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| **Masters in Experimental Psychology**  **Project Assessment Form**  **MSc: Cognitive and Decision Sciences Candidate: KCPK2**  **Name of Supervisor: Dr. Verena Krause**  **Date: August 26, 2016** |

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|  | **Poor** |  |  |  | **Good** |
| Literature summary: is the extensive body of relevant evidence effectively assimilated? | 1 | 2 | 3 | 4 | 5 |
| Method section: does it permit easy replication, is the choice of method clearly justified? | 1 | 2 | 3 | 4 | 5 |
| Proposed statistics and analysis: is it very detailed and clear? | 1 | 2 | 3 | 4 | 5 |
| Critical analysis and insight: is there substantial evidence of student’s own insight/analysis? | 1 | 2 | 3 | 4 | 5 |
| Overall clarity: is sit clear? Was student able to articulate complex ideas effectively? | 1 | 2 | 3 | 4 | 5 |
| Structure: is the structure explicit and easy to follow? | 1 | 2 | 3 | 4 | 5 |

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**Agreed Grade:**

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Running head: WILLINGNESS TO TAKE RISKS AND CREATIVITY

In Partial Fulfillment of the Requirements for the Degree of

MSc in Cognitive and Decision Sciences

Can Engaging into Creativity tasks Increase one’s Willingness to Take Risks? The Mediating roles of Need for Uniqueness and State Self-Esteem

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# Abstract

Willingness to take risks has long been viewed as an important antecedent of creativity in the organizational context. Nonetheless, it has not described up to date whether engaging into creative activities can have an overall effect on willingness to take risks, and furthermore, whether that effect is mediated by two individual factors which have been closely associated with both variables such as need for uniqueness and state self-esteem. Two separate mediations were conducted to determine these factors. In study 1 (N = 233) results showed that while there was a significant effect of creativity on willingness to take risks, the mediational effect of need for uniqueness was not found critical. Similarly in Study 2 (N = 303) there was evidence of a relationship between creativity and willingness to take risks, but no evidence of a mediation of state self-esteem on that relationship. It is concluded that although creativity was found to be a significant predictor of willingness to take risks, there were no indications of a mediating effect on that connection.

*Keywords:* Willingness to take risks, Creativity, Need for Uniqueness, State self-esteem

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# Introduction

In a modern area of global financial antagonism and extreme economic pressure, the companies that are willing to take risks based on their creative capital, are usually the ones able to gain and sustain the competitive advantage (Llopis Córcoles, Garcia-Granero, Fernández-Mesa & Alegre-Vidal, 2013; Nelson, & Winter, 2009). Creative capital is considered the array of creative thinkers a company possesses, whose creative outputs and ideas can be transformed into prized products or services (Florida & Goodnight, 2005). Thus, a popular idea across all levels of organization is to place managers and employees in a creative enough environment, so that they can be motivated to take risks which will have a constructive impact on the organization as a whole (Amabile, Barsade, Mueller & Staw, 2005; Dewett, 2004, 2006, 2007; Woodman, Sawyer & Griffin, 1993). This form of intrapreneurship, was initially enacted by the high tech companies of the West Coast in the United States, such as Google, Apple and Facebook, and has then become the gold standard for most companies which respect themselves and their personnel. However, although the causal sequence of creativity to willingness to take risks seems to be changing how organizations operate, there seems to be almost no empirical research describing the processes underlying these connections and what characteristics could possibly affect or mediate them.

The bulk of the existing scientific literature has mainly focused on the link between decision risks and creativity. It is vital here to clarify though, that although decision risks and willingness to take risks appear to be similar notions, they are overall different concepts. More, specifically, a decision risk is commonly defined as the degree of uncertainty involved in the potential of a significant and/or unsatisfactory decision to be realized (Sitkin & Pablo, 1992). There are two important determinants of overall decision risk: a) risk perception; which is defined as the individual’s appraisal of how risky a situation is in calculative terms, how controllable it is and what is the confidence in those calculations (Baird & Thomas, 1985), and b) risk propensity; which is defined as the individual’s current tendency to take or avoid the risk presented. Willingness to take risks is very similar to the latter determinant. Nevertheless, their core difference is that the notion of willingness to take risks is designed to distinguish how willing an employee is to take risks in an effort to produce high-quality work, while risk propensity, on the other hand, is understood mainly as an individual trait that can be represented across a variety of different domains (Dewett, 2004, 2006; Sitkin & Weingart, 1995).

Overall research associated with risk and creative behavior in the organizational context has been particularly fruitful. There has been substantial evidence of a close organizational link between the two in a number of different scientific journals. To start with, risk has frequently been correlated with numerous factors such as courage, motivation, challenge and openness to experience, all of which have been seen as integral components of creative behavior (Amabile, 1988; Lauriola & Levin, 2001; McCrae, 1987; West & Richter, 2008). Conversely, creativity in the workforce, which is most often defined as the production of novel and useful ideas (Amabile, 1988; Woodman, Sawyer & Griffin, 1993), is regarded as a risky initiative which defies regularly the current state of affairs and has the capacity to raise levels of uncertainty, and reduce predictability and control (George, 2007). These conceptions demonstrate that apart from an apparent significant correlation between the two, there is a high level of overlap among their characteristics as well (Llopis Córcoles, Garcia-Granero, Fernández-Mesa & Alegre-Vidal, 2013; March & Shapira, 1987). To continue, the associative research conducted has provided an important collection of significant evidence as well. For example, one of the primary analyses on the matter conducted by Sethia (1989) found that creativity is consistently risky as it is an exceedingly ambiguous compound with a highly complicated and longstanding sequential route. Similarly, there have been several other organizational studies which have demonstrated the importance of creativity in risk taking, both anecdotally (Shalley, 1995; Zhou & George, 2001) and empirically (Abbey & Dickson, 1983; Agarwal, & Kumari, 1982; Dewett, 2004, 2006, 2007; Eisenman, 1987; Fidler & Johnson, 1984; Jalan, & Kleiner, 1995). In general, although the hypothesis is rarely tested and the amount of evidence sparse, it is agreed upon in the organizational and management literature that a climate of creativity exists when employees and managers are willing to take risks (Dewett, 2007; Tesluk, Farr & Klein, 1997).

Nevertheless, what happens when the creative climate is already provided? Are employees keener to take risks when they are extrinsically influenced by creativity? According to Investment Theory (Sternberg 1999; Sternberg & O’Hara, 2001), creativity is in large part a decision itself, which can be developed on demand. In other words, simply requesting or tasking someone to be more creative will allow him/her to set a higher creative threshold and produce a more creative basis of output from the onset. Empirical evidence has proven this assertion to be critical as well. For example, Shalley (1991, 1995) found that an individual’s overall creative effort is effectively amplified when that person is assigned to undertake a creative task/goal. In a similar study, Carson & Carson (1993) supported that individuals who were accredited with a creativity goal scored better creatively than those who were not assigned with one (Shalley & Gilson, 2004).

Therefore, based on the premise of Investment Theory and using the existing scientific literature, it was hypothesized whether there would be any scientific studies indicating that engaging in creative behavior can be an important antecedent of willingness to take risks. Surprisingly, to the researchers’ best of knowledge, there are virtually no empirical investigations on the implications creativity can have on willingness to take risks. Furthermore, it should be asserted that in all recent studies examining the two entities, creativity has always been measured as the dependent variable of the study and willingness to take risks has always been considered as the major antecedent of that output (Dewett, 2004, 2006, 2007; Madjar, Greenberg & Chen, 2011). Hence, it seemed paramount to examine whether promoting creative action can have a significant effect on people’s willingness to take risks. This will be the focal point of this paper.

Nonetheless, research has shown that even if the provided results reveal a significant effect of creativity on willingness to take risks, it would be doubtful whether the whole essence of the effect could be captured just by the analysis of that association. To illustrate, most of the research conducted on risky decision making has primarily focused on the direct effects of one or two determinants. According to researchers such as Sitkin & Weingart (1995), simple causal approaches could not possibly provide a satisfactory description of the multiple and complex sets of stimuli which affect risky behavior in organizations. Especially when such a complicated and multi-dimensional neuro-cognitive phenomenon like creativity is added into the equation.

Therefore, two individual characteristics, which have been closely associated with creativity and risk taking, were added as mediators. The two mediators added were need for uniqueness which is based on Uniqueness Theory (Snyder & Fromkin, 2012), and state self-esteem (Heatherton & Polivy, 1991) which assesses current self-esteem at any given point. These two elements were introduced to help provide: a) a clearer idea of the connections between the variables, b) a richer understanding of the spectrum of antecedents willingness to take risks has, and c) an informative scope of the fascinating interplay between mood, cognition, creativity and decision making, which has earned limited systemic consideration in empirical research (Schwarz, 2000).

There are two other important reasons these two variables were chosen. The first was to attempt to extend the literature regarding the social aspects interconnected with creative augmentation in the workplace. This enquiry originates from Amabile’s (1983, 1988) Componential Model of Creativity and her prolific work on the social context of organizational creativity. Amabile stated that the most important factor for creative behavior in the workplace is motivation. In turn, motivation has been considered as an integral part of both need for uniqueness (Tepper & Hoyle, 1996), a process called “counter-conformity motivation”, (Nail, 1986) and for state self-esteem (Greenberg, 2008; Maslow, Frager & Cox, 1970). Therefore, it would be really interesting to analyze the significance of these two motivational states as part of Amabile’s greater theoretical framework.

The second reason these two variables were chosen as possible mediators of creativity on willingness to take risks evolves from the fact that while there is a well-founded amount of research regarding these relationships, the scientific interest is sporadic and the theoretical implications often remain rather undeveloped. For instance, while there have been a considerate number of studies suggesting the prominence of creativity on need for uniqueness (Lynn & Harris, 1997; Manikandan & Rajamohan, 2014; Okamoto & Takaki, 1992), to the researchers knowledge, there has only been one study examining the effect of need for uniqueness on risk taking (Cantarella & Desrichard, 2015). Similarly, although self-esteem has been closely linked to creativity throughout the years (Deng & Zhang, 2011; Goldsmith & Matherly, 1988), there have been conflicting views on its possible involvement in risky decision making (Josephs, Larrick, Steele & Nisbett, 1992; Landau & Greenberg, 2006).

Thus, taking into consideration all the facts presented, establishing a clearer picture of the association between creativity and willingness to take risks seems imperative. This paper will argue exactly that and try to determine whether factors such as need for uniqueness and state self-esteem contribute to willingness to take risks in any way. But before determining that, it is important to take an extensive look at what previous studies have brought to the argument.

## Theoretical Background

### Willingness to Take Risks and Creativity

Willingness to take risks is an unrefined extension of any creative effort. It has always been considered as one of organizational creativity’s most important antecedents (Amabile, 1983, 1988; Dewett, 2006, 2007). Willingness to take risks is commonly defined as the willingness to take a well-planned risk within one’s occupational role in an effort to yield such a beneficial outcome that one miscalculates the prospect of failure as an outcome. One could make a case that willingness to take risks could be used to explain other idle behaviors, such as drug use or gambling, however, its primary purpose is to only inspect employee’s willingness to take risks that could provide a positive consequence on one’s job (Dewett, 2006).

Although numerous organizational and creativity scholars have long stressed the need for a distinct construct like willingness to take risks in the creativity literature, it has not been long since it was first considered as such. More specifically, research on willingness to take risks tentatively appeared for the first time in research and development (R&D) units in the 1980’s. In a highly influential study conducted by Abbey & Dickson (1983), it was found that in many cases, the most successful and creative R&D units were the ones that were willing to make riskier decisions. Recently, there has been further research in applied settings which has supported this claim as well. For instance, Dewett (2007) reported that increased willingness to take risks is an essential parameter for any creative output in a R&D setting, and further suggested the imminent role of creativity on willingness to take risks and vice versa. Nevertheless, although these findings have been considered promising, these efforts have been all restricted to the rather peculiar environment of the R&D setting. It is evident that the very nature of the R&D department in any organization is to be motivated to take initiatives, be creative and be willing to take a plethora of risks. Ford & Gioia (2000) have highlighted that by focusing only on the setting of the R&D lab, perhaps researchers have inadvertently overlooked the managerial and organizational context as a potential environment for creative action and willingness to take risks. Therefore, safe assumptions on the overall prominence of willingness to take risks and its connection to creativity across other more “conservatively thinking” departmental domains can still be considered somewhat unclear.

However, the existing literature *has* demonstrated over the years that there are a number of different organizational prerequisites under which willingness to take risks can take place. Interestingly, research has shown that these conditions are very similar to the ones needed to facilitate creative behavior in the organizational sphere as well, as they are comprised of several work related contextual factors and various individual differences (Dewett, 2004). For instance, Krueger & Dickson (1994) found that the sense of threat elicited in organizations by disciplining their employees’ choices confines their motivation to problem-solve. On the contrary, it was found that those who were led to believe that their decision-making skills were highly appropriate and effective saw more opportunities in a risky decision and took more risks in general. On the same note, Pfeffer and Sutton (2000) suggested that managers should discourage as much as possible the element of fear in an organization, and promote a mentality which fully supports employees to try new and different approaches in the workplace. Finally, Schein (1993) discovered that for anybody to engage in deviating behavior, they must be assured that the pursuit of different behavioral patterns will not be regarded as ruinous. Hence, it can easily be suggested that willingness to take risks in the organizational context is facilitated by creativity, through supervisory support and encouragement (Amabile, Conti, Coon, Lazenby & Herron, 1996).

Autonomy of action has also been regarded as a significant influence on one’s willingness to take risks. Autonomy here is considered as the freedom, independence and discretion provided to employees to successfully carry out their work in any way they deem appropriate (Hackman & Oldham, 1980). There has been a sufficient amount of evidence which has shown that freedom to experiment with ideas is a necessary component of any creative output (Amabile et al., 1996; Shalley, 1991; Shalley, Gilson & Blum, 2000). Nonetheless, there has been contradicting views of whether this relationship is truly straightforward. For Example, Kahn (1990) has suggested that the effect of autonomy on creativity is actually redirected through the employee’s willingness to take risks. The rationale behind this suggestion is quite simple. Employees who regard themselves to have more autonomy in the workplace are more likely to engage into riskier decision making than those who do not.

Finally, another characteristic which has been viewed as important in determining willingness to take risks is anonymity. Group brainstorming has always been viewed as the absolute creativity task in any organization. However, for a variety of reasons it has not been able to live up to its expectation when empirically tested (Stein, 2014). A major reason for that is considered to be the perceived risk one assumes when offering potential solutions to a problem in front of other group members. It is viewed that negative and damaging feedback could destroy any capacity for willingness to take risks. To address this problem, organizations have begun to perform these brainstorming tasks electronically. In comparison, studies have shown groups who engaged in electronic brainstorming tasks outperformed the ones that did not in overall idea generation (Valacich, Dennis & Connolly, 1994). Thus, a viable explanation for these findings is that anonymity reduces the risk of participation, and enables employees to willingly take more risks in their idea propositions (Dewett, 2006).

To sum up, it is noteworthy here to state that the conditions discussed here are all contextual. The reason for this is that the research conducted up to this point has primarily focused on these characteristics. While studies have indicated that individual differences such as self-efficacy (Gist, 1989; Redmond, Mumford & Teach, 1993) and personality traits (McCrae, 1987; McCrae, 1996; McCrae & Costa, 1997) also influence creativity and willingness to take risks, more in depth guidelines are needed to examine and elaborate upon a potential causal connection between all these variables. Therefore, as most research on creativity in the organizational setting commonly views it as an environmental structure, encouragement to be creative, autonomy of action and anonymity were all carefully selected as important contextual aspects of how this study was constructed, as they prove to be especially crucial for creativity and subsequently willingness to take risks. Taking into consideration the above, the first hypothesis of the study will investigate whether:

*H1: Engaging in creative work is positively associated with people’s willingness to take risks.*

### Need for Uniqueness, Creativity and Willingness to take Risks

Need for uniqueness characterizes individuals who have a powerful drive to be independent, nonconforming, inventive and willing to support their uniqueness behaviorally at the risk of social criticism and condemnation (Tepper & Hoyle, 1996).

The notion is based on Snyder & Fromkin’s (2012) uniqueness theory which attempts to explain attitudinal and behavioral idiosyncrasy in regard to other peer groups and social norms. The theory has been mainly used in consumer decision-making as it states that in many cases people try to differentiate themselves from others by acquiring products whose originality, scarcity and unpopularity will make them perceive themselves as unique (Lynn & Harris, 1997). This type of behavior is manifested in three types: a) creative choice counter-conformity, b) unpopular choice counter-conformity, and c) avoidance of similarity. Interestingly, researchers have indicated that the first two types are both driven by creative thinking. However, they do differ in terms of risk perception as unpopular choices involve willing to risk social status in order to feel unique, while creative choices are considered as milder and easier to accept from others (Manikandan & Rajamohan, 2014; Tian, Bearden & Hunter, 2001). Thus, this theoretical background raises the question of whether need for uniqueness can explain the relationship between creativity and willingness to take risks.

Remarkably, apart from research in consumer behavior, there have not been many attempts trying to decode the understanding of need for uniqueness in the creativity literature. One of the first studies attempting to establish a connection was provided by Snyder and Fromkin (1977). The two researchers discovered that need for uniqueness was correlated with the size of formal signature, and participation in a number of unique initiatives such gay groups, women’s equal rights and MENSA (high IQ societies). Similarly, Okamoto (1985) revealed that individuals who scored high in need for uniqueness measurements, had a more distinguished set of values and daily inclinations, ranging from favorite professional baseball team to favorite type of novels and leisure activities. Both of the studies here conclude that need for uniqueness surfaces as a motivational concept of individual difference, closely related to the motivational process of being creative (Okamoto & Takaki, 1992).

The experimental research revolving the direct effect of need for uniqueness on risk-taking is almost non-existent. To the researchers’ knowledge, the only empirical study examining the two is provided by Cantarella & Desrichard (2015). In their study, they manipulated each participant by giving them false information about the majority’s decision on a particular subject, and then analyzed to see whether deviant behavior was connected with the participants’ need for uniqueness scores. Interestingly, they found a significant relationship among the two with participants’ need for uniqueness predicting a significant increase in willingness to take risks. Hence, the study provides the first causal link between need for uniqueness and risk taking. The implications from these studies open up the question of whether there is a role for need for uniqueness in the creativity to willingness to take risks sequential link. This leads to the second hypothesis of the study which will analyze whether:

*H2: Need for uniqueness mediates the relationship between engaging in creative work and willingness to take risks.*

### Self-esteem, Creativity and Willingness to Take Risks

The concept of self-esteem has been labelled under many names in the scientific literature. Terms such as “self-image”, “self-presentation” and “self-confidence” have been used as variations of the term with slightly different definitions. However, the general theme of all constructs is related to worth and competence (Mruk, 2006). More specifically, self-esteem is defined as the aggregate of a person’s subjective perceptions, attitudes, emotional status, appearance and behavioral mannerisms with respect to himself/herself (Levine & Smolak, 2002; Neziroglu, Khemlani-Patel & Veale, 2008; Zoabi, 2012).

Existing research, has shown that self-esteem has consistently been linked to creativity. One of the first studies examining the connection was performed by Goldsmith & Matherly (1988), who tested whether there was a positive correlation among males and females, in self-report measures of self-esteem and self-report measures of creativity. The analysis of their data showed a strong relationship between the two for both sexes, even though women scored better in their results than men. Recently, extensive insight on this connection has been provided by Deng & Zhang (2011). The two researchers conducted a widespread meta-analysis of 24 scientific papers, involving almost 4000 participants. The main conclusion of the study showcased that self-esteem was significantly correlated to creativity.

The role of self-esteem in risky decision-making has also been systemic. For example, Josephs et al. (1992) investigated how high or low self-esteem participants decided to either take a standard monetary compensation or take a risk to gain more. The results revealed that the players with lower self-esteem tended to be more risk averse than the ones with higher self-esteem. Analogous to these findings were the results obtained from Landau & Greenberg’s (2006) study who explored the connection of self-esteem with heightening morality salience. The researchers concluded that higher self-esteem participants were keener to go after opportunities of excellence than the lower self-esteem individuals, despite the high risk of failure.

Nevertheless, there have also been studies in which both the connection between self-esteem and creativity (Gerrard, Poteat & Ironsmith, 1996) and self-esteem and risk-taking (Yang, Dedovic & Zhang, 2010) have been found lacking or inadequate. This raises the question of whether self-esteem truly is associated with creativity and willingness to take risks and whether it has any significant role in that connection. Therefore, the third hypothesis of the study will try and determine whether:

*H3: State self-esteem mediates the relationship between engaging in creative work and willingness to take risks.*

# STUDY 1

## Methods

### Participants

233 participants from the USA participated in this study. 124 of those participants (60 male and 64 female; Mean age = 37.27 years old, *SD* = 11.890) were randomly appointed to perform the creativity task, while the other 109 (61 male and 48 female; Mean age = 35.27, *SD* = 11.243) were appointed to complete the practicality task. The participants were approached online on Amazon Mechanical Turk (Mturk), which is a crowdsourcing Internet marketplace (See Table 1 in Appendix A for further information regarding demographics and participant frequencies).

The study was approved by the University College London Research Ethics Committee. All participants were informed about the implications of participating and were kindly asked to sign an informed consent form before the assessment start.

### Materials

The participants were asked to perform either a creativity task or a practicality task; which were both devised by the researchers. More specifically, the creativity group was asked to imagine that they were an employee working at *Creative Mall Designs* and were tasked with putting a napping station into an empty mall space in a new mall. They were told that the idea behind the napping station would be that tired shoppers could rent a space in the napping station for a period of time and take a nap. They were further informed that this mall will be the very first world-wide to include a napping station. It was asked from them to elaborate on this creative idea using at least 300 characters of text. The practicality group was asked to imagine they were an employee working at *Practical Mall Designs* and were tasked with putting a clothing retailer into this empty mall space. They were informed that the main idea of the clothing retailer would be that men, women, and children could purchase clothing at this store. Additionally, the participants of this condition were told that this mall, like all malls world-wide, needs to include a clothing retailer. It was their task to elaborate on this practical idea using at least 300 characters of text.

The participants were assessed for their need for uniqueness with the Self-Attributed Need for Uniqueness Scale (SANU). The SANU is a 4 item self-report questionnaire that was developed by Lynn & Harris (1997). Overall willingness to take risk was assessed using Dewett’s (2007) measure of employee’s willingness to take risks (WTR). The main advantage of using this scale is that it helps explain how willing an employee is to take work related risks, while striving to produce the highest-quality of work. Both questionnaires were assessed for their reliability using Cronbach’s coefficient alpha. The four item SANU scale was examined first. The measurement achieved a high score of α = 0.845 and was considered very reliable. Subsequently the WTR scale followed and scored an even higher reliability score of α = 0.918 (See Appendix B for exact measures used).

### Design

The design of this study was a between participants design trying to assess two dynamics: a) whether there is an effect of group condition (creative vs practical) on willingness to take risk, and b) whether there is an mediated effect of need for uniqueness on the relationship between group condition and willingness to take risk. The Independent Variable (IV) of the study was the group condition and that had two levels: a) creative, and b) practical. The Dependent Variable (DV) of the study was the participant’s willingness to take risk. The Mediation Variable (MV) of the study was the need for uniqueness.

### Procedure

All participants were approached through the crowdsourcing Internet marketplace Mturk. The survey was built using Qualtrics, which is an internet based research software company. It was portrayed along with a list of other surveys on the site. Any participant interested in taking part would just click on the survey and start it. All participants were informed that they would be receiving a one (US) dollar payment for their time and effort. Right before the assessment began, the interested individuals were informed about the implications of the survey and whether they would like to continue to it. Those interested in continuing would be randomly assigned to execute either the practical task or the creative task. The participants here were asked to provide at least 300 characters of text to continue with the survey. This was encouraged for two reasons: a) so that the participants would have to force themselves to produce a result, and b) so that the researchers can obtain a dependable result and not a “skip-through” effect. Afterwards, the participants were asked to fulfill the WTR scale and the SANU scale. Finally, the participants were requested to put in some information on their demographic background such as: age, gender, ethnicity, location, education, work industry and combined level of household income. Although most of the information obtained from the demographics was not used in the main analysis, it was considered that acquiring such data could provide a significant future outlook on what particular variables have the potential to influence risky decision making.

## Results

### Hypothesis Testing

Initially, an independent t-test was conducted to examine whether there would be a direct significant effect of engaging in creative work on willingness to take risks for this population sample (Hypothesis 1). As expected, the test revealed that the participants performing the creativity task scored higher (*M* = 5.18, *SD* = 0.95) than the participants performing the practicality task (*M* = 4.78, *SD* = 1.19), *t*(231) = -2.808, p = 0.005. The statistical significance of these findings allowed the researchers to proceed and test Hypothesis 2; which examined whether there is a mediating effect of need for uniqueness on the relationship between group condition and willingness to take risks.

### Mediation Analysis

To test the mediated effect of need for uniqueness, Baron and Kenny’s (1986) causal steps strategy was used to detail the level of influence between the variables, and Preacher and Hayes’ (2008) method of analysis to determine the statistical significance of the mediated path. According to Baron and Kenny (1986), in order for mediation to surface between two variables, four conditions must occur: a) the IV significantly affects the DV, b) the IV significantly affects the suggested MV, c) the MV significantly affects the DV while controlling for the IV, and d) the effect of the IV on the DV decreases while controlling for the MV. These four conditions were tested for significance using ordinary least squares (OLS) regression models. The overall results are reported in Figure 1.

Figure 1. Mediation Model

Need For Uniqueness

*A = .110* *B = 0.205*\*

*C = .396\**

Willingness to take risks

Creativity Tasks

*C’ = .373\**

Note. C = Total effect; C’ = Direct effect; (\*) if p < 0.05.

In more detail, the C path (Total Effect) on the figure represents the first condition mentioned above. The analysis suggested that group condition does significantly affect willingness to take risk, *b* = 0.3960, *t*(231) = 2.8076, p = 0.0054 (C). The C path is also called the total effect of the model. The second and third conditions were then analyzed which represent the A path and the B path respectively. The findings produced two different outcomes. The A path analysis showed that group condition was not a significant predictor of need for uniqueness, *b* = 0.1095, *t*(231) = 0.9359, p = 0.3503 (A); while, the B path output showcased that need for uniqueness was as a significant predictor of willingness to take risks with *b* = 0.2046, *t*(230) = 2.6113, *p* = 0.0096 (B). From these initial statistical breakdowns, the mediational hypothesis cannot be fully supported. Finally, the last condition was examined which is represented in the figure as the C’ path. The C’ path is also called as the direct effect of the mediation model. Here, it was tested whether the effect of group condition on willingness to take risk would decrease while controlling for need for uniqueness. *R2* for this equation was figured at 0.0330. Results showed that the effect of the predictor decreased, however, it remained significant after controlling for need for uniqueness (*b(C’)* = 0.3736, *SE* = 0.1396, p = 0.0080 compared to *b(C)* = 0.3960, *SE* = 0.1411, p = 0.0054).

To test the statistical significance of the proposed mediation path, Preacher and Hayes’ (2008) indirect SPSS macro was used. The bootstrap result for the mediated effect was not significant (*b* = 0.0224, *SE* = 0.0270, p = 0.4072). Therefore, it can be concluded that although there is a total effect of creativity on willingness to take risk, and a significant effect of need for uniqueness on willingness to take risk, there is no statistical evidence that need for uniqueness mediates the effect of engaging in creative tasks on willingness to take risk.

# STUDY 2

## Methods

### Participants

Overall, there were 303 participants admitted in the study (302 from the United States and 1 from Canada). From those, 148 (73 male and 75 female, Mean age = 35.84, *SD* = 12.613) were assessed performing the creativity task while the remaining 155 (72 male and 83 female, Mean age = 34.80, *SD* = 12.067) were assessed executing the practicality test. The sole inclusion criteria of the study was that the participants had to live in the United States or Canada. Participants were approached through the crowdsourcing Internet marketplace Mturk. (See Table 2 in Appendix A for further information regarding demographics and participant frequencies).

The study was approved by the University College London Research Ethics Committee. All participants were informed about the implications of participating and were kindly asked to sign an informed consent form before the assessment start.

### Materials

For the group manipulation, a variation of the Alternate Uses Task (AUT) for divergent thinking was used (Guilford, 1967). More specifically, participants were asked to provide as many business ideas they have for a new empty space in a mall. The difference between the two groups was that the creative group was asked to deliver as many creative (novel and original) ideas as they could, while the practical group was asked to provide as many practical (useful and feasible) ideas as they could. This approach here, allowed the creative group to fully harness their creative drive and the control group to stimulate practical thinking. All participants had five minutes to do so.

One person, blind to condition, rated the creativity of each response (1 = not at all original/novel to 5=extremely original/novel) and the practicality of each response (1 = not at all useful/feasible to 5 = extremely useful feasible). This practice helped provide an understanding of whether the manipulation of the two groups was successful or not.

Self-esteem of each participant was measured using the State Self-Esteem Scale (SSES) produced by Heatherton & Polivy (1991). The scale was constructed to assess perceived self-esteem at a given point in time. The measurement has been used extensively in a number of different contexts and has overall been demonstrated to be a very useful measure of assessing state self-esteem (Chau, Thompson, Chang & Woo, 2008). In this study, only two components of the scale were used (performance self-esteem (PSE) and social self-esteem (SSE)), as it was viewed that the Appearance Self-Esteem part was irrelevant to the hypothesis and could jeopardize the overall effects of the analysis. As in the first study, willingness to take risk was assessed using Dewett’s (2007) measure of employee’s willingness to take risks (WTR). The questionnaires used were both tested for their reliability using Cronbach’s coefficient alpha. The test of the WTR scale showed a coefficient score of α = 0.927, which was considered highly reliable. The SSES followed. The measurement was first examined in its two sub-components separately and subsequently as a whole. Scores form the SSE component showed a very high scoring of α = 0.920, while from the PSE a high scoring of α = 0.873. In aggregate, the overall reliability mark of the SSES was considered as extremely reliable as it showed a score of α = 0.941 (See Appendix C for exact measures used).

### Design

The design of Study 2 was a between participants design trying to assess two dynamics: a) whether there is an effect of group condition (creative vs practical) on willingness to take risk, and b) whether there is a mediated effect of state self-esteem on the relationship between group condition and willingness to take risk. The Independent Variable (IV) of the study was the group condition which had two levels: a) creative, and b) practical. The Dependent Variable (DV) of the study was the participants’ willingness to take risk. The Mediation variable (MV) was the self-reported self-esteem of the participants.

### Procedure

Study 2’s procedure followed in many ways the procedure of the first study. The study was built using Qualtrics research software and all participants included were approached via the Mturk website. The survey could be found on a list of other ones the website provided. They were informed that they would be given half a dollar (0.50 US $) for their participation. Any participant interested in the fee and the survey would just have to click on it to transfer to the top page of the study. There, the participants would be informed about the implications of the study and asked whether they would like to commence to it. Those choosing to continue would be randomly assigned to either the creative condition or the practical condition and begin with their respective task. They had five minutes to complete that task, however, if they felt like continuing with the exercise over the time limit, they were free to do so. Right after that, the participants were kindly asked to complete in turn the SSES for self-esteem and the WTR scale for their willingness to take risks. Once they fulfilled the data in the two measurements, as an attention check, participants were asked whether they remembered what kind of ideas they were asked to generate in first task of the experiment. Those who failed to provide the correct answer here, were excluded from the report’s statistical analysis. Before the end of the study, the participants were asked to provide some additional information regarding their age, gender, location, education, work industry and combined level of household income.

## Results

### Manipulation Check

To test whether the creativity/practicality manipulation of the IV was effective, two independent t-tests were conducted. The first examined whether the creativity condition generated more creative ideas on average than the practicality group. Results indicated that indeed the participants in the creativity condition (*M* = 3.19, *SD* = 1.24) generated significantly more creative ideas than participants in the practical condition (*M* = 2.14, *SD* = 1.07); *t*(301) = -7.905, p <= 0.001. The second manipulation, check was concerned with whether the participants in the practical condition generated more practical ideas than the creativity group. Likewise, the analysis showed that the participants in the practical condition (*M* = 2.90, *SD* = 1.02) were significantly more practical in their ideas than the participants in the creative condition (*M* = 2.16, *SD* = 0.90); *t*(301) = 6.644, p <= 0.001.

### Supplemental Analysis

To test for multicollinearity, a bivariate Pearson correlation was conducted between self-esteem scores and group condition. The correlation revealed a negative association between the two variables (r = -.002) which was not statistically significant (*p* = 0.975).

### Hypothesis Testing

An independent t-test was conducted to examine whether there would be a direct significant effect of engaging in creative work on willingness to take risks for the population sample of the second study (Hypothesis 1). The test revealed that the participants performing the creative task were significantly more willing to engage in risky behaviors (*M* = 4.89, *SD* = 1.06) than the participants performing the practical task (*M* = 4.63, *SD* = 1.12), *t*(301) = -2.100, p = 0.037. The statistical significance of these findings allowed the researchers to proceed and test Hypothesis 3; which examined whether there is any mediating effect of state self-esteem on the relationship between group condition and willingness to take risks.

### Mediation Analysis

As in Study 1, Baron and Kenny’s (1986) causal steps strategy was used to detail the level of prediction between the variables, and Preacher and Hayes’ (2008) method of analysis to determine whether the results from the mediation path are statistically significant. The four conditions proposed by Baron and Kenny (1986) for significant mediation were tested again: a) the IV significantly affects the DV, b) the IV significantly affects the suggested MV, c) the MV significantly affects the DV while controlling for the IV, and d) the effect of the IV on the DV decreases while controlling for the MV. All four conditions were once more tested for significance using ordinary least squares (OLS) regression models. The overall results are reported in Figure 2.

Figure 2. Mediation Model

Self-Esteem

*A = -.004* *B = 0.196\**

*C* = .*264*\*

Willingness to take risks

Creativity Tasks

*C’* = .*265*

Note. C = Total effect; C’ = Direct effect; (\*) if p < 0.05.

In more detail, the C path on the figure again represents the first condition mentioned above (Total Effect). The analysis suggested that group condition once again significantly affects willingness to take risk, *b* = 0.2646, *t*(301) = 2.1005, p = 0.0365 (C). The second and third conditions were then analyzed which represent the A path and the B path respectively. There were two different outcomes here as well, as the A path analysis showed that group condition was not a significant predictor of state self-esteem, *b* = -.0043, *t*(301) = 0.309, p = 0.9754 (A); while, the B path output revealed that need for uniqueness was as a significant predictor of willingness to take risks with *b* = 0.1962, *t*(300) = 3.8813, *p* = 0.0001 (B). These initial statistical breakdowns showcase that the mediational hypothesis cannot be fully supported once again. Finally, the last condition was examined which is represented in the figure as the C’ path (Direct Effect). Here, it was tested whether the effect of group condition on willingness to take risk would decrease while controlling for state self-esteem. *R2* for this equation was figured at 0.0144. Results showed that the effect of the predictor did not decrease (*b(C’)* = 0.2655, *SE* = 0.1231, p = 0.0319 compared to *b(C)* = 0.2646, *t*(301) = 2.1005, p = 0.0365). These findings here suggest that there cannot be any form of significant mediation, full or partial, among the variables of the model.

Nevertheless, just for confirmation, Preacher and Hayes’ (2008) indirect SPSS macro was used to test for statistical significance. The bootstrap result for the mediated effect was not significant (*b* = -.0009, *SE* = 0.0284, p = 0.9761). Concluding, the results indicate that although there is a total effect of group condition on willingness to take risk, and a significant effect of state self-esteem on willingness to take risk, there is no statistical evidence that state self-esteem mediates the effect of engaging in creative tasks on willingness to take risk.

# Discussion

The present paper’s primary objective was to measure and evaluate whether engaging into creative activities is positively associated with a person’s willingness to takes risks. In continuation, it was investigated whether that relationship is mediated by factors such as need for uniqueness and state self-esteem. The results obtained from the two studies partially confirm the initial hypotheses stated. In more detail, the primary hypothesis for both studies indicated that participants in the creative task condition would display an increased willingness to take risks in their decision making in comparison to the participants in the practical task condition. In both cases, the results confirmed that engaging into creative activities has an overall significant effect on one’s willingness to take risks. More specifically, the participants which were allocated to the creativity conditions scored significantly higher on the risk taking scale than the participants allocated to the practicality conditions in both studies.

As for the mediational models, the results obtained cannot support the hypotheses of the two studies. To illustrate, in the first study it was hypothesized that the relationship between creativity and willingness to take risks is mediated by an individual’s need for uniqueness. The overall results cannot confirm this assumption. More precisely, while there was evidence of a total effect of creativity on willingness to take risks and a positive influence of need for uniqueness on willingness to take risks, there was no statistical indication that need for uniqueness mediates the relationship between creativity and willingness to take risks. In the second study conducted, it was hypothesized that state self-esteem would mediate the effects of creative involvement on willingness to take risks. The results resemble in many ways the findings from the first study. More specifically, it was found that although there was a total effect of creativity on willingness to take risks and a significant influence of state self-esteem on willingness to take risks, the overall effect of the model did not meet statistical validity. As in the first study, this indication signaled the rejection of the aforementioned hypothesis. Although these results do not entirely support the assumptions proposed from the researchers, there are still a number of novel and interesting contributions this paper makes to the literature.

The most important insight this paper offers to the literature regards the forthright relationship between creativity and willingness to take risks. Risk and creativity have long been intertwined concepts, and especially in the organizational context. The main thesis of most researchers has been that willingness to take risk is an important antecedent of creativity. Scholars such as Dewett (2004, 2006, 2007) and Madjar, Greenberg & Chen (2011) have all provided factual evidence of both a close relationship between the two and an anteceding role of willingness to take risks on creativity. The findings from this paper agree with the existing literature on the strength of that connection, however, promote it in a reverse sequence. The results from both studies showed that engaging into any creative activity has an influence on an individual’s willingness to take risks. To the best of the researchers’ knowledge, the evidence here provides the first indication of an anteceding role of creativity on willingness to take risks.

This conclusive result is important for two reasons. First, this outcome has the potential to change the general outlook of how creativity is understood, analyzed and examined in the organizational context. Most research regarding creativity has generally looked upon it as the ultimate output. In other words, it has mainly been considered as the dependent variable of any hypothetical analysis. The findings here suggest that under certain circumstances creativity can perhaps serve a different role in organizational and managerial research and provide a different point of view for future research in the field. Second, the results obtained have the capacity to further strengthen the sentiment constructed by contemporary hi-tech companies that employees who engage into creative tasking are more productive and valuable for the company itself. These companies have always adhered that taking risks and leaving out of one’s comfort zone has the capacity to brew new ideas and sustain company intrapreneurship, which is vital for its market competitiveness (Amabile et al, 2005). Thus, the majority of them have developed stimulating and creative work environments for their employees to utilize and capitalize on. The results here agree with this general organizational direction. Interestingly enough, after a thorough inspection of the existing literature, to the researchers’ current knowledge there is no other empirical study which has detailed this construct in an applied setting and provided supporting evidence of its effectivity. Therefore, it is safe to say that this paper provides another experiential first on the pragmatic effects of creativity in the organization.

Nevertheless, although the initial hypothesis of creativity on willingness to take risks was found significant, the same cannot be said about the mediational hypotheses stated. As discussed earlier, the statistical analyses of both studies confirmed that with the current set of data, neither need for uniqueness nor state self-esteem can be considered viable mediators of creativity on willingness to take risks. For both studies, the major reason for this development lays on the fact that the group manipulation (creativity vs practicality) was not found to be a significant predictor of either of the two mediators. This comes in contrast with past research, which has highlighted the close relationship between creativity and individual factors such as need for uniqueness (Lynn & Harris, 1997; Manikandan & Rajamohan, 2014; Okamoto & Takaki, 1992) and self-esteem (Deng & Zhang, 2011; Goldsmith & Matherly, 1988). These positive associative links were one of the core reasons these factors were selected as well. Thus, the results obtained here cannot further confirm these connections, let alone, consider engaging into creative activities as a viable predictor of need for uniqueness and state self-esteem.

A possible explanation for this misconnection can be drawn by looking closely at the way creativity was manipulated in this paper. While research has shown that it is quite difficult to produce creative outcomes “on the spot” and on a time limit without the proper encouragement, the participants in the two studies were asked to generate creative ideas as a momentarily exercise. In the literature, creativity has overall been thought of as a longitudinal process rather than an instant practice (Amabile & Gryskiewicz, 1987; Drazin, Glynn & Kazanjian, 1999; Sethia, 1989). Simply put, researchers have suggested that gathering results from a sustained creative effort might be more representative of its true effects. Thus, there is reason to believe that although the exercises conducted by the participants did produce a significant effect on their willingness to take risks, their full capacity of creative engagement was not met. This in turn left the two proposed mediators unaffected by any possible influence. However, even if that is the case, there are still a number of other thought-provoking observations made in the study that are worth further examination. The fact that the mediational findings do not overall comply with prior experimental suggestions of association brings the issue of creativity in the organizational context into a broader perspective.

For example, an argument should be made regarding the nature of creativity itself. Perhaps the suggestion made by Sternberg (1999; Sternberg & O’Hara, 2001), that creativity resembles an “on and off” switch which can be “pushed” whenever requested, is too simple too explain the processes underlying creative behavior. Perhaps the concept of creativity is too multi-dimensional and too complicated for researchers to grasp at the moment. This suggestion has been the conclusive main theme of most researchers who have examined creativity ranging from fields such as neuroanatomy (Dietrich & Kanso, 2010; Reuter, Roth, Holve, & Hennig, 2006) all the way to philosophy (Gaut, 2010; Wheeler & Miller, 1993). Similarly, in the organizational and managerial domain, Woodman, Sawyer & Griffin, (1993) and Amabile (1983, 1988, 1996) have stressed out on a number of occasions that there is still much to discover on the topic and how it manifests. This obvious gap of knowledge could be used to explain the findings from this paper, along with some of the contrasting evidence obtained from other studies in the creativity literature as well. For instance, although Deng & Zhang’s (2011) meta-analysis produced sizeable proof of the connection between creativity and self-esteem, Gerrard, Poteat & Ironsmith (1996) revealed that the association between the two is most likely null. Moreover, in the uniqueness literature, although scholars have recognized a close connection between creativity and need for uniqueness (Okamoto & Takaki, 1992), there is no exact definition of how creativity is apprehended and no systemic analysis of how these variables interact. Hence, the main point here is that although researchers have provided constructive work regarding possible influences, antecedents and associations of organizational creativity, there is still much more decisive research to be done to determine what creativity is as an entity and how it functions.

Furthermore, another discussion that should be held involves the general understanding of how individual differences and creativity relate to each other in the workplace. If one was to base his knowledge on this connection solely by this report he/she would come to the conclusion that individual differences do not appear to have such a close relationship with creativity. Of course, that is not the case. There have been numerous studies over the years attempting to analyze how creativity and certain individual differences interact. The most prominent illustration originates from Amabile (1983, 1988), who has principally pointed out in her work that intrinsic motivation is probably the most important ingredient in creative production. This assumption has also been supported by the majority of researchers in the creativity literature as well (Gardner, 2011; Nakamura & Csikszentmihalyi, 2014). As a matter of fact, this theorization has been integrated into this report as well, as motivation has been found to be highly correlated with both need for uniqueness (Nail, 1986) and self-esteem (Greenberg, 2008; Maslow, Frager & Cox, 1970). However, the reality is that due to the early success and universal appraise of motivation as a crucial aspect to creative drive, there have not been many novel out-of-the-box approaches to it. For example, apart from motivation, past research has shown that there are multiple other individual differences which have been closely correlated to creativity as well. For example, personality characteristics like openness to experience (McCrae and Costa, 1997; Feist, 1998; Griffin and McDermott, 1998; George and Zhou, 2001) and self-efficacy (Bandura, 1986; Gist, 1989; Redmond, Mumford & Teach, 1993) have all been reported as positively correlated with creativity. Nonetheless, apart from Dewett (2007), a possible integrative proposition for these differences in the creativity literature has rarely been discussed. The point of the matter is, that while there have been alternate directions recommended for determining how exactly creativity and individuals differences interact, research has mainly stayed stagnant. It is suggested that by performing new research on these other individual differences and comparing their findings to the existing knowledge, there is an opportunity to eventually crystalize the main effects of creativity and understand its mannerisms in a more comprehensive way.

Engrossingly, although the results provided a partial confirmation of the presented hypotheses, there is an important practical implication this paper provides to the literature. This regards the promotion of creative tasking in the organizational context as a successful recipe for taking risks and being more productive. Over the years, researchers have strived to provide the perfect environment in which individuals would be able to perform best. It is commonly believed that the most effective environments are the ones which entail creative tasking and the ones that engage people to think differently and take risks (Llopis Córcoles, Garcia-Granero, Fernández-Mesa & Alegre-Vidal, 2013; Nelson, & Winter, 2009). The findings from the two studies in this paper support this concept as it was demonstrated that participants who were willing to take riskier decisions were affected by creative involvement. Although more research is necessary, these outputs can perhaps suggest that employers should look into manufacturing occupational environments which would allow their employees to be more creative and subsequently more willing to take risks.

This study of course is not without limitations. First and foremost, the main limitation of the study involves the nature in which it was constituted. Research on the internet has been both praised and criticized by a number of scholars (Hewson, 2003; Mason & Suri, 2012). There is no question that the internet does help in attaining fast and cheap data from eager participants, however, there are some serious drawbacks involved with it. To start with, it is very hard to establish inclusion criteria for online studies. In particular, this study was initially theorized to assess and evaluate willingness to take risks in managers with some years of work experience. That way the results obtained would be more representative of the organizational context. Although this was included in the requirements uploaded to Mturk, unfortunately, there is no way to validate whether indeed all admitted participants held any type of managerial position. Therefore, while the data attained do provide a primary indication of behavioral tendency, it is debatable whether a safe assumption can be made regarding how managers would operate under the same circumstances. Continuing on the same page, the setting in which the study was administrated has many differences compared to a pragmatic organizational. It is assumed that most of the participants’ assessments were carried out on their personal computer, at home on their downtime. Organizational settings are quite the opposite, as they are usually energetic and demanding environments full of noise. Thus, it is highly doubtful whether the context in which the assessment was made was both representative of a realistic organizational atmosphere and capable of assimilating a situation in which one has to take a risk to achieve a goal.

Another limitation of this paper regards the structure of the creativity/practicality tasks administered to the participants. There are two reasons why these manipulations could have been done differently. The first refers to the fact that there were two different creativity manipulations in each study. By having different manipulations, it is most probable that the overall creativity effects attained were different as well. Thus, although there is a significant manipulation of creativity on willingness to take risks in both occasions, there is a high percentage that that overall effect of creativity is different overall in each study. The second regards the length and time duration of each manipulation. According to Simonton’s work on creativity (2000, 2003), the more a person is actively engaged in a creative task, the more creative output he/she delivers. Applied research in the creativity literature has agreed with this notion as well, as Goncalo, Vincent & Krause (2015) suggested an at least ten-minute floor time for a truly creative output. In this paper, two strategies were employed to keep the participants committed, as it was understood that it would be difficult to keep the participants engaged with the creativity/practicality tasks without some sort of supervisory: a) having them write at 300 characters before proceeding with the rest of the assessment (Study 1), and b) enforcing a five-minute time limit (Study 2). In retrospect, it seems that both strategies utilized were too short for participants to fully grasp their creative potential. More specifically, the 300-character strategy, which takes about five minutes to fulfill on an open ended and easy task like the one employed in the first study, and the five-minute time limit strategy require about half of the time suggested for a participant to reach his/her true creative potential. Hence, there is concern whether the creativity/practicality effects obtained in the two studies are really representative of its participants.

Apart from the general directions research should adopt suggested earlier, prospective studies which are interested in examining the effects of creativity and willingness to take risks should take into consideration a plethora of other factors. To begin with, future empirical research would benefit from a systematic analysis of the individual differences involved in willingness to take risks. While in this study both need for uniqueness and state self-esteem were found to be significant predictors of willingness to take risks, it seems imperative to further inspect these relationships, and perhaps examine a broader spectrum of other possible antecedents as well. This would help both confirm the results found here and build a larger understanding of what influences this tendency. Similarly, the same can be said about how creativity influences individual differences. Here, the results from the mediation suggested that there is no sequential connection between creative action and the expression of individual characteristics. However, not experimenting with this hypothesis further would seem rather impulsive and ingenuous. As illustrated earlier, previous research has abundantly shown that individual characteristics are systemically associated with creativity. Thus, for researchers to obtain a clearer understanding of the effects of creativity, it seems vital to be able to detail which individual differences creativity affects and in what way. More thorough research on the causal link between creativity and individual differences is heavily suggested. Lastly, future studies interested in examining the effects of creativity in the organization should look into measuring the results from the creativity tasks. Although creativity tasks entail a high amount of subjectivity in their assessing, knowing the magnitude of the creative output for each participant would allow further enlightening on the connections and effects creativity can have on other variables. Ultimately, this could help in understanding the way creative drive is elicited and how it is manifested.

In summary, the current study demonstrates that willingness to take risks is not only an important prerequisite of creativity, but also a direct consequence of it. In both studies, results showed that engaging into creative tasking had a significant influence on willingness to take risks. However, the same cannot be said about the proposed mediational models. Even though both need for uniqueness and state self-esteem were found as significant predictors of willingness to take risks, their mediational effect on the relationship between creativity and willingness to take risks was found non-critical. The overall results open up a number of novel and interesting approaches to how creativity and willingness to take risks are analyzed and associated. Analogous is the work that needs to be conducted to fulfill that potential.

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# Appendices

## Appendix A

Table 1. Demographics and Frequencies of the participants from Study 1.

|  |  |  |
| --- | --- | --- |
| ***Variables*** | *Creativity group (N=124)* | *Practical group (N=109)* |
|  | Mean S.D. | Mean S.D. |
| Age (years) | 37.27 11.89 | 35.27 11.24 |
| Men % (n) | 48.4% (60) | 56.0% (61) |
| Women % (n) | 51.6% (64) | 44.0% (48) |
| SANU | 2.80 0.82 | 2.69 0.96 |
| WTR | 5.18 0.95 | 4.78 1.19 |

Note. SANU = Self-Attributed Need for Uniqueness; WTR = Willingness to Take Risks

Table 2. Demographics and Frequencies of the participants from Study 2.

|  |  |  |
| --- | --- | --- |
| ***Variables*** | *Creativity group (N=148)* | *Practical group (N=155)* |
|  | Mean S.D. | Mean S.D. |
| Age (years) | 35.84 12.61 | 34.80 12.06 |
| Men % (n) | 49.3% (73) | 46.5% (72) |
| Women % (n) | 50.7% (75) | 53.5% (83) |
| RCI | 3.19 1.24 | 2.14 1.07 |
| RPI | 2.16 0.90 | 2.90 1.02 |
| PSE | 5.38 1.16 | 5.36 1.05 |
| SSE | 4.86 1.52 | 4.89 1.36 |
| SSES | 5.12 1.27 | 5.12 1.16 |
| WTR | 4.89 1.06 | 4.63 1.12 |

Note. RCI = Rated Creative Ideas; RPI = Rated Practical Ideas; PSE = Performance Self-Esteem; SSE = Social Self-Esteem; SSES = State Self-Esteem Scale; WTR = Willingness to Take Risks

## Appendix B

**STUDY 1:**

**Study Consent Form:**

Please read this form and ask any questions you may have before agreeing to participate in the study.

***What the study is about***: You will engage in 2 unrelated studies. One is about idea elaboration and the other about decision making processes.

***What we will ask you to do***: You will initially be asked to write an essay of at least 300 characters. Afterwards you will be presented with several scenarios which require you to make a decision. Last you will fill out demographics and answer questions about your preferences and personality.

***Risks and benefits***: We do not anticipate any risks to you participating in this study other than those encountered in day-to-day life. There are no direct benefits to you; however, we hope that this research will help provide us with insight regarding various cognitive processes.

***Compensation***: You will receive $1.00 for your participation in this study. Your answers will be confidential. All of the information that is obtained from you during the research will be entirely anonymous. The records of this study will be kept private. In any sort of public report, any information that will make it possible to identify you will not be included. Research records will be kept in a locked file; only the researchers will have access to the records.

***Taking part is voluntary***: Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide not to take part or to skip some of the questions, it will not affect your current or future relationship with University College London. If you decide to take part, you are free to withdraw at any time. If you have questions: The researcher conducting this study is Dr. Verena Krause. Please ask any questions you have now. If you have questions later, you may contact Verena Krause at v.krause@ucl.ac.uk.

***Please indicate below if you agree to partake in this study***.

* I agree to take part

**Creativity and Practicality tasks:**

Study 1: ***Creative Idea Elaboration***

Instructions:

There is one empty space left in a mall that has recently been built. Imagine that you are an employee who works at Creative Mall Designs and you are tasked with putting a napping station into this empty space. The idea of the napping station is that tired shoppers can rent a space in the napping station for a period of time and take a nap. This mall will be the very first world-wide to include a napping station. It is your task to elaborate on this creative idea. Please write at least 300 characters describing the design of this brand new napping station.

Study 1: ***Practical Idea Elaboration***

Instructions:

There is one empty space left in a mall that has recently been built. Imagine that you are an employee who works at Practical Mall Designs and you are tasked with putting a clothing retailer into this empty space. The idea of the clothing retailer is that men, women, and children can purchase clothing at this store. This mall like all malls world-wide needs to include a clothing retailer. It is your task to elaborate on this practical idea. Please write at least 300 characters describing the design of this clothing retailer.

**Self-Attributed Need for Uniqueness Scale:**

**1. *I prefer being different from other people.***

(a) No, (b) Slightly, (c) Moderately, (d) Very, (e) Extremely

**2.** ***Being distinctive is important to me.***

(a) Not at all, (b) Slightly, (c) Moderately, (d) Very, (e) Extremely

**3.** ***I intentionally do things to make myself different from those around me.***

(a) Never, (b) Seldom, (c) Sometimes, (d) Often, (e) Always

**4.** ***I have a need for uniqueness***.

(a) Weak, (b) Slight, (c) Moderate, (d) Strong, (e) Very Strong

**Willingness to Take Risks Scale:**

For each of the following statements, please indicate your level of agreement:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Strongly disagree (1) | Disagree (2) | Somewhat disagree (3) | Neither agree nor disagree (4) | Somewhat agree (5) | Agree (6) | Strongly agree (7) |
| When I think of a good way to improve the way I accomplish my work, I will risk potential failure to try it out. |  |  |  |  |  |  |  |
| I will take a risk and try something new if I have an idea that might improve my work, regardless of how I might be evaluated. |  |  |  |  |  |  |  |
| I will take informed risks at work in order to get the best results, even though my efforts might fail. |  |  |  |  |  |  |  |
| I am willing to go out on a limb at work and risk failure when I have a good idea that could help me become more successful. |  |  |  |  |  |  |  |
| I don't think twice about taking calculated risks in my job if I think they will make me more productive, regardless of whether or not my efforts will be successful. |  |  |  |  |  |  |  |
| Even if failure is a possibility, I will take informed risks on the job if I think they will help me reach my goals. |  |  |  |  |  |  |  |
| When I think of a way to increase the quality of my work, I will take a risk and pursue the idea even though it might not pan out. |  |  |  |  |  |  |  |
| In an effort to improve my performance, I am willing to take calculated risks with my work, even if they may not prove successful. |  |  |  |  |  |  |  |

## Appendix C

**STUDY 2:**

**Study Consent Form:**

Please read this form and ask any questions you may have before agreeing to participate in the study.

***What the study is about***: You will engage in 2 unrelated studies. One is about idea generation and the other about decision making processes. The study will take less than 10 minutes.

***What we will ask you to do***: You will initially be asked to perform a brainstorming task. Afterwards you will be presented with several scenarios which require you to make a decision. Last you will fill out demographics and answer questions about your preferences and personality.

***Risks and benefits***: We do not anticipate any risks to you participating in this study other than those encountered in day-to-day life. There are no direct benefits to you; however, we hope that this research will help provide us with insight regarding various cognitive processes.

***Compensation***: You will receive $0.50 for your participation in this study. Your answers will be confidential. All of the information that is obtained from you during the research will be entirely anonymous. The records of this study will be kept private. In any sort of public report, any information that will make it possible to identify you will not be included. Research records will be kept in a locked file; only the researchers will have access to the records.

***Taking part is voluntary***: Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide not to take part or to skip some of the questions, it will not affect your current or future relationship with University College London. If you decide to take part, you are free to withdraw at any time. If you have questions: The researcher conducting this study is Dr. Verena Krause. Please ask any questions you have now. If you have questions later, you may contact Verena Krause at v.krause@ucl.ac.uk.

***Please indicate below if you agree to partake in this study***.

* I agree to take part

**Creativity and Practicality tasks:**

Study 2: ***Creativity Task***

Instructions:

There is one empty space left in a mall that has recently been built. Please generate creative ideas for uses of that space. By creative, we mean ideas that are original and novel. Let your imagination run wild and come up with some new ideas. You will spend at least 5 minutes generating creative ideas. Then, the computer will allow you to advance, but feel free to continue generating ideas for as long as you like.

Study 2: ***Practical Task***

Instructions:

There is one empty space left in a mall that has recently been built. Please generate practical ideas for uses of that space. By practical, we mean ideas that are useful and feasible. Stick to what is known to work well when generating ideas. You will spend at least 5 minutes generating practical ideas. Then, the computer will allow you to advance, but feel free to continue generating ideas for as long as you like.

**State Self-Esteem Scale** (Only the PSE and SSE components):

Answer these questions as they are true for you RIGHT NOW:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Strongly disagree (1) | Disagree (2) | Somewhat disagree (3) | Neither agree nor disagree (4) | Somewhat agree (5) | Agree (6) | Strongly agree (7) |
| I feel confident about my abilities. |  |  |  |  |  |  |  |
| I am worried about whether I am regarded as a success or failure. **R** |  |  |  |  |  |  |  |
| I feel frustrated or rattled about my performance. **R** |  |  |  |  |  |  |  |
| I feel that I am having trouble understanding things that I read. **R** |  |  |  |  |  |  |  |
| I feel self-conscious. **R** |  |  |  |  |  |  |  |
| I feel as smart as others. |  |  |  |  |  |  |  |
| I feel displeased with myself. **R** |  |  |  |  |  |  |  |
| I am worried about what other people think of me. **R** |  |  |  |  |  |  |  |
| I feel confident that I understand things. |  |  |  |  |  |  |  |
| I feel inferior to others at this moment. **R** |  |  |  |  |  |  |  |
| I feel concerned about the impression I am making. **R** |  |  |  |  |  |  |  |
| I feel that I have less scholastic ability right now than others. **R** |  |  |  |  |  |  |  |
| I feel like I'm not doing well. **R** |  |  |  |  |  |  |  |
| I am worried about looking foolish. **R** |  |  |  |  |  |  |  |

Note**: R** = Reverse Scored.

**Willingness to Take Risks Scale:**

For each of the following statements, please indicate your level of agreement:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Strongly disagree (1) | Disagree (2) | Somewhat disagree (3) | Neither agree nor disagree (4) | Somewhat agree (5) | Agree (6) | Strongly agree (7) |
| When I think of a good way to improve the way I accomplish my work, I will risk potential failure to try it out. |  |  |  |  |  |  |  |
| I will take a risk and try something new if I have an idea that might improve my work, regardless of how I might be evaluated. |  |  |  |  |  |  |  |
| I will take informed risks at work in order to get the best results, even though my efforts might fail. |  |  |  |  |  |  |  |
| I am willing to go out on a limb at work and risk failure when I have a good idea that could help me become more successful. |  |  |  |  |  |  |  |
| I don't think twice about taking calculated risks in my job if I think they will make me more productive, regardless of whether or not my efforts will be successful. |  |  |  |  |  |  |  |
| Even if failure is a possibility, I will take informed risks on the job if I think they will help me reach my goals. |  |  |  |  |  |  |  |
| When I think of a way to increase the quality of my work, I will take a risk and pursue the idea even though it might not pan out. |  |  |  |  |  |  |  |
| In an effort to improve my performance, I am willing to take calculated risks with my work, even if they may not prove successful. |  |  |  |  |  |  |  |