Personality and Individual Differences 125 (2018) 21–29

Contents lists available at ScienceDirect

Personality and Individual Differences

journal homepage: www.elsevier.com/locate/paid

Looking beyond the generation of creative ideas: Confidence in evaluating ideas predicts creative outcomes

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ARTICLE INFO

Keywords:
Creativity
Creative self-efficacy
Idea generation
Idea evaluation

ABSTRACT

Since its inception 15 years ago, creative self-efficacy has been identified as an important predictor of creativity, the generation of new and useful ideas. Over 50 studies examining this relationship suggest a strong, positive correlation. Nevertheless, like most research on creativity, the research on creative self-efficacy has overemphasized its generative aspects and largely ignored the evaluative aspects, both of which are critical to the production of new and useful ideas. To address this, the present effort developed a measure of idea evaluation self-efficacy. Through two studies, evidence is obtained for the construct and incremental validity of this measure. Implications and future research directions are discussed.

1. Introduction

Creativity is important to our everyday lives. In today's economy, for example, creativity has become a critical competitive advantage (Anderson, Potočnik, & Zhou, 2014). From the workplace to education to public policy, the need for new and effective solutions to increasingly complex problems is widely recognized. Thus, being able to predict creativity can be vital to the health and longevity of businesses and society. To this end, a myriad of constructs predicting creativity have been identified (e.g., Ford, 1996; Hammond, Neff, Farr, Schwall, & Zhao, 2011). Of these, one of the most frequently studied is creative self-efficacy (CSE), which refers to the belief that one can produce creative outcomes (Tierney & Farmer, 2002). Meta-analytic evidence has repeatedly shown that CSE is a significant predictor of creativity (Bjornberg & Davis, 2015; Hammond et al., 2011; Liu, Jiang, Shalley, Keem, & Zhou, 2016). In this paper, however, we argue that this area of research has been encumbered by a few theoretical and methodological limitations. Specifically, we argue that CSE research has focused on the generative processes involved in creativity, to the exclusion of creativity's evaluative processes. As a result of ignoring the distinction between these two processes, we are left with an incomplete understanding of how CSE influences creativity. We sought to address these limitations by developing a new measure that focuses on idea evaluation self-efficacy in order to complement extant measures of CSE which primarily focus on idea generation.[1]

1.1. Creativity

Creativity refers to the production of novel and useful ideas to complex, novel, and ill-defined problems (Amabile, 1983; Mumford & Gustafson, 1988; Runco & Jaeger, 2012). In a synthesis of the creativity research, Mumford, Mobley, Reiter-Palmon, Uhlman, and Doares (1991) proposed a model of creative problem solving including eight processes, beginning with problem construction and culminating in implementation and monitoring. This model suggests that creative problem solving is a complex and dynamic process involving multiple interactive processes. Building upon this model, Basadur, Runco, and Vega (2000) argue that when engaging in creative problem solving, generative and evaluative cognitive processes are executed (see also Finke, Ward, & Smith, 1992; Guilford, 1956; Sowden, Pringle, & Gabora, 2015).

Although both generative and evaluative processes are needed for creativity (Amabile, 1996; Montag, Maertz, & Baer, 2012; Wallas, 1926), historically, it is the generative processes that have been emphasized, particularly the generation of new ideas. Certainly, idea generation plays an important role in creativity. However, only a select few of the innumerable ideas that are generated will ever be implemented (Sharma, 1999). This point underscores that the evaluation

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[1] We will argue in this paper that the way creative self-efficacy is usually operationalized currently may suggest that it could be more precisely described as *idea generation* self-efficacy. However, for the sake of continuity with previous research, we retain the label *creative self-efficacy* throughout.

https://doi.org/10.1016/j.paid.2017.12.028
Received 2 November 2017; Received in revised form 16 December 2017; Accepted 18 December 2017

of these ideas is also a critical component to successful creative solutions (Basadur, 1995). A few studies have demonstrated the importance of this lesser studied side of creativity (e.g., Berg, 2016; Brophy, 2000–2001; Dailey & Mumford, 2006; Licuanan, Dailey, & Mumford, 2007). Importantly, these and other studies have highlighted that competence in one process is not necessarily correlated with competence in the other (Berg, 2016; Grohman, Wodniecka, & Klusak, 2006; Reiter-Palmon, Robinson-Morral, Kaufman, & Santo, 2012; Rietzschel, Nijstad, & Stroebe, 2010, 2014; cf. Silvia, 2008). That is, someone may be very skilled at generating numerous original ideas, but may be less capable of evaluating which of these ideas is the best. Conversely, a person may not be able to produce original ideas, but he or she may have a keen eye for identifying great ideas and making them even better. The variability in profiles just described highlights the idea that skill in generating creative ideas is not always associated with skill in evaluating creative ideas. Just as competence itself in these two does not perfectly co-vary, we would not expect individuals' appraisals of their competence (i.e., self-efficacy) to perfectly co-vary either.

1.2. Creative self-efficacy

Stemming from Bandura's (1977) social learning theory, self-efficacy refers to the beliefs a person has for being able to perform a given task. Bandura (1997; Bandura & Adams, 1977) went on to argue that self-efficacy functions as a domain- or task-specific construct. Interest in the application of self-efficacy to creativity began when Gist (1987) made a series of propositions for how self-efficacy might be of value within an organizational context. One of the main reasons for the interest in CSE is the complex, difficult nature of creative work. Therefore, CSE has been noted as an important psychological predictor of creativity (Choi, 2004) due to the required “prolonged investment of time and effort” (Bandura, 1997, p. 239) for creative tasks. Moreover, it can provide the confidence needed to take risks and adopt perspectives and actions that may defy social norms (Tierney & Farmer, 2002). This was noted by Ford (1996) in his model of individual creative action, which Tierney and Farmer (2002) built upon to become the initial pioneers of CSE, integrating the creative and self-efficacy domains. In doing so, they created the foundation for studying CSE, defining it as “the belief one has the ability to produce creative outcomes” (Tierney & Farmer, 2002, p. 1138).

Extant research has found CSE to predict a number of outcomes such as the production of original ideas, creative behavior, and creative work involvement across a range of settings (Carmeli & Schaubroeck, 2007; Hammond et al., 2011; Hsu, Hou, & Fan, 2011; Jaussi, Randel, & Dionne, 2007; Robinson-Morral, Reiter-Palmon, & Kaufman, 2013; Tierney & Farmer, 2002) and serves as a mediating variable for both contextual and personal factors that impact creativity (Choi, 2004; Gong, Huang, & Farh, 2009; Lim & Choi, 2009; Tierney & Farmer, 2004). Therefore, CSE theoretically and empirically plays an important role in explaining how and why both contextual and individual variables impact creativity, resulting in critical downstream effects on creative output.

Nevertheless, the prevailing bias for the literature to emphasize idea generation extends to CSE, including how it has been measured. The most widely used measure of CSE (see Tierney & Farmer, 2002) consists of items that almost exclusively address idea generation—for example, “I have a lot of good ideas.” As a result, construct underrepresentation (Messick, 1995) is a concern, prompting the study of the evaluation side of CSE.

2. Study 1

The purpose of Study 1 was to develop a new measure that focuses on idea evaluation self-efficacy (IESE) in order to complement extant measures of CSE. Furthermore, in Study 1, we evaluated the evidence for the construct validity of our new measure.

2.1. Development of hypotheses

We defined IESE as a belief in one's ability to evaluate and revise original ideas (Amabile, 1996; Mumford, Lonergan, & Scott, 2002). To assess the evidence for the construct validity of these scales (Campbell & Fiske, 1959; Messick, 1995), we developed a number of hypotheses concerning the expected convergent and discriminant correlations. The convergent validity of this construct was evaluated with respect to conscientiousness and preference for evaluation. Conscientiousness refers to the extent to which a person is organized, goal-directed, and dependable (Barrick & Mount, 1991; McCrae & Costa, 1987). Past research has shown that conscientiousness is the personality dimension most predictive of job performance (Barrick, Mount, & Judge, 2001; cf. Le et al., 2011) and academic performance (Poropat, 2009). The relationship between conscientiousness and creativity, however, has been less straightforward. Generally, it is thought that people who are less conscientious produce work that is more creative. Feist's (1998) meta-analysis provides support for this idea. By focusing on following rules, conforming to group norms, and achieving predefined goals, more conscientious people tend to engage in creative behaviors less frequently (George & Zhou, 2001).

We argue, however, that this relationship does not extend to *evaluating* creative ideas. That is, we expect there to be a positive relationship between conscientiousness and IESE. Idea evaluation involves taking a novel idea to an open-ended problem and assessing how suitable that idea is for solving a given problem (Mumford et al., 2002). Someone who is evaluating an idea must consider the extent to which it fits the criteria of the problem at hand (e.g., does the solution actually solve the problem?) and abides within problem constraints (e.g., is the solution likely to come under budget?). One must judge how well the solutions meets the standards laid out when the problem was first discovered or defined (Brophy, 2000–2001). This application of judgment aligns well with the tendencies exhibited by conscientious people. A focus on adhering to rules and standards will make it more likely for a person to make accurate assessments of an idea's suitability for the problem at hand. Furthermore, the dutifulness and persistence associated with conscientiousness suggest that conscientious people will be more effective at executing the numerous iterations often required to transform an original idea into one that is both original and appropriate for the context at hand (Amabile, 1983).

While some people are naturally inclined towards generating ideas, Basadur and colleagues (Basadur, 1979; Basadur, Graen, & Green, 1982) argued that others are inclined towards evaluating ideas. This can even be reflected in the type of occupation one chooses. For example, Brophy (2000 – 2001) reported that technical employees, who work on developing new ideas, were more likely to prefer ideation, while people working in manufacturing, who work on implementing ideas, were more likely to prefer evaluation. People's preference for evaluation is also reflected in how well they perform on evaluative tasks, with stronger preferences being related to higher performance (Brophy, 2000–2001). Thus, we expect that people with a preference for evaluation will exhibit higher levels of IESE.

Hypothesis 1. Idea evaluation self-efficacy will be positively related to (a) conscientiousness and (b) preference for evaluation.

With respect to discriminant validity, we expected that IESE would be unrelated to a fixed mindset. A fixed mindset refers to the belief that a particular attribute cannot be altered or improved. This construct (and the closely related *growth* mindset) is based on the research of Dweck and colleagues (e.g., Dweck, 2006; Dweck, Chiu, & Hong, 1995; Dweck & Leggett, 1988) and has been applied to beliefs about personality (Levy, Stroessner, & Dweck, 1998), morality (Chiu, Dweck, Tong, & Fu, 1997), and negotiation ability (Kray & Haselhuhn, 2007), among others. Recently, O'Connor, Nemeth, and Akutsu (2013) examined fixed mindsets in the domain of creativity. In their series of studies, they observed that undergraduate students scoring higher on a