 2015). Both convergent and divergent thinking tests have been widely applied to the operationalization and measurement of creativity (e.g., Akbari Chermahini & Hommel, 2010; Mednick, 1962; Taft & Rossiter, 1966). One famous measure employed to examine convergent thinking is the Remote-Association Task (RAT) (Mednick, 1962), which was later extended by Bowden and Jung-Beeman (2003) to the Compound Remote-Association Test (CRA). In this series of paper-and-pencil tasks, participants are required to find a word that can form a compound word pair with each of three unrelated words. For example, the three words “fountain,” “baking,” and “pop” are associated with the solution “soda.” Reaching this solution requires “creative thought” because the most immediate information retrieved in solution attempts is often not correct, and people need to think of more distantly related or seemingly unrelated information in order to connect the three words (Bowden & Jung-Beeman, 2003).

Conversely, to assess divergent thinking, Guilford (1957) developed the Alternate Uses Task (AUT), where participants are asked to list as many different uses of everyday items, such as brick, as they can. Performance on this task can be measured in terms of flexibility, fluency, and elaboration of responses. While divergent thinking is thought to be more emblematic of BC, as it resembles the process of brainstorming and is positively correlated with open-mindedness and aspects of a creativity personality (McCrae, 1987), the RAT and the CRA are more commonly used to assess BC primarily because they are easier to administer and score. Importantly, however, recent studies have shown that there is no significant correlation between performance on the CRA and the AUT tasks (Akbari Chermahini & Hommel, 2010), supporting

the contention that convergent thinking and divergent thinking are distinct components of creativity or creative problem solving.

Creative performance has also traditionally been seen as involving the “four Ps:” person, process, product, and press (i.e., environment) (e.g., Rhodes, 1961). Some researchers investigate BC in terms of persons (e.g., Wallace & Gruber, 1989), while others operationalize BC as a process (e.g., King, 1992) or the tangible outcome of that process: a final product (e.g., Bailin, 1988; Clifford, 1958; Hennessey & Amabile, 2010). In fact, over time, there has been a gradual shift towards assessing BC in terms of the production of creative products. As argued by Bailin (1988, p. 5): “The only coherent way in which to view creativity [BC] is in terms of the production of valuable products.”

Empirical evidence supports Bailin’s view and shows that people consistently tend to come to consensus when evaluating the creativity of products (Amabile, 1982; Hennessey & Amabile, 2010). Although the concept of BC may be difficult to define, over 30 years of research have clearly established that product creativity can be reliably and validly assessed based upon on the consensus of experts. Product creativity is something that people can recognize and agree upon when they see it (Hennessey, Amabile, & Mueller, 2011).

This phenomenon has prompted the development of the Consensual Assessment Technique (CAT) (Amabile, 1982, 1983; Hennessey & Amabile, 1999; Hennessey et al., 2011), which involves a panel of judges using their own subjective definitions of creativity to assess the relative creativity of tangible products, such as collages, haikus, and cartoon captions. Judges do not confer with one another, nor are they trained in any way; and yet, almost without exception, their ratings show extremely high levels of reliability or agreement (often with Chronbach’s alpha levels of .90 or better) (Hennessey et al., 2011). In addition to BC, judges are often asked

to evaluate product technical goodness and their general liking for each product as well. In this way, researchers are able to examine whether assessments of creativity are, in fact, distinct from ratings of other product dimensions. Since its inception, researchers have consistently corroborated the validity of the CAT approach (e.g., Hennessey et al., 2011). In fact, the CAT is now commonly identified in the literature as the “gold standard” of BC assessment approaches (e.g., Baer & McKool, 2014).

### **Creative Self-Efficacy**

The concept of self-efficacy refers to a personal judgment of “how well one can execute courses of action required to deal with prospective situations” (Bandura, 1982, p. 122). When individuals believe they have the potential to perform well on certain tasks, they are often especially motivated to try to learn and perform those tasks. Thus, self-efficacy is theorized to be a powerful determinant of performance (Bang & Reio, 2017).

The construct termed creative self-efficacy originated from social cognitive theory (Bandura, 1982). According to this formulization, self-efficacy serves as an influential motivational factor leading to creativity and innovation (Bandura 1997). Tierney and Farmer (2002) defined creative self-efficacy as “the belief one has the ability to produce creative outcomes” (p. 1138). Empirical evidence of creative self-efficacy in the realm of business shows that creative self-efficacy is a significant predictor of employees’ creative performance (Shalley, Zhou, & Oldham, 2004; Tierney & Farmer, 2011). Carmeli and Schaubroeck (2007) found that employees’ creative self-efficacy was positively associated with their involvement in creative work, an antecedent of creative performance. Additionally, creative self-efficacy has been shown to mediate the relationship between knowledge sharing and employee innovation (Hu & Zhao,

2016); creative self-efficacy has also been shown to partially mediate the relationship between optimism and innovative behaviors (Li & Wu, 2011).

More recently, the investigation of creative self-efficacy has been conducted in educational settings to examine how creative self-efficacy influences students' academic and creative performance at school (e.g., Beghetto, 2006; Karwowski, 2014; Puente-Díaz & Cavazos-Arroyo, 2016). Beghetto (2006) found that middle and secondary school students' creative self-efficacy was positively related to their teachers' feedback on their creative ability. Additionally, Karwowski's (2014) study demonstrated that creative self-efficacy is positively associated with the growth mindset (Dweck, 2006; Haimovitz & Dweck, 2016), which fuels creativity and learning in children. Thus, researchers often propose fostering students' creative self-efficacy as a means to boost their creativity at school (e.g., Beghetto, 2006). Taken together, these and other studies offer convincing evidence that creative self-efficacy is a strong predictor of creative performance in both work and school settings.

### **Psychological Entitlement**

Psychological entitlement, operationalized as the relatively stable belief that "one should receive desirable treatment with little consideration of actual deservingness" (trait entitlement) (Harvey & Martinko, 2009, p. 459) has also been linked to creative performance. Entitled people are often unapologetic about getting what they want, without regard for anyone else. By definition, entitled people feel that the rules just do not apply to them. Importantly, the breaking of rules, the so-called "thinking outside the box," is fundamental to creative performance and problem solving (Gino & Ariely, 2012).

Yet, researchers emphasize that entitlement can also be viewed as a transitory psychological state (state entitlement), suggesting that a person's sense of entitlement varies at

different times and across different situations (Tomlinson, 2013; Zitek & Vincent, 2015). For example, in one investigation, study participants' self-reported state entitlement increased after recalling an unfair event (Zitek, Jordan, Monin, & Leach, 2010), and after being exposed to entitled messages (O'Brien, Anastasio, & Bushman, 2011). Taken together, these and other studies of psychological entitlement reveal that regardless of whether psychological entitlement is operationalized as a stable trait or a situation-specific state, high levels of psychological entitlement are almost exclusively linked to negative outcomes in the existing literature.

Researchers have identified a number of negative interpersonal consequences for individuals with high levels of psychological entitlement. Moeller, Crocker, and Bushman (2009) reported that individuals with high levels of trait entitlement are more likely to have conflicts and hostility in their relationships. Entitled individuals are also less likely to help others (Zitek et al., 2010), apologize for their mistakes (Howell, Dopko, Turowski, & Buro, 2011), or empathize with people who have different perspectives from their own (Strong & Martin, 2014). Additionally, when entitled individuals are in romantic relationships, they tend to treat their partners in a selfish manner (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004).

Psychological entitlement is also associated with negative consequences in the workplace. For instance, high levels of entitlement have been shown to lead to corruption and egocentric behaviors for organization leaders who believe that they deserve more compensation and rewards than their peers (Levine, 2005; Rosenthal & Pittinsky, 2006). Campbell et al. (2004) found that entitled individuals react especially negatively to criticisms, most likely because they often have attributional biases for their own mistakes (Harvey & Martinko, 2009). Lastly, psychological entitlement has been shown to cause chronic job dissatisfaction and has been linked to poor

working relationships due to the fact that entitled individuals often have distorted views of their responsibilities and deservingness in the workplace (Naumann, Minsky, & Sturman, 2002).

In spite of the overwhelmingly negative outcomes of psychological entitlement, creativity researchers have successfully demonstrated an interesting facilitative effect of psychological entitlement on creativity. In four separate experiments, Zitek and Vincent (2015) manipulated study participants' self-perceptions to demonstrate that increased feelings of entitlement were linked to increases in demonstrated creativity. Across the four experiments, participants were placed in one of two conditions (entitled and control), and were asked to perform three different creative tasks. Results indicated that participants randomly assigned to the entitled conditions produced more creative responses than did those in the control conditions. Zitek and Vincent (2015) argued that these results can be explained in terms of the entitled individuals' view that they deserved special treatment because they were different from others. Since creative tasks often involve making novel or unique connections, the motivation to be different could be seen as important to, maybe even essential to, success on these tasks.

While Zitek and Vincent's (2015) studies and others like them demonstrate that psychological entitlement can result in positive consequences including a boost in creativity, the relationship between psychological entitlement and creativity is complicated. In a 2016 paper, Vincent and Kouchaki reported four experiments showing not only a relation between creativity and psychological entitlement but also a connection between entitlement and dishonesty as well as other unethical behaviors. This series of studies also found that the relationship between creativity and psychological entitlement is mediated by the perception that creativity is relatively uncommon and special (Vincent & Kouchaki, 2016). More specifically, study participants who perceived their creativity to be rare showed an increased level of psychological entitlement, but

participants who perceived their demonstrated creativity to be common and not all that out of the ordinary did not show such an increase.

These two bodies of work (Vincent & Kouchaki, 2016; Zitek & Vincent, 2015) illustrate that creativity can be a positive consequence of psychological entitlement, yet that same sense of entitlement can also lead to some negative outcomes, such as dishonesty, selfishness, and hostility (Vincent & Kouchaki, 2016; Zitek et al., 2010). This, in essence, is what is referred to as the “dark side of creativity.” Importantly, in each of the studies just described, entitlement was operationalized as a temporary psychological state in that participants’ sense of entitlement was directly manipulated by the experimenters. Far less is known about the relationship between trait entitlement and creativity.

### **Culture**

Investigations into MC and its relation to psychological entitlement and creative performance have been almost exclusively conducted in the West (in the US and Europe), calling into question the generalizability of the research findings. In one study involving US participants, researchers found that people judged and punished unethical behaviors less harshly when those behaviors were seen as creative (Wiltermuth, Vincent, & Gino, 2017). These results suggest that people in the US are relatively tolerant of malevolent behaviors when they are perceived to be creative, and this tolerance may possibly be due to the overwhelmingly positive attitudes towards creativity engendered in Western cultures (e.g., Westwood & Low, 2003). These study findings also raise an important question regarding the role of culture in the manifestation of MC. Can the development and demonstration of MC themselves be traced to cultural attitudes towards creativity? Would BC, creative self-efficacy, and psychological entitlement predict MC to the same extent in non-Western cultural contexts?

While the relationship between culture and MC has yet to be explored, researchers have, at long last, begun to investigate the role of culture in the development of BC. The commonly-held stereotype that Westerners are more creative and better at innovation than their Eastern counterparts is pervasive yet misguided (e.g., Hennessey & Altringer, 2014; Lubart, 2010; Westwood & Low, 2003). Indeed, the Chinese and some other Asian cultures place considerable value on relationships, and it has long been argued that this emphasis on collectivism can constrain individual expressions of creativity (Chen, Leung, Li, & Ou, 2015; Hennessey, 2015). However, this formulization assumes a unitary and universal form of creativity and fails to capture the rich diversities of creative expression and innovation across the world (Hennessey & Altringer, 2014).

Creativity is conceptualized very differently across cultures (Hennessey & Altringer, 2014; Lubart, 2010). According to Lubart (2010), in modern Western cultures, the concept of creativity is oriented around the production of tangible products and far less focus is placed on the creative process. When Western theorists or “lay persons” do consider the creative process, they tend to view it as “a linear sequence of events” and require that the final products, the fruits of that process, be as far from the starting point as possible (Lubart, 2010, p. 268). In contrast, conceptions of creativity in Eastern cultures are very much process-oriented. According to this view, the creative process is best modeled as cyclic and nonlinear, and involves a “reconfiguring or rediscovering of existing elements” (Lubart, 2010, p. 268). Within this framework, in Eastern cultures, the preservation of cultural or societal traditions need not be viewed as being in opposition to creativity and innovation; rather, creativity is believed to stem from a respectful giving of new dimensions to old ideas and practices (Lubart, 2010).

While these East/West comparisons have proven instructive to researchers and theorists, it must be noted that the dividing and classification of cultures in terms of an East and West dichotomy fails to consider and account for a host of nuanced and potentially important cross-cultural differences. For example, Lim and Plucker (2001) found that Korean nationals tended to rate negative or unethical social behaviors as being more associated with creativity than positive social behaviors. Chinese nationals, on the other hand, have been found to associate creativity with “moral goodness” and “contribution to the society” (Niu & Sternberg, 2002; Rudowicz & Yue, 2000).

### **The Present Study**

The present study examined how BC, creative self-efficacy, psychological entitlement, and culture contributed to demonstrations of MC. Influenced by multi-domain views of creativity (Dow & Mayer, 2004; Plucker, Beghetto, & Dow, 2004; Silvia, Kaufman, & Pretz, 2009) and theoretical models emphasizing componential conceptualizations of creativity, the present study investigated both convergent and divergent cognitive processes underlying tasks requiring verbal creativity and relies on the CAT for measurement. While there is little evidence substantiating the link between MC and BC, it is clear that creativity can and does have a dark side. Empirical evidence shows that individuals who are better divergent thinkers also tend to be more creative liars (Walczyk, Runco, Tripp, & Smith, 2008), and creative individuals are also more likely to be dishonest than are their less creative peers (Beaussart, Andrews, & Kaufman, 2012; De Dreu & Nijstad, 2008; Gino & Ariely, 2012). In addition, Hao, Tang, Yang, Wang, and Runco (2016) recently developed a scale to measure demonstrations of MC and found that verbal creativity is moderately positively correlated with demonstrations of MC. In the light of this positive correlation and findings surrounding negative personality traits associated with creative

individuals, the present study was based on the proposition that BC would be a significant predictor of MC.

In addition, since creative self-efficacy is a strong predictor of creative performance in both work and school settings (e.g., Beghetto, 2006; Hu & Zhao, 2016), the present study hypothesized that that creative self-efficacy would be positively correlated with BC task performance. The study also hypothesized that creative self-efficacy would predict demonstrations of MC due to the predicted relationship between BC and MC. Furthermore, as previous studies on psychological entitlement and creative performance have generally operationalized entitlement as a somewhat transitory psychological state (e.g., Vincent & Kouchaki, 2016; Zitek & Vincent, 2015), the present study was designed to assesses trait entitlement and its relationship with MC. The study predicted that trait entitlement, like state entitlement, would be predictive of both MC and BC.

Lastly, in the light of previous findings summarized above, research evidence strongly supports the contention that culture plays a significant role in shaping people's perceptions of creativity (e.g., Hennessey & Altringer, 2014; Lubart, 2010). In the present investigation, it was expected that culture would be found to play an important role in the manifestation of MC, perhaps promoting two distinct typologies of MC in US and Chinese study participants. While BC, creative self-efficacy, and psychological entitlement may all be predictive of MC in both the US and China, it was hypothesized that the strengths of the relationships between these factors would be different in the two cultures. Specifically, it was expected that psychological entitlement would predict MC to a lesser extent in China than in the US because of the close association between moral goodness and perceptions of creativity in China.

## Method

### Participants

Sixty undergraduate students in the US (27 males,  $M_{\text{age}} = 27.0$ ,  $SD = 7.9$ ) and 60 undergraduate students in China (23 males,  $M_{\text{age}} = 21.7$ ,  $SD = 1.8$ ) were recruited online through Amazon Mechanical Turk (MTurk) and Sojump (the Chinese equivalent of MTurk) to participate in the study. MTurk and Sojump are two online participant-recruiting platforms that are used widely by researchers in the US and China. Respondents were screened by MTurk and Sojump to assure that they met the college student demographic, although eight graduate students were also recruited by MTurk and completed the study. Of the US participants, 96.7% reported that English was their first language, and all of the Chinese participants reported that Chinese was their first language. US participants received 6 US dollars and Chinese participants received approximately the same amount in Yuan for their participation. The average time taken to complete the online survey was 27.9 minutes for US participants and 39.1 minutes for Chinese participants. Before participants began the survey, they gave informed consent electronically and were assured that their responses would be anonymous.

### Procedure

All data were collected via an online survey created in Qualtrics (or Sojump for the Chinese version of the survey). The survey consisted of four behavioral tasks (scenario reflection questions, cartoon-caption writing task, haiku writing task, and Compound Remote-Association Test) that were designed to measure MC and BC, and four self-report scales for MC, creative ideation, creative self-efficacy, and psychological entitlement. Participants first completed three behavioral tasks (scenario reflection questions, cartoon caption writing-task, and haiku-writing task) and then went on to complete the self-report scales for MC, creative ideation, and creative

self-efficacy. Lastly, participants completed the Compound Remote-Association Test and finished with the self-report scale for psychological entitlement.

The self-report scale for psychological entitlement was placed at the end of the survey to avoid issues of priming, since previous studies have demonstrated that priming participants to think about being entitled can positively affect their creative performance (e.g., Zitek & Vincent, 2015). Additionally, during the pilot session, some participants reported feeling discouraged after the Compound Remote-Association Test because of its difficulty. To prevent this sense of discouragement from negatively influencing participants' performance on other parts of the survey, this test was placed towards the end of the survey, just before the scale for psychological entitlement. The survey was originally developed in English and was later translated into Chinese following the standard back-translation procedure (Brislin, 1986).

## **Measures**

### **Behavioral Tasks**

*Scenario Reflection Questions.* The first behavioral task presented participants with two scenarios, designed to measure MC and verbal creativity respectively. For the first scenario, participants were required to propose as many ways as they could think of to help a fictitious person seek revenge on another fictitious individual (malevolent intent) (see Appendix A). After generating a list of ideas, participants were asked to expand on their favorite idea. For the second scenario, participants were required to propose as many ways as they could think of to help a fictitious person to assure that her friend gets to her surprise birthday party without spoiling the surprise (benevolent intent) (see Appendix A). After making this second list, study participants were once again asked to expand on their favorite idea. The first scenario was adopted from a previous study (Hao et al., 2016) and the second scenario was created specifically for the present

investigation. The study by Hao et al. measured the number of ideas generated, an assessment of divergent thinking, to evaluate participants' creativity. This approach, however, conflates fluency (i.e., the number of ideas) with creativity of ideas, and fails to consider the originality and quality of the ideas. For example, the generation of many ideas does not necessarily mean that the ideas are different from each other or that they are all of the same quality. Nor is there any guarantee that all, or even some, of the ideas are especially creative. Motivated by these concerns, the current study improved upon this design and employed the Consensual Assessment Technique (CAT) to evaluate the creativity of participants' responses (both MC and verbal creativity) (Amabile, 1982, 1983; Hennessey & Amabile, 1999; Wigert, Reiter-Palmon, Kaufman, Silvia, 2012).

*Cartoon Caption-Writing Task.* Following the completion of the scenario reflection questions, participants were shown two cartoons from *The New Yorker* magazine and were asked to write an "amusing" caption for each cartoon, a measure of verbal creativity devised by Amabile (1983) (see Appendix A). The original captions on the cartoons were removed. The CAT (Amabile, 1982, 1983; Hennessey & Amabile, 1999) was again used, this time to assess the captions' creativity.

*Haiku-Writing Task.* After the cartoon caption-writing task, participants completed a task involved the writing of a haiku poem, a measure created by Amabile (1982, 1985). Participants were asked to write a five-line haiku after receiving detailed written instructions that specified the formatting requirements for each line. The first line of the haiku was given – "Sunset" (see Appendix A). The CAT (Amabile, 1982, 1983; Hennessey & Amabile, 1999) was employed to evaluate the poems' creativity.

*Compound Remote-Association Test.* The last behavioral task was a 20-problem Compound Remote-Association Test (CRA), with items drawn from the 144 problems developed by Bowden and Jung-Beeman (2003) and based on the original Remote-Association Test (RAT) introduced by Mednick (1962). For Chinese participants, a Chinese version of the CRA developed by Shen, Yuan, Liu, Yi, and Dou (2016) was used. The CRA test is designed to measure participants' convergent thinking, operationalized as the bringing together of different ideas and perspectives to determine a single solution to a problem. For each problem, participants were given three stimulus words and 30 seconds to find a word that could form a compound word pair with each of three unrelated words (see Appendix A). Participants' CRA scores were calculated as the sum of the number of questions that they answered correctly with possible values ranging from 0 to 20.

### **Self-Report Scales**

*Malevolent Creativity.* Following the completion of the behavioral tasks, study participants were asked to respond to a series of self-report scales. The first self-report scale to be completed was the Malevolent Creativity Behavior Scale (MCBS), a 13-item scale developed by Hao et al. (2016) to measure MC. Responses were made using a five-point scale with anchors 1 (never) to 5 (always) to rate the frequency of a variety of occurrences in study participants' daily lives (see Appendix B). Participants' overall MCBS scores were then calculated as the sum of responses across all 13 items (possible range 13-65). Reliability for this scale was  $\alpha = .93$  for US participants and  $\alpha = .81$  for Chinese participants.

*Creative Ideation.* After the MCBS, participants completed the 23-item version of the Runco Ideational Behavior Scale (RIBS) created by Runco, Plucker, and Lim (2001). This scale is designed to measure creative ideation, a process of generating new ideas. Participants again

used five-point Likert scales with anchors 1 (never) to 5 (very often) to reflect on their everyday creative ideation (see Appendix B). The sum of responses across all 23 items was then calculated as the overall RIBS score (possible range 23-115). Reliability for this scale was  $\alpha = .95$  for US participants and  $\alpha = .84$  for Chinese participants.

*Creative Self-Efficacy.* The third self-report scale to be completed was the three-item creative self-efficacy scale (CSES) developed by Beghetto (2006), based on popular conceptualizations of creativity (Plucker et al., 2004) and the concept of self-efficacy (Bandura, 1997). Participants used a five-point scale with anchors 1 (not true) to 5 (very true) to indicate their beliefs about their own imagination as well as their ability to generate novel and useful ideas (see Appendix B). The CSES score was calculated as the sum of responses across the three items (possible range 3-15). Reliability for this scale was  $\alpha = .89$  for US participants and  $\alpha = .53$  for Chinese participants. Since the reliability of this scale for Chinese participants was unsatisfactory ( $\alpha < .80$ ), responses on this scale were manipulated following a procedure that is elaborated on in the Results section.

*Psychological Entitlement.* Lastly, participants were asked to complete the nine-item Psychological Entitlement Scale (PES) created by Campbell et al. (2004) (see Appendix B). Items were scored on a seven-point scale with anchors 1 (strong disagreement) to 7 (strong agreement), and an overall PES score was computed as the sum of responses across all nine items, with one item being reverse scored (possible range 9-63). Reliability for this scale was  $\alpha = .88$  for US participants and  $\alpha = .89$  for Chinese participants.

### **Implementation of the Consensual Assessment Technique**

In this study, the CAT (Amabile, 1982, 1983; Hennessey & Amabile, 1999) was utilized to rate participants' responses to the scenario reflection questions, the cartoon caption-writing

task, and the haiku-writing task. Sixteen raters were recruited in total, with eight raters whose first language was English judging the responses of US participants, and eight different raters whose first language was Chinese judging the responses of Chinese participants. Rather than having bilingual judges rate all participants' responses, the decision was made to recruit two separate groups of judges because many participants from the pilot study made specific cultural references in their responses, references which would be entirely unfamiliar to judges who did not grow up in the same cultural environment. In other words, to properly evaluate participants' responses, raters needed to have not only language competency but also cultural familiarity, a requirement that might not be met with bilingual judges.

Of all the behavioral tasks, only the first of the two scenario reflection questions (seeking revenge) was designed to measure participants' MC. Thus, raters scored the first scenario for MC and the rest of the tasks for BC. In addition to rating the degree of MC and BC shown by a variety of products and responses, raters also scored product technical goodness and liking. Product ratings were made independently using a seven-point Likert scale, with a score of 1 indicating the lowest level of MC, BC, technical goodness or liking, and 7 representing the highest level of MC, BC, technical goodness or liking. Only when raters judged MC in the first scenario, were they given a brief and basic definition of MC (i.e., a creative act that is intentionally used towards a malevolent end), since this was an unfamiliar construct to many judges. In other cases, raters were asked to assign ratings based on their own, personal definitions of creativity, technical goodness, and liking with no additional guidance. These judges had no opportunity to confer with one another and were instructed to rate the products relative to one another, rather than against some ultimate criteria they might hold for each of these dimensions. The only requirement that they were given was that, in the rating of each

product dimension, at least one product should receive a rating of 1 (the lowest possible rating) and at least one product should receive a rating of 7 (the highest possible dimension). In all cases, product creativity (MC or BC) was evaluated first, followed by liking and then technical goodness.

Following standard consensual assessment procedures, inter-rater reliability was assessed separately for US and Chinese judges using Cronbach's alpha (Hennessey et al., 2011). Eight US and eight Chinese judges were recruited, but because one US rater dropped out of the study at the last-minute, 15 judges' ratings ( $n_1 = 7$  for US judges,  $n_2 = 8$  for Chinese judges) were included in the analysis. The judges were internally consistent with each other in their ratings of MC. The Cronbach's alphas of judges' ratings of the revenge-seeking scenario reflection question (MC rating) were .87 and .91 respectively for US and Chinese participants. The Cronbach's alphas for judges' BC ratings were either above or approaching .70, indicating an acceptable level of inter-rater reliability for both US and Chinese raters (see Table 1). While raters in the present study generally agreed with one another on their ratings of creativity (MC and BC), they could not agree on their ratings of product technical goodness and liking. The Cronbach's alphas for their ratings of these two dimensions were unacceptably low, ranging from 0.2 to 0.6, and thus were excluded from further analysis. These low Cronbach's alphas, in a marked contrast to the alphas found for MC and BC ratings, suggest that product creativity is a distinct dimension from technical goodness and liking.

Table 1

*Reliability Statistics of Benevolent Creativity Ratings*

Task	Cronbach's alpha	
	US	China
Birthday question	.74	.84
Caption 1	.77	.85
Caption 2	.65	.90
Haiku	.83	.67

*Note.* All Cronbach's alphas shown in this table exceed or approach .70.

## Results

### Overview

The present study adopted a two-stage regression methodology to examine predictors of MC and test the hypotheses driving this investigation. The first stage was designed to investigate whether BC, creative self-efficacy, and psychological entitlement predicted MC in the US and China respectively. Forward stepwise regression models were run to analyze US and Chinese participants' data separately. In the second stage, simultaneous regression models were run to explore the interaction effects between culture and the significant predictors of MC found in the first stage and to further explore the role of culture in demonstrations of MC. Tables 2 and 3 summarize the descriptive statistics and correlations among all study variables and organize them into their respective categories.

Table 2

*Descriptive Statistics and Correlations among Study Variables for US participants*

Variable Name	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
Malevolent Creativity												
1. MCBS Score	27.72	10.30										
2. Revenge Score	3.88	1.42	.02									
Benevolent Creativity												
3. CRA Score	10.47	5.10	-.20	.15								
4. RIBS Score	77.76	18.48	.35*	-.02	-.16							
5. Birthday Score	3.78	1.08	-.07	.07	-.03	.14						
6. Caption 1 Score	3.61	1.28	.12	.09	.11	.16	.00					
7. Caption 2 Score	3.60	1.40	-.05	.35**	.19	.11	.11	.36**				
8. Haiku Score	3.86	.93	.03	-.12	.05	.22	.00	.19	.07			
Creative Self-Efficacy												
9. CSES Score	11.57	2.91	.35**	-.11	-.04	.85***	.10	.06	.03	.22		
Psychological Entitlement												
10. PES Score	32.42	10.29	.19	.01	-.15	.01	-.24	-.13	-.04	.06	.10	

*Note.* \* $p < .05$ , two-tailed. \*\* $p < .01$ , two-tailed. \*\*\* $p < .001$ , two-tailed.

MCBS = Malevolent Creativity Behavior Scale; CRA = Compound Remote Association Test; RIBS = Runco Ideational Behavior Scale; CSES = Creative Self-Efficacy Scale; PES = Psychological Entitlement Scale.

Revenge score, birthday score, caption 1 score, caption 2 score, and haiku score in this table are the mean creativity ratings given by judges to study participants' responses to these creative behavior tasks.

Table 3

*Descriptive Statistics and Correlations among Study Variables for Chinese participants*

Variable Name	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
Malevolent Creativity												
1. MCBS Score	31.45	7.44										
2. Revenge Score	3.05	1.39	.05									
Benevolent Creativity												
3. CRA Score	7.75	3.40	-.05	-.19								
4. RIBS Score	74.55	11.22	.42**	-.19	.02							
5. Birthday Score	3.38	.94	-.04	.19	.10	-.28*						
6. Caption 1 Score	3.22	.97	.10	.00	.00	-.15	.28*					
7. Caption 2 Score	3.31	.85	-.04	-.02	-.08	-.12	.11	.33**				
8. Haiku Score	3.66	1.12	-.13	.08	.21	.02	.09	.27*	.16			
Creative Self-Efficacy												
9. CSES Score	11.57	2.91	.31*	-.17	.12	.69***	-.16	-.27*	-.26*	-.08		
Psychological Entitlement												
10. PES Score	35.33	9.70	.16	.08	-.09	.16	-.02	-.04	.13	-.05	.21	

*Note.* \* $p < .05$ , two-tailed. \*\* $p < .01$ , two-tailed. \*\*\* $p < .001$ , two-tailed.

MCBS = Malevolent Creativity Behavior Scale; CRA = Compound Remote Association Test; RIBS = Runco Ideational Behavior Scale; CSES = Creative Self-Efficacy Scale; PES = Psychological Entitlement Scale.

Revenge score, birthday score, caption 1 score, caption 2 score, and haiku score in this table are the mean creativity ratings given by judges to study participants' responses to these creative behavior tasks.

### Variable Reduction

As shown in Tables 2 and 3, the study incorporated eight predictor variables in total. With the modest sample size, running regressions that included all eight predictor variables would considerably decrease the statistical power of the models, especially for the separate regressions carried out in the first stage where participants were divided into two separate cultural groups. Therefore, before running any regression analyses, the decision was made to reduce the number of predictor variables to be entered.

Towards this end, scores on Beghetto's 3-item creative self-efficacy scale (CSES) were combined with the 23-item Runco Ideational Behavior Scale (RIBS). Because both of these measures employ the same five-point response format, the transformation into this new scale was especially straightforward. This transformation procedure was done for two reasons. As reported in the Method section, the Cronbach's alpha for Chinese participants' responses on the CSES was unsatisfactory ( $\alpha = .53$ ). In addition, as shown in Table 2 and Table 3, CSES and RIBS scores were highly correlated with each other ( $r_1 = .85, p < .001$  for US participants,  $r_2 = .69, p < .001$  for Chinese participants). Such high levels of correlation raised the issue of multicollinearity and violated the core assumption that one predictor variable in a multiple regression (i.e., a regression with multiple predictors) is not linearly predicted by others with a substantial degree of accuracy. Hence, to address the lack of reliability of CSES scores for Chinese participants as well as the high correlation between scores on this measure and scores on the RIBS, the decision was made to treat all 26 questions combined across the CSES and RIBS as if they were from the same scale. This newly constructed scale is now referred to as the "Creative Cognitive Style Scale" (CCSS). Cronbach's alphas for the CCSS were calculated at .96 and .86 for US and Chinese participants respectively. These high alphas provided

additional evidence that that it was both mathematically and conceptually valid to combine CSES and RIBS responses.

In addition to scores for the CCSS, data had also been gathered on five other predictor variables measuring BC: CRA score, birthday score, caption 1 score, caption 2 score, and haiku score. In an effort to explore whether these five variables could be grouped into fewer factors, scores for these five indicators were factor analyzed using principal component analysis with Varimax rotation and the Kaiser stopping criterion (i.e., extracting all factors with eigenvalues greater than 1). Two separate factor analyses were run for US and Chinese participants respectively. For the factor analysis involving scores earned by US participants, Bartlett's test of sphericity, which tests the overall significance of all the correlations within the correlation matrix, was not significant ( $\chi^2(10) = 10.34, p = .41$ ). However, the Kaiser-Meyer-Olkin measure of sampling adequacy was .53, above the recommended value of .50, indicating that the strength of the relationships among variables was fairly strong. Therefore, it was deemed acceptable to proceed with the factor analytic model. The factor analysis for US participants yielded two factors explaining a total of 50.73% of the variability in all five of the variables together (see Table 4). After examining the outcome of this analysis, Factor 1 was labeled "low-restrictiveness BC score" due to the high loadings by the following items: CRA score, birthday score, caption 1 score, and caption 2 score. This first factor explained 28.69% of the total variability. The second factor derived was labeled "high-restrictiveness BC score" due to the high loading by haiku score, a creativity task which incorporated more rules and restrictions than did the other behavioral creativity tasks. The total variability explained by this factor was 22.05%.

Table 4

*Factor Analysis of US Participants' Predictor Variables for BC*

	Loadings	
	Factor 1	Factor 2
	Low-Restrictiveness BC Score	High-Restrictiveness BC Score
CRA Score	.53	
Birthday Score	.11	
Caption 1 Score	.69	
Caption 2 Score	.80	
Haiku Score		.68

*Note.* Factor loadings < .10 are suppressed. CRA = Compound Remote Association Test.

For the factor analysis involving scores earned by Chinese participants, Bartlett's test of sphericity was significant ( $\chi^2(10) = 18.66, p = .05$ ). The Kaiser-Meyer-Olkin measure of sampling adequacy was .56. Thus, both tests indicated that it was appropriate to proceed with the factor analytic model on this set of data. The analysis of the five predictor variables for Chinese participants also produced two factors, which explained a total of 56.04% of the variability in the five variables (see Table 5). However, the factor loadings for each variable were slightly different from those shown for the US data. For Chinese participants, CRA score loaded more strongly on Factor 2 than it did on Factor 1. Thus, Factor 1 for Chinese participants included birthday score, caption 1 score, and caption 2 score, and explained 31.58% of the total variability. Factor 2 included CRA score and haiku score and explained 24.46% of the total variability. The decision was made to use the same labels for these two factors that were used for the US sample, as it was reasoned that US and Chinese participants might have perceived the restrictiveness of

the CRA task differently. One possibility here was that, as compared to US participants, Chinese participants might be less familiar with and less comfortable with verbal tasks and challenges like the CRA task.

Table 5

*Factor Analysis of Chinese Participants' Predictor Variables for BC*

	Loadings	
	Factor 1 Low-Restrictiveness BC Score	Factor 2 High-Restrictiveness BC Score
CRA Score		.87
Birthday Score	.49	
Caption 1 Score	.80	
Caption 2 Score	.72	
Haiku Score		.58

*Note.* Factor loadings < .40 are suppressed. CRA = Compound Remote Association Test.

In the light of the results from the factor analysis, two separate components of BC, Low Restrictiveness (BC Component 1) and High Restrictiveness (BC Component 2), were constructed. To accomplish this goal, scores for the CRA measure, birthday scenario, cartoon caption 1, cartoon caption 2, and haiku task were standardized by converting into z-scores. Then, for each US participant, the mean of the z-scores earned for the CRA measure, birthday scenario, cartoon caption 1, and cartoon caption 2 was computed and labeled BC Component 1; the z-score earned for the haiku task was labeled BC Component 2. For each Chinese participant, the mean of the z-scores earned for the birthday scenario, cartoon caption 1, and cartoon caption 2 were computed and labeled BC Component 1; the mean of the z-scores earned for the CRA

measure and the haiku task was computed and labeled BC Component 2. Thus, this recoding yielded scores for BC Component 1 and BC Component 2 for all participants, but these scores were calculated somewhat differently for study participants in the US and China. After combining scores on the CSES and RIBS measures and creating new components for BC to reduce the number of predictor variables, the final data set to be used in all subsequent analyses included four predictor variables, instead of eight, and two outcome variables. Tables 6 and 7 summarize the descriptive statistics and correlations among all of these variables.

Table 6

*Descriptive Statistics and Correlations among New Study Variables for US participants*

Variable Name	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
Outcome Variables								
1. MCBS Score	27.72	10.30						
2. Revenge Score	3.88	1.42	.02					
Predictor Variables								
3. BC Component 1	.02	.56	-.09	.30*				
4. BC Component 2	.00	1.00	.03	-.12	.07			
5. CCSS Score	89.39	21.00	.35*	-.03	.11	.22		
6. PES Score	32.42	10.29	.19	.01	-.18	.06	.02	

*Note.* \* $p < .05$ , two-tailed. \*\* $p < .01$ , two-tailed. \*\*\* $p < .001$ , two-tailed.

MCBS = Malevolent Creativity Behavior Scale; BC Component 1 = Benevolent Creativity Component 1; BC Component 2 = Benevolent Creativity Component 2; CCSS = Creative Cognitive Style Scale; PES = Psychological Entitlement Scale.

Table 7

*Descriptive Statistics and Correlations among New Study Variables for Chinese participants*

Variable Name	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
Outcome Variables								
1. MCBS Score	31.45	7.44						
2. Revenge Score	3.05	1.39	.05					
Predictor Variables								
3. BC Component 1	.00	.70	.01	.08				
4. BC Component 2	.00	.79	-.14	-.07	.17			
5. CCSS Score	85.63	12.53	.42**	-.19	-.28*	.01		
6. PES Score	35.33	9.70	.16	.08	.03	-.09	.18	

*Note.* \* $p < .05$ , two-tailed. \*\* $p < .01$ , two-tailed. \*\*\* $p < .001$ , two-tailed.

MCBS = Malevolent Creativity Behavior Scale; BC Component 1 = Benevolent Creativity Component 1; BC Component 2 = Benevolent Creativity Component 2; CCSS = Creative Cognitive Style Scale; PES = Psychological Entitlement Scale.

### Stage One of the Two-Stage Regression Analysis

To test whether BC, creative self-efficacy, and psychological entitlement were significant predictors of MC in each culture, stepwise multiple regression models were run for US and Chinese participants respectively. In a stepwise regression model, only variables whose inclusions give the most statistically significant improvement of the fit are selected. As seen from Tables 6 and 7, there were two outcome variables and two cultures; thus, four separate stepwise regression models were run — two separate regressions incorporating two different outcome variables for each culture.

Firstly, a stepwise multiple regression was conducted on data gathered from US participants to evaluate whether BC, creative self-efficacy, and psychological entitlement

predicted MCBS score (see Table 8). At step one of the analysis, CCSS (Creative Cognitive Style Scale) score ( $t = 2.67, p = .01$ ) was entered into the regression equation and significantly predicted US participants' MCBS score ( $F(1, 50) = 7.13, p = .01$ ). The multiple correlation coefficient ( $R^2$ ) was .125, indicating that approximately 12.5% of the variance of the MCBS score could be accounted for by CCSS score. BC Component 1 ( $t = -.34, p = .74$ ), BC Component 2 ( $t = -.16, p = .87$ ), and PES score ( $t = .91, p = .37$ ) were not entered into the equation at step two of the analysis. Thus, US participants' predicted MCBS score was equal to  $12.32 + .17$  (CCSS score), where, as explained earlier, CCSS score was the sum of 26 questions scored on a five-point scale. US participants' MCBS score increased .17 units for each unit increase of CCSS score.

Table 8

*Summary of Stepwise Regression Analysis for Variables Predicting US participants' MCBS Score (N = 52)*

Variable Name	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
Constant	12.32	5.84		2.11	.04
CCSS Score	.17	.06	.35	2.67	.01

*Note.*  $R^2 = .125$ .  $F$  for change in  $R^2 = 7.13, p = .01$ . CCSS = Creative Cognitive Style Scale.

The same stepwise multiple regression model was also used to assess data gathered from Chinese participants (see Table 9). At step one of the analysis, CCSS score ( $t = 3.52, p = .001$ ) was again entered into the regression equation. A significant regression equation was found ( $F(1, 54) = 12.41, p = .001$ ), with an  $R^2$  of .187, indicating that approximately 18.7% of the variance of the MCBS score could be explained by CCSS score. BC Component 1 ( $t = 1.40, p = .17$ ), BC

Component 2 ( $t = -1.23, p = .23$ ), and PES score ( $t = .89, p = .38$ ) were not entered into the equation at step two of the analysis. Thus, Chinese participants' MCBS score was equal to  $8.92 + .26$  (CCSS score). Chinese participants' MCBS score increased .26 units for each unit increase of CCSS score.

Table 9

*Summary of Stepwise Regression Analysis for Variables Predicting Chinese participants' MCBS Score (N = 56)*

Variable Name	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
Constant	8.92	6.43		1.39	.17
CCSS Score	.26	.08	.43	3.52	.001

*Note.*  $R^2 = .187$ .  $F$  for change in  $R^2 = 12.41, p = .001$ . CCSS = Creative Cognitive Style Scale.

A stepwise multiple regression was also conducted to investigate significant predictors for US participants' revenge scores (see Table 10). At step one of the analysis, BC Component 1 ( $t = 2.59, p = .01$ ) was entered into the regression equation and significantly predicted revenge score ( $F(1, 52) = 6.73, p = .01$ ). The  $R^2$  was .115, indicating that approximately 11.5% of the variance of the revenge score could be accounted for by BC Component 1. CCSS score ( $t = -.52, p = .60$ ), BC Component 2 ( $t = -.92, p = .36$ ), and PES score ( $t = .66, p = .51$ ) were not entered into the equation at step two of the analysis. Thus, US participants' predicted revenge score was equal to  $3.76 + .92$  (BC Component 1), where BC Component 1, as explained earlier, was the mean of the z-scores of creativity tasks with low restrictiveness. US participants' revenge score increased .92 units for each unit increase of BC Component 1.

Table 10

*Summary of Stepwise Regression Analysis for Variables Predicting US participants' Revenge Score (N = 54)*

Variable Name	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
Constant	3.76	.19		19.68	.000
BC Component 1	.92	.35	.34	2.59	.01

*Note.*  $R^2 = .115$ . *F* for change in  $R^2 = 6.73$ ,  $p = .01$ .

BC Component 1 = Benevolent Creativity Component 1.

Lastly, the same regression model used to examine US participants' revenge scores was run for Chinese participants' data. This time, however, no predictor variables were entered into the final model because none of them significantly predicted Chinese participants' revenge score. Thus, the  $R^2$  of the model was 0, indicating BC Component 1, BC Component 2, CCSS score, and PES score could not explain any of the variance of the revenge score. To sum up, the hypothesis that creative-self-efficacy would predict MC for both US and Chinese participants was supported, as CCSS score was a significant predictor of MCBS score for both cultural groups. However, the hypothesis that BC would also be a strong predictor of MC for both cultures was not supported, as BC Component 1 only predicted US participants' revenge score, not that of Chinese participants. Lastly, contrary to the original hypothesis driving this investigation, psychological entitlement was not a significant predictor of MC in either culture.

### **Stage Two of the Two-Stage Regression Analysis**

To specifically examine the interaction effects between culture and significant predictor variables of MC found in the stepwise regression analyses outlined above, US and Chinese participants' data were combined together and two separate multiple regressions using the

combined data were carried out, incorporating each of the two MC outcome variables (i.e., MCBS score and revenge score). Since CCSS score was a significant predictor of both US and Chinese participants' MCBS score, CCSS score, culture, and the interaction term between these two variables were incorporated as predictor variables in the first of the two regression analyses. To avoid the issue of multicollinearity (i.e., CCSS being highly correlated with the interaction term), CCSS score was centered. After centering CCSS score and computing the interaction term, centered CCSS score, culture, and their interaction term were entered into a simultaneous regression model with MCBS score as the outcome variable (see Table 11).

Table 11

*Summary of Simultaneous Regression Analysis for Variables Predicting MCBS Score (N = 112)*

Variable Name	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>	<i>VIF</i>
Constant	31.90	1.08		29.64	.000	
Centered CCSS Score	.25	.09	.47	2.92	.004	3.49
Culture	-4.63	1.57	-.26	-2.95	.004	1.01
Centered CCSS Score * Culture	-.08	.10	-.13	-.78	.436	3.47

*Note.*  $R^2 = .186$ .  $F$  for change in  $R^2 = 8.23$ ,  $p < .001$ . CCSS = Creative Cognitive Style Scale. This study adopted a lower threshold for multicollinearity, setting the boundary at  $VIF = 5$ , instead of 10; thus, the  $VIF$  statistics in this table were deemed acceptable.

A significant linear regression equation was found ( $F(3, 108) = 8.23$ ,  $p < .001$ ), with an  $R^2$  of .186, indicating that approximately 18.6% of the variance of the MCBS scores could be accounted for by the model. Results showed that centered CCSS score ( $t = 2.92$ ,  $p = .004$ ) and

culture ( $t = -2.95, p = .004$ ) both predicted MCBS score, but the interaction between these two variables ( $t = -.78, p = .44$ ) was not significant, suggesting that the effect of centered CCSS score on MCBS score did not differ significantly by culture. According to the model, participants' predicted MCBS score was equal to  $31.90 + .25$  (centered CCSS score)  $- 4.63$  (culture)  $- .08$  (centered CCSS score \* culture), where culture was coded as 1 for US participants and 0 for Chinese participants. All participants' (US and Chinese) MCBS scores increased .25 units for each unit increase of centered CCSS score, and US participants had overall lower MCBS scores than did Chinese participants. These results combined with those of the two stepwise regression models reported earlier that also incorporated MCBS score as the outcome variable provided additional evidence to support the hypothesis that creative self-efficacy was a significant predictor of MC regardless of culture.

For the second simultaneous regression model with revenge score as the outcome variable, BC Component 1, culture, and their interaction term were entered as the predictor variables, since only BC Component 1 predicted revenge score in the stepwise regression analysis. Importantly, however, the composition of Component 1 was different for each country according to the factor analysis results reported earlier (see Tables 4 and 5). BC Component 1 for US participants was a composite of the mean of standardized scores for the CRA measure, birthday scenario, cartoon caption 1, and cartoon caption 2; whereas BC Component 1 for Chinese participants was a composite of the mean of standardized scores for birthday scenario, cartoon caption 1, and cartoon caption 2. Hence, BC Component 1 could not be entered into the second regression model, which involved data from both US and Chinese participants. In order to run the second simultaneous regression model, BC Component 1 was adjusted for this analysis by excluding CRA score data for US participants to make the composition of BC Component 1

consistent across the two cultures. The adjusted BC Component 1 was again centered for the analysis to avoid the issue of multicollinearity.

After centering the adjusted BC Component 1 variable and computing the interaction term between it and culture, the second regression analysis with revenge score as the outcome variable was run (Table 12). A significant linear regression equation was found ( $F(3, 116) = 4.99$ ,  $p = .003$ ), with an  $R^2$  of .114, indicating that approximately 11.4% of the variance of the MCBS score could be explained by the model. Results showed that only culture ( $t = 3.27$ ,  $p = .001$ ) predicted MCBS score, and neither the centered adjusted BC Component 1 ( $t = .62$ ,  $p = .54$ ) nor the interaction term ( $t = 1.01$ ,  $p = .31$ ) was a significant predictor. According to the model, participants' predicted revenge score was equal to  $3.05 + .16$  (centered adjusted BC Component 1)  $+ .83$  (culture)  $+ .38$  (centered adjusted BC Component 1 \* culture). Overall, US participants had higher revenge scores than did Chinese participants. These results were different from those of the stepwise regression analyses reported earlier, where BC Component 1 significantly predicted revenge score for US participants, but not for Chinese participants. The lack of significant interaction in this model here suggested that BC Component 1 was not a strong enough predictor to drive an interaction effect.

Table 12

*Summary of Simultaneous Regression Analysis for Variables Predicting Revenge Score (N = 120)*

Variable Name	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>	<i>VIF</i>
Constant	3.05	.18		16.97	.000	
Centered Adjusted BC Component 1	.16	.26	.07	.62	.54	1.89
Culture	.83	.25	.29	3.27	.001	1
Centered Adjusted BC Component 1 * Culture	.38	.38	.12	1.01	.31	1.89

*Note.*  $R^2 = .114$ . *F* for change in  $R^2 = 4.99$ ,  $p = .003$ .

BC Component 1 = Benevolent Creativity Component 1.

## Discussion

### A Multi-Faceted View of Malevolent Creativity

Influenced by theoretical models emphasizing componential conceptualizations of creativity (e.g., Dow & Mayer, 2004; Plucker, Beghetto, & Dow, 2004; Silvia, Kaufman, & Pretz, 2009), the present investigation operationalized malevolent creativity (MC) as both a cognitive process and a behavior – the creation of a tangible product. The Malevolent Creativity Behavior Scale (MCBS) (Hao et al., 2017) and the revenge-seeking scenario reflection question (MC task) were utilized to measure these two dimensions of MC respectively. Although the name of the scale suggests otherwise, the MCBS is designed to serve as a “scale of MC ideation,” a cognitive process deemed central to the generation of malevolently creative ideas (Hao et al., 2016, p. 5). The MC task, also a measure developed by Hao et al. (2016), on the other hand, yields tangible products that can then be assessed for malevolent creative behaviors.

In contrast to the study results reported by Hao et al. (2016), which found that MCBS score was a significant predictor of MC task performance, in the present investigation, no systematic relationship was observed between scores on these two measures for either US or Chinese participants. As shown in Tables 2 and 3, the correlations between MCBS score and ratings of MC task performance for US ( $r_1 = .02, p = .86$ ) and Chinese ( $r_2 = .05, p = .73$ ) participants not only failed to reach significance but were close to zero. These differences in study outcomes might be explained by the fact that participants' MC task performances were assessed very differently in the present investigation than they were by Hao et al. (2016). As mentioned in the introduction, Hao and colleagues (2016) only measured each participant's total number of ideas generated in the MC task without considering the originality and quality of those ideas, whereas the present study evaluated performance on the MC task by employing the Consensual Assessment Technique (CAT) (Amabile, 1982, 1983; Hennessey & Amabile, 1999; Hennessey et al., 2011). The CAT, which is now commonly identified as the "gold standard" of creativity assessment approaches (e.g., Baer & McKool, 2014), allowed for the direct assessment of product creativity.

Although the CAT has not been as widely used by researchers in China and Asia as it has been in the West, the possibility of employing the CAT across cultures and the advantage of enlisting cultural natives to assess product creativity have been extensively explored (Hennessey, Kim, Guomin, & Sun, 2008; Hennessey, et al., 2011). Drawing on this robust theoretical foundation, the current investigation also achieved solid levels of reliability for assessments of creativity made by both Chinese and US judges. For the MC task, the Cronbach's alphas for judges' ratings were .87 and .91 respectively for US and Chinese participants, evidencing high degrees of internal consistency or agreement among judges. The Cronbach's alphas for judges'

ratings of creativity were also high for other tasks (see Table 1). Thus, the current investigation offers further support for the appropriateness of applying the CAT across cultures. The present study's success with the implementation of the CAT also calls into question the appropriateness of relying solely on measures of fluency (e.g. the number of ideas generated) when evaluating MC task performance, as was done in the study by Hao et al. (2016). With an improved and far more nuanced approach to the assessment of MC task performance, the present study was, however, unable to corroborate the significant relationship between participants' performance on the MCBS and the MC task found by Hao et al. (2016). It seems probable that the emphasis on fluency in this earlier investigation may have failed to capture reliable and valid assessments of malevolently creative behavior.

Furthermore, given the results of the current investigation, the present study proposes that MC is a multi-faceted or multi-dimensional construct whose dimensions are distinct from one another. The fact that no systematic relationship was found between performance on the MC behavioral task and scores on the MCBS suggests that MC has at least two distinct dimensions that can be reliably measured. Additionally, the relationships between MC and its significant predictors found in the present study also serve to strengthen the multi-faceted view of MC. Like MC, benevolent creativity (BC) was also operationalized in this investigation as both a cognitive process and the creation of a tangible product. Six BC measures were employed, including the Runco Ideational Behavior Scale (Runco et al., 2011), the Compound Remote Association Test (Bowden & Jung-Beeman, 2003; Shen et al., 2016), and four verbal creativity behavioral tasks. Scores on the Runco Ideational Behavior Scale and the Creative Self-Efficacy Scale were later combined into a single index termed the Creative Cognitive Style Scale because of their strong correlation. Thus, this newly created Creative Cognitive Style Scale was both a measure of the

cognitive dimension of BC and of creative self-efficacy, while the rest of the BC tasks, like the MC task, measured the behavioral dimension of BC. In the present investigation, results demonstrated that BC task performance only acted as a significant predictor of MC task performance, not MC cognitive performance. Conversely, BC cognitive performance only significantly predicted MC cognitive performance, not MC task performance.

In other words, the present study showed that the cognitive and behavioral dimensions of MC were not only uncorrelated but also had distinct predictors, further emphasizing the separation between these two dimensions. Additionally, these results suggest that the cognitive processes underlying MC do not always translate into real-world creation of MC products. Taken together, these study results argue for the theoretical separation of the cognitive and behavioral dimensions of MC and point to the conclusion that these two dimensions should be assessed differently and separately.

### **Significant and Nonsignificant Predictors of Malevolent Creativity**

#### **Benevolent Creativity**

Because a review of literature indicated that creativity has a dark side (e.g., Beaussart, Andrews, & Kaufman, 2012; Walczyk, Runco, Tripp, & Smith, 2008), this study proposed that demonstrations of BC would be a significant positive predictor of demonstrations of MC in both the US and China. However, as shown by the stepwise regression analysis focusing on the behavioral dimension of MC, BC task performance only significantly and positively predicted US participants' MC task performance; no significant relationship between BC and MC task performance was found for Chinese participants. In other words, the present study supports the view that BC task performance can be used to predict MC task performance in the US, but not in China, suggesting that MC is a more separate construct from BC in China than it is in the US. It

is important to note that “BC task performance” here refers to participants’ performance on all the behavioral tasks of BC administered in this investigation, except for the haiku task, which was found to be more restrictive than other BC tasks and not predictive of MC. While it was anticipated that the strength of the relationship between BC and MC would differ in the two cultures, the total lack of effect of Chinese participants’ BC task performance on their MC task performance was unexpected.

This unexpected result might be explained by the different conceptualizations of creativity in the US and China. Research studies on laypersons’ implicit theories of creativity across cultures consistently show that one unique and somewhat central component of the Chinese conception of creativity is morality. Yet, Western (US and European) views of creativity fail to incorporate this element (Hennessey & Altringer, 2014; Niu & Sternberg, 2002). In one study, Rudowicz and Hui (1997) found that similar to the US conception of creativity, the Chinese conception included characteristics of “innovative ideas,” “imagination,” “intelligence,” “independence,” and “high levels of activity/energy.” However, the Chinese conception of creativity also included provisions that creative ideas and products be “inspirational” and “contributing to the progress of society,” components absent in the US conception. Building on these findings, Wu (1996) also reported that the Taiwanese Chinese people’s conception of creativity involved some ethical standards, such as the promotion of kindness and good behavior.

Based on these studies described above, it can be concluded that the conception of creativity in Chinese culture is associated with morality or moral goodness, whereas in US culture, conceptions of creativity and moral goodness remain relatively separate. Of course, one of the major distinctions between MC and BC is also rooted in moral goodness. Because the MC task employed in the present study required participants to produce products (i.e., revenge ideas)

that were likely to be considered morally wrong, it is possible that Chinese participants might have perceived the MC task to be more atypical of and maybe even antithetical to creativity than the BC tasks. Thus, the Chinese participants might have approached the MC task very differently from the BC tasks, while US study participants might have been less troubled by the distinction between the two. This possibility would, in fact explain the nonsignificant relationship between BC and MC task performances for Chinese participants. Hence, cultural differences in the conceptualization of creativity, coupled with the moral distinction between MC and BC, may have led to the emergence of MC as a more separate construct from BC in China than in the US.

Moreover, the East/West modeling of creativity also offers some insights into why Chinese participants' BC task performance lacked any predictive power for their MC task performance. According to Lubart (1999, 2010), in Western cultures, creativity must be defined and recognized in terms of its relationship to an observable product, with the requirement that this finished product be as far from or as different from the starting point as possible. In contrast, in Eastern cultures, creativity is typically conceptualized in terms of process over product and is seen to involve a "reconfiguring or rediscovering of existing elements" or a reinterpretation of traditional ideas (Lubart, 1999; Lubart, 2010, p. 268). Within this framework, when producing creative products, creators in Eastern cultures are especially concerned with the preservation of cultural or societal traditions and strive to stay respectful of old ideas and practices. Their Western counterparts, however, are typically freed from such constraints (Lubart, 2010). Since MC leads to products or ideas that are socially deviant and disruptive to existing cultural values and practices, it is easy to see how demonstrations of MC by Chinese study participants might be unrelated and entirely distinct from BC task performance.

While results from the present study support the contention that, in China, MC emerges as an especially distinct construct, conceptually separate from BC, this is not to say that MC and BC are especially closely related even in the US. In fact, US participants' BC performance had only a small effect on their MC task performance, as shown by this variable's low coefficient estimate ( $\beta = .34$ ) in the stepwise regression model (see Table 10). This small effect was also evidenced by the lack of interaction between BC task performance and culture in a later regression analyzing together all participants' (US and Chinese) data (see Table 12). Results for this regression incorporating culture as a predictor demonstrated that for all participants, regardless of culture, BC task performance had an insignificant effect on MC task performance. While, at first glance, this finding might appear to contradict prior analyses showing that BC task performance was a significant predictor of MC task performance in the US, these results did not necessarily negate previous analyses. Instead, results from this regression highlighted the small effect of BC task performance on MC task performance, which was not immediately apparent when US and Chinese participants were analyzed separately. When data from the two cultural groups were together entered into this regression analysis, BC task performance was not a strong enough predictor of MC task performance to drive an interaction effect with culture. Therefore, in the light of the aforementioned results, the present study supports the proposition that BC and MC should be seen as two independent constructs, even in the US where the link between them is statistically significant but weak.

### **Creative Self-Efficacy**

Drawing from studies that have shown that creative self-efficacy is a strong predictor of creative performance in both work and school settings (e.g., Beghetto, 2006; Hu & Zhao, 2016), the present study hypothesized that that creative self-efficacy would be positively correlated with

demonstrations of both BC and MC. This hypothesis was, in fact supported when the cognitive dimensions of BC and MC were analyzed. When the behavioral dimensions of BC and MC were measured, however, creative self-efficacy did not act as a significant predictor. Initial correlation analyses showed that participants' scores on the Creative-Self Efficacy Scale (Beghetto, 2006) and the Runco Ideational Behavior Scale (Runco et al., 2001), a measure of creative ideation capturing the cognitive dimension of BC, were significantly positively correlated ( $r_1 = .85, p < .001$  for US participants,  $r_2 = .69, p < .001$  for Chinese participants). These strong correlations corroborate the positive relationship between creative self-efficacy and creative ideation established in the study by Liu, Pan, Luo, Wang, and Pang (2017).

However, creative self-efficacy was not found to be positively correlated with the behavioral dimension of BC in this study. No significant relationship was found between creative self-efficacy and BC task performance for US participants; creative self-efficacy was actually somewhat negatively correlated with Chinese participants' performance on two BC tasks, cartoon caption 1 and cartoon caption 2. These results are not consistent with previous research that has demonstrated that creative self-efficacy directly predicts creative behaviors (e.g., Beghetto, Kaufman, & Baxter, 2011; Jaiswal & Dhar, 2016; Jaussi & Randel, 2014; Tierney & Farmer, 2011). One factor that may have contributed to this inconsistency with previously reported findings is the distinction between "state" and "trait" creativity. The BC product generation tasks utilized in the present investigation were developed by investigators to serve as a measure of situation-specific and time-specific behavioral creativity ("state creativity") and say nothing about study participants' individual differences in personality and creative potential that transcend time and place ("trait creativity"). The products produced by participants in this study provided a "creativity snapshot" in time. Self-report scales of constructs such as creative self-

efficacy, employer ratings, and teacher ratings, on the other hand, offer researchers the opportunity to assess study participants' relatively stable creative tendencies. Although it can be advantageous to adopt measures that assess participants' creative performance more holistically and operationalize creativity as a relatively stable trait, these measures usually entail self-reports or the perceptions of outside observers, which are not always appropriate or valid measures of creativity. For example, Gralewski and Karwowski (2013) found that teachers' ratings of their students' creativity did not always accurately reflect students' actual creative performance and were predictive only of creativity among male students. Simply stated, correlational analyses between study participants' scores for creative self-efficacy and scores for their performance on creative behavioral tasks may well conflate indices of state and trait creativity.

Related to this argument was the finding that, in the present investigation, participants' self-reported creative self-efficacy significantly predicted the cognitive dimension of MC, but failed to predict the behavioral dimension of MC. Results from both the stepwise regression (in which US and Chinese participants' data were analyzed separately) and the simultaneous regression (in which all participants' data were analyzed together) analyses demonstrated that creative self-efficacy was a significant predictor of both US and Chinese participants' MC cognitive performance, as measured by the MCBS (Hao et al., 2016). Although creative self-efficacy was not as strong of a predictor of MC cognitive performance as it was for BC cognitive performance, it was shown to have a significant and moderate effect on MC cognition. In the same way that creative self-efficacy failed to predict BC behavior, creative self-efficacy was also not shown to be a significant predictor of MC behavior, regardless of culture, as demonstrated by the stepwise regression analysis in which the MC task (i.e., revenge scenario question) was entered as the outcome variable. Taken together, the results of the present investigation indicate

that while individual differences in self-reports of creative self-efficacy may be useful for predicting the cognitive dimension of creativity (BC and MC); creative self-efficacy may not be as strong a predictor of behavioral creativity as previously thought.

### **Psychological Entitlement**

Unlike BC performance and creative self-efficacy, psychological entitlement predicted neither dimensions of MC nor BC, irrespective of participants' culture. As a result, the hypothesis that psychological entitlement would be predicative of both MC and BC must be rejected. Given previous findings showing that creativity can be a consequence of psychological entitlement (e.g., Vincent & Kouchaki, 2016; Zitek & Vincent, 2015), the present results seem surprising. However, as illustrated in the introduction, previous studies examining psychological entitlement and creative performance have generally operationalized entitlement as a transitory psychological state, in that participants' sense of entitlement was directly manipulated by the experimenters (e.g., Vincent & Kouchaki, 2016; Zitek & Vincent, 2015). In the present study, trait entitlement is assessed via a self-report scale designed to capture participants' relatively stable beliefs about their deservingness. Thus, findings from the current study support the premise that trait entitlement is not systematically related to either MC or BC. Although temporarily manipulating one's sense of entitlement can lead to a boost of creative performance as shown in previous investigations, the current study fails to support the notion that more entitled individuals also tend to be more creative.

### **Limitations**

Conclusions and inferences drawn from this study should be viewed in light of a few important limitations. Firstly, the sample size of this study may have been too modest for the number of study variables investigated. The relatively small sample size may well have reduced

the statistical power of the study to detect a true effect in the initial correlation analyses shown in Tables 2 and 3. Although for the later regression analyses, the study addressed this issue via the combining of variables as guided by two separate factor analyses, the combined variables did not reflect all of the nuances that were tapped by the original variables. In fact, the two factors of BC yielded by the factor analyses accounted for only 50.73% and 56.04% of the total variability of the original variables for US and Chinese participants respectively. Thus, out of statistical necessity, the present study may have overlooked some important differences among measures of BC and may have failed to capture some significant relationships among study variables.

Secondly, even though this study tried to make the English- and Chinese-versions of the survey as equivalent to each other as possible by following the standard back-translation procedure (Brislin, 1986) and revising translation done by previous researchers, most of the measures used in the study were developed by researchers in the West. Thus, it is possible that these measures may have been interpreted differently and even performed differently by the US and Chinese participants. For example, as determined by the factor analyses, the Compound Remote Association Test may well have been perceived to be a low-restrictive BC task by US participants, whereas it may have been perceived to be highly restrictive by Chinese participants, possibly due to Chinese participants' relative unfamiliarity with this type of word game. These and other cultural differences may have compromised the validity of some of the measures employed. Researchers who are interested in conducting cross-cultural investigations in the future should consider using measures that have been developed in a variety of cultural contexts to better address this issue of cultural fit.

Lastly, the way that the Consensual Assessment Technique was implemented in the present study was not entirely unbiased. The 15 judges recruited to rate participants' responses

were all women, and it was possible that there may have been a gender effect on creativity ratings received by participants. Furthermore, the judges' rating procedure was not closely administered. Due to the large amount of assessment work (each judge took about 5 hours on average to do their ratings), it was impractical to organize a rating session where all judges would come together or even to have judges complete the work in one sitting. Instead, judges were asked to make their ratings at home in two sittings. In reality, there was no way of ensuring that every judge followed this rule. It is possible that some judges did the rating sporadically, which could make their assessment criteria for creativity inconsistent, thereby skewing the final rating scores received by participants. In future studies of this type, investigators should strive to administer the rating procedure in a more controlled manner and would be advised to recruit judges from all genders to see if a high level of reliability can still be achieved.

### **Implications for Educators and Policymakers**

Findings from the present investigation have important implications for educators and policymakers who are interested in promoting creativity in education and developing creativity-enhancing curriculums. While creativity has a dark side, this study supports the contention that MC and BC emerge as two relatively separate constructs, especially in China. Even in the US where BC was found to be a significant predictor of MC, the link between these two constructs is quite weak. Additionally, creative self-efficacy was found to only act as a moderate predictor of MC ideation (the cognitive dimension of MC), which is not predictive of actual MC behavior (the behavioral dimension of MC) according to the current study. Thus, this study establishes that the demonstration of MC is not at all inevitable for individuals who have been identified as having high levels of creative potential or who have demonstrated especially high levels of actual

creative performance. Instead, it is possible that individuals who demonstrate high levels of MC are simply more prone to engage in socially and morally deviant behaviors than are others.

Thus, these findings suggest that, in both the US and China, helping students to develop creative thinking and problem-solving skills should not be expected to directly lead to significant increases in their demonstrations of MC. Hence, educators and policymakers should continue their efforts and commitments to build a learning environment that is conducive to the development of creativity. However, while the present study results show MC and BC to be relatively independent of one another, educators (especially those in the US) should still consider the incorporation of teachings on morality and ethics into their creativity-enhancing curriculums. This addition to the creativity curriculum would serve to help students better navigate what at times can seem to be a sort of moral ambiguity of creativity.

### **Future Research Directions**

Findings from the present study open avenues for future research. First of all, the results reported here establish MC as a multi-faceted construct composed of at least two dimensions that are functionally independent of one another — the cognitive and behavioral dimensions. This result suggests that MC ideation has little implication for actual MC behaviors or task performance. Future studies will be needed to verify these results in both the US and China, and it will be important to extend this research to other cultural contexts as well. Secondly, this study failed to identify any strong and significant predictors of MC, suggesting that predictors of MC may be more tied to malevolent disposition than to creativity *per se*. Thus, in future studies, researchers would do well to explore predictors of malevolence, such as negative personality traits, and how these predictors of malevolence might influence individual's demonstrations of MC.

Furthermore, trait psychological entitlement, unlike state psychological entitlement, was not found to be predictive of MC or BC. Therefore, when examining the relationship between personality traits and creativity, researchers should be certain to differentiate between personality traits and personality states. Ideally, researchers should explore both personality traits and states and their links to creativity. Lastly, culture plays a significant role in the present study – BC and MC emerge as more distinctly separate constructs in China than they do in the US. Even though the magnitude of this cultural difference was relatively small, future studies should continue to explore possible underlying root causes of this difference, perhaps by carefully examining the implicit theories of creativity held by persons in these two cultures. More importantly, researchers should approach MC as a culturally specific construct and adopt culturally appropriate measures to study it.

### **Conclusion**

The present study, guided primarily by the proposition that creativity is both a domain-specific and culture-specific phenomenon, was the first to cross-culturally examine the construct of MC. By incorporating various behavioral and self-report measures for creativity, this study addressed a shortcoming of many previous studies in the creativity literature that reduce multiple measures of creativity into a single dimension. In this investigation, the roles played by BC, creative self-efficacy, and psychological entitlement in the manifestation of MC in the US and China were explored. Support was garnered for the hypothesis that culture would play a role in the manifestation of MC. Additionally, findings from the current study indicate that in both the US and China, MC ideation does not always translate into real-world MC behavior or creation of MC products. Moreover, as MC and BC were found to be two independent constructs, especially in China, this study establishes that the demonstration of MC is not an inevitable byproduct of

creativity. Future studies are needed to confirm the current findings, to investigate MC in relation to negative personality traits, and to continue the cross-cultural exploration of MC. A better understanding of this phenomenon can illuminate ways in which the social benefits of creativity can be maximized while the dark sides of creativity can be managed.

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## Appendix A

## Behavioral Tasks

## Scenario Reflection Questions

Please help the characters in the following scenarios achieve their goals. Read the descriptions of the scenarios and the instructions carefully.

Q1a). Mike was walking on campus. David was running in a hurry and crashed into Mike, causing Mike's laptop to drop on the ground and break. David did not apologize, yelled that it was Mike's fault, and ran away. This made Mike very angry. Please propose as many ideas as possible for Mike to take revenge on David without being discovered. When you write up your responses, please keep in mind your favorite idea, as you will be asked to expand on that idea for the next question.

**Note:** You can submit your responses only after three minutes have passed. However, you may, if you wish, take longer than three minutes to write up your responses.

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Q1b). Please expand on your favorite idea for Mike to take revenge on David without being discovered. Write at least five sentences to describe the idea in detail.

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Q2a). Alex is planning a surprise birthday party for Casey. The party is going to take place at midnight on Casey's birthday in a classroom of their school's academic building. It is 11:40pm, and Casey is studying at her dorm; Alex and Casey's other friends are still setting up the party in the classroom. Please propose as many ideas as possible to help Alex get Casey to the classroom at midnight without Casey suspecting that it is her surprise party. When you write up your responses, please keep in mind your favorite idea, as you will be asked to expand on that idea for the next question.

**Note:** You can submit your responses only after three minutes have passed. However, you may, if you wish, take longer than three minutes to write up your responses.

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Q2b). Please expand on your favorite idea that would help Alex get Casey to the classroom. Write at least five sentences to describe the idea in detail.

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Cartoon Caption-Writing Task

Please write one amusing caption for each of the cartoons shown below.



## Haiku-Writing Task

You are going to write an American Haiku for this part of the survey.

The American Haiku is a very simplified form of unrhymed poetry. It has 5 lines:

Line 1: A noun

Line 2: Two adjectives

Line 3: Three verb forms

Line 4: Any # of words (phrase or sentence)

Line 5: Repeat noun of Line 1

Here are two examples:

Life

Vibrant, brief

Begins, becomes, ends

Time cannot measure its meaning Life

Water

Cool, blue

Whispers, glides, flows

Carefree as a child

Water

Now write an American Haiku of your own. The first line is provided for you - Sunset.

Sunset

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## Compound Remote-Association Test

For the next part of the survey, you are going to solve 20 word problems. For each problem, you will see three stimulus words and you should attempt to generate a fourth word, which, when combined with each of the three stimulus words, would result in word pairs that make up a common compound word or phrase.

Example: fountain, baking, pop

Question: What word can form a familiar compound word or phrase with each of these words?

Solution: soda

Note: You have **30 seconds** to solve each problem. When 30 seconds are up, you will be automatically switched to a new problem and you will NOT be able to go back to the previous problem. Please answer these questions on your own without using Internet searches or other resources. When you are ready, please click the next button.

Q1. dew, comb, bee

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Q2. cream, skate, water

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Q3. preserve, ranger, tropical

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Q4. rocking, wheel, high

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Q5. opera, hand, dish

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Q6. fish, mine, rush

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Q7. fly, clip, wall

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Q8. age, mile, sand

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Q9. flake, mobile, cone

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Q10. force, line, mail

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Q11. night, wrist, stop

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Q12. dress, dial, flower

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Q13. dream, break, light

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Q14. duck, fold, dollar

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Q15. chamber, mask, natural

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Q16. hound, pressure, shot

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Q17. tail, water, flood

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Q18. pie, luck, belly

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Q19. palm, shoe, house

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Q20. aid, rubber, wagon

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## Appendix B

## Self-Report Scales

## Malevolent Creativity

Please respond to the following items according to the frequency of each item in your life.

	Never	Rarely	Sometimes	Often	Always
1. I think of ideas to pull pranks on other people.	0	1	2	3	4
2. I play tricks on people that I don't like without getting caught.	0	1	2	3	4
3. When conventional methods do not work, I think of ideas that bend the rules.	0	1	2	3	4
4. I lie when it helps make things simpler.	0	1	2	3	4
5. I easily think of excuses to justify my wrongdoings.	0	1	2	3	4
6. Lying is easy for me and I can make my lies coherent and convincing.	0	1	2	3	4
7. I think of ways to hide my misdeeds from others.	0	1	2	3	4
8. When being treated unfairly, I think of unconventional ways to take revenge.	0	1	2	3	4
9. I think of new ways to punish people who have done wrong.	0	1	2	3	4
10. I think of using unusual ideas to hurt people who are in my way.	0	1	2	3	4
11. I use novel ways to sabotage others' plans, ideas, or property.	0	1	2	3	4
12. I think of novel ideas to hurt myself.	0	1	2	3	4
13. When hurting others, I come up with thorough plans to hide my identity.	0	1	2	3	4

## Creative Ideation

Please indicate how often each of the phrases describes your thinking. Note that the focus is on your thinking, which might be different from your actual behavior. Please indicate how you really think, not how you believe you should act.

	Never					Very Often
1. I have many wild ideas.	1	2	3	4	5	
2. I think about ideas more often than most people.	1	2	3	4	5	
3. I often get excited by my own new ideas.	1	2	3	4	5	
4. I come up with a lot of ideas or solutions to problems.	1	2	3	4	5	
5. I come up with an idea or solution other people have never thought of.	1	2	3	4	5	
6. I like to play around with ideas for the fun of it.	1	2	3	4	5	
7. It is important to be able to think of bizarre and wild possibilities.	1	2	3	4	5	
8. I would rate myself highly in being able to come up with ideas.	1	2	3	4	5	
9. I have always been an active thinker—I have lots of ideas.	1	2	3	4	5	
10. I enjoy having leeway in the things I do and room to make up my own mind.	1	2	3	4	5	
11. My ideas are often considered “impractical” or even “wild.”	1	2	3	4	5	
12. I would take a college course which was based on original ideas.	1	2	3	4	5	
13. I am able to think about things intensely for many hours.	1	2	3	4	5	
14. Sometimes I get so interested in a new idea that I forget about other things that I should be doing.	1	2	3	4	5	
15. I often have trouble sleeping at night, because so many ideas keep popping into my head.	1	2	3	4	5	
16. When writing papers or talking to people, I often have trouble staying with one topic because I think of so many things to write or say.	1	2	3	4	5	
17. I often find that one of my ideas has led me to other ideas that have led me to other ideas, and I end up with an idea and do not know where it came from.	1	2	3	4	5	
18. Some people might think me scatterbrained or absentminded because I think about a variety of things at once.	1	2	3	4	5	
19. I try to exercise my mind by thinking things through.	1	2	3	4	5	
20. I am able to think up answers to problems that haven't already been figured out.	1	2	3	4	5	
21. I am good at combining ideas in ways that others have not tried.	1	2	3	4	5	
22. Friends ask me to help them think of ideas and solutions.	1	2	3	4	5	
23. I have ideas about new inventions or about how to improve things.	1	2	3	4	5	

## Creative Self-Efficacy

Please respond to the following items by choosing the point on the scale that best reflects your own beliefs.

	Not True				Very True
1. I am good at coming up with new ideas.	1	2	3	4	5
2. I have a lot of good ideas.	1	2	3	4	5
3. I have a good imagination.	1	2	3	4	5

## Psychological Entitlement

Please respond to the following items by choosing the point on the scale that best reflects your own beliefs.

	Strong disagreement	Moderate disagreement	Slight disagreement	Neither agreement nor disagreement	Slight agreement	Moderate agreement	Strong agreement
1. I honestly feel I'm just more deserving than others.	1	2	3	4	5	6	7
2. Great things should come to me.	1	2	3	4	5	6	7
3. If I were on the Titanic, I would deserve to be on the first lifeboat!	1	2	3	4	5	6	7
4. I demand the best because I'm worth it.	1	2	3	4	5	6	7
5. I do not necessarily deserve special treatment.	1	2	3	4	5	6	7
6. I deserve more things in my life.	1	2	3	4	5	6	7
7. People like me deserve an extra break now and then.	1	2	3	4	5	6	7
8. Things should go my way.	1	2	3	4	5	6	7
9. I feel entitled to more of everything.	1	2	3	4	5	6	7