Creativity in the Workplace: A Matter of Chaos or Cohesion?

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Prior research has rarely investigated external factors which can improve creative performance, though theory has sometimes suggested environmental factors to be impactful. Much of this hesitancy can be attributed to a misinterpretation of decades-old research which continues to be cited despite recent clarification.

The present research investigates the relationships between such external factors (i.e., support for creativity, psychological safety, creative self-efficacy) and creativity. Specifically, psychological safety was expected to mediate the relationship between creative support and creativity, while creative self-efficacy was expected to predict creativity. Ninety-four undergraduate psychology students underwent workplace support for creativity and creative self-efficacy manipulations before responding to a psychological safety questionnaire and engaging in a series of divergent thinking tasks. Creativity scores were computed based on the uniqueness of a given response within the specific task.

Significant relationships were found between support for creativity and psychological safety and between creative self-efficacy and creativity. Though most hypotheses were unsupported, the latter relationship seems to support the overall idea that creativity can be externally manipulated. This finding provides insight into creative self-efficacy as well as creativity itself and may provide an avenue through which individual creativity can be increased in organizations and potentially other environments.
CREATIVITY IN THE WORKPLACE: A MATTER OF CHAOS OR COHESION?

BY

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Lisa M. Finkelstein
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CHAPTER 1
INTRODUCTION

While many companies have advertisements in which they proudly declare their reliance on generations-old methods, the reality is that a successful company needs to strike its own unique balance between tradition and creativity (Sutton, 2002). Improperly proportioned, the organization may operate stably but fall short of its true potential or suffer the costs of exploration with none of the benefits (March, 1991).

What is creativity, though? While the answer may seem obvious, the concepts of creativity and originality are often conflated. Broadly speaking, creativity is seen as the combination of originality and value (Runco & Jaeger, 2012; Sutton, 2002). Seven may an original answer to “What is one plus one?” but it holds no value; likewise, a pen may be valued but is not, in and of itself, original (Mednick, 1962). As one may expect, value and originality are subjective qualities (Runco & Jaeger, 2012). Some researchers have proposed time period (Vernon, 1989) and the unrelatedness of parts (Mednick, 1962) as factors influencing creativity. Vernon (1989) also proposes that experts in the field must recognize the value of the contribution in question. Creativity, particularly its organizational variant, is often used interchangeably with the term “innovation.” These ideas are closely related, but a subtle difference can be found. While creativity refers to the process of ideation, innovation is the actual implementation of those ideas (Anderson et al., 2014). Finally, it is important to note that creativity can refer either to a trait or an achievement. Trait creativity is a characteristic influencing creativity as an
achievement, which is demonstrated creativity (Eysenck, 1994). Therefore, for the purpose of this proposal, creativity will be defined as the process of creating a product, service, or process which shows value and usefulness, a definition derived from Woodman et al. (1993). How, then, does creativity arise? The evolutionary perspective proposed by Sutton (2002) suggests that creativity, like evolution, is the product of variation. Like a creature observed over millennia, not every variation along the way will be apparent in the end, but ideally, each step will approach a more viable final product. Indeed, this building upon previous ideas is the very foundation of brainstorming, an activity originally described as a process of elaboration devoid of criticism (Osborn, 1941).

The question of whether creativity can be improved is up for debate. The majority opinion seems to be that creativity can be bolstered, but dissenters can be found. For example, some researchers suggest that hinging a reward on creative output will be counterproductive (Amabile et al., 1986; Amabile, 1998). Even among those who consider creativity to be dynamic, though, effective strategies for its enhancement are uncertain.

Among these strategies are several unorthodox methods from one of the leading creativity researchers, Robert Sutton. While organizations seeking to better their creative output may default to pruning away “uncreative” workers, Sutton warns against this “survival of the fittest” approach. Instead, organizations should hire according to his guidelines which, in aggregate, advocate for hiring a stubborn, argumentative misfit. Sutton argues that creative people (or people meant to stimulate creativity within a setting) should be motivated to work on their own tasks despite outside influences such as supervisors, should challenge the everyday ideas within a workplace, and should bring new skills, experiences, and perspectives (Sutton,
Two drawbacks are evident. First, the organization is being made to rely on outside resources instead of those within the organization. In this, there is an investment which may not pay off. Second, these hires may not be permanent staff, an additional loss to those of the hiring process. This is a risk I will expand on below.

Fit is a critical aspect of any workplace. In short, this idea suggests that organizations and people must agree in various respects, such as values (Kristof-Brown & Billsberry, 2012). Fortunately, according to the attraction-selection-attrition (ASA) model, organizations often attract people with whom they align in these important ways (Schneider, 1987). Good fit has a multitude of benefits, including increased job satisfaction, increased organizational commitment, and decreased turnover intention (Verquer et al., 2003). The situation becomes more complicated when considering that organizations cannot function as well with a homogeneous community of workers as they could with diversity. The unusual suggestion of hiring a person whose background and skillset seem unfitting for the organization is relevant to this point (Sutton, 2002). Here, attrition becomes relevant. According to Schneider (1987), sufficiently bad fit will encourage a worker to leave the workplace.

A better solution for creativity would reduce investment and risk and would be an enduring solution. Typical motivators of behavior (e.g., rewards, support) are often proposed to increase creativity (Chan, 2005). Creativity-specific motivators and demotivators have often been discussed as well. In the overlap, support and support can be seen as both a general behavioral motivator as well as a creativity-enhancing force (Connolly et al., 1990).

The proposed research will explore psychological safety climate as a mediator of the relationship between support and creative output. Practices based on this model may be preferred
for three main reasons. First, training employees to create a psychologically safe environment should be less expensive than repeated hiring. Second, if the organization intends to hire new workers regardless, targeting individuals with certain levels of self-efficacy may be less risky than purposely hiring someone with poor fit. Finally, increasing fit should lessen turnover intention.

In the next chapter, I will describe a model of creative performance and psychological safety (see Figure 1) and the literature surrounding it. This model proposes that support will positively influence creative performance. I expect the relationship between support and creative performance to be mediated by psychological safety, such that higher fit results in greater creative performance through psychological safety. Additionally, I expect creative self-efficacy to moderate the relationship between support and creative performance, to moderate the relationship between psychological safety and creative performance, and to predict creative performance directly. The theoretical bases for these sections are put forth in the following chapter.
Figure 1. The proposed model of creative performance.
CHAPTER 2

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Creativity at Work

Past research has explored what Amabile et al. (1996) refer to as the “context of creativity,” or the perceptions of a work environment that can influence creative work. Whether support is included in this past research varies. Some researchers include social influences such as support in their definition of work environment (Amabile et al., 2004) while others separate social influence from contextual influences (Woodman et al., 1993). The following subsections describe three major theories of creativity, particularly as it manifests within an organization, with emphasis on the environment’s influence.

Model of Organizational Innovation

The Model of Organizational Innovation includes the work environment within a component labeled “motivation to innovate.” One of three organizational components critical to creativity, motivation to innovate is defined as a direction towards creativity which is primarily signaled by the highest levels of an organization (e.g., chairperson, CEO), though this can occur at lower tiers (Amabile, 1988; Amabile, 1997). To encourage creativity, an organization should show that it values innovation, supports exploration and risk-taking behavior, and enthusiastically responds to innovation (Amabile, 1988). This enthusiasm is thought to sustain a
worker’s passion for their work (Amabile, 1997); thus, a cyclical pattern of enthusiasm and creative efforts may form.

Aspects of the Model of Organizational Innovation were tested during the development of the KEYS scales which aimed to assess the climate for creativity within an organization. Findings suggest that workers who demonstrated high creativity received more support from work groups, organizations, and supervisors than workers who demonstrated low creativity (Amabile et al., 1996).

Amabile (1997) has proposed a different model to describe the impact of work environment on creativity, where creativity is the intersection of expertise, task motivation, and creativity skills. Creativity then leads to innovation, which is seen as the culmination of resources, management practices, and organizational motivation. In turn, innovation influences the work environment, thus creating a cycle of influence (Amabile, 1997). Research has not investigated each piece of the model equally, but empirical support has been provided for the motivational aspects (Anderson et al., 2014).

Interactionalist Model of Organizational Creativity

Woodman and Schoenfeldt (1989) expanded on the creativity models proposed by Amabile (1988) and others to construct a more comprehensive model. The resulting Interactionalist Model of Organizational Creativity (IMOC) suggests creativity to be the product of the individual and different levels of work environment. While individual level includes antecedent conditions such as personality and cognitive style, the model also includes contextual influences, such as physical environment and task constraints, and social influences, such as
social facilitation and social rewards. These contextual and social influences extend beyond the individual level to influence creativity at the group level. Additionally, this model suggests that social influences, derived from the group context, moderate the relationship between creative antecedents (e.g., personality, cognitive style) and creative behaviors (Woodman & Schoenfeldt, 1989).

Woodman et al. (1993) elaborated on the IMOC, laying the groundwork for testable hypotheses. They proposed that norms, one facet of contextual influences, can both catalyze and constrain creativity. Norms which promote knowledge sharing can promote creativity, while norms which increase conformity expectations can be detrimental (Woodman et al., 1993).

As this is one of the most common creativity models used in research, empirical support abounds (Anderson et al., 2014). Most relevant to the present research are studies supporting the effect of support for creativity on creative output (Baer & Oldham, 2006).

Theory of Creative Individual Action

The Theory of Creative Individual Action elaborates on the previous two models and includes support for creativity, though it is not as apparent as in the others (C. M. Ford, 1996). Ford seems to expand beyond the workplace, though the model is certainly applicable to organizations. The basic premise of the Theory of Creative Individual Action is that people must choose to default to habitual actions or to be creative. Three factors influence this decision: sensemaking, motivation, and knowledge and ability. Within motivation is the subcategory of receptivity beliefs, which refer to the acceptance of creativity within an organization. If individuals believe their creative efforts will be well-received, creative output should be
improved. This belief is influenced by four factors: communication networks, reward systems, resource availability, and tolerance of ambiguity. Depending on the quality and presence of these factors, people may have positive receptivity beliefs about creative action and decide to act creatively; alternatively, through personal or vicarious experiences, the receptivity beliefs surrounding creativity beliefs may be less positive and push a person towards habitual action. While receptivity beliefs seem to be aspects of organizational climate and are often described as such, the Theory of Creative Individual Action instead describes them as individual perceptions, as they are often measured through self-report (C. M. Ford, 1996).

This model has not received as much attention as its predecessors, possibly due to its complexity (Anderson et al., 2014), but the research which has been done provides support for the model. For example, a study of 170 Dutch employees found employees were more inclined to engage in innovative activities when supervisory support for those behaviors were perceived, while those who did not perceive supervisory support for such behaviors were inhibited (Janssen, 2005). Other research has shown factors such as cultural support for creativity to influence expectancy and instrumentality judgments which influence employee decisions to engage in creativity (Unsworth & Clegg, 2010).

In sum, each of these models suggest a strong, consistent relationship between creative efficacy and creative output. The Model of Organizational Innovation (Amabile, 1988), through the contributions of Woodman and Schoenfeldt (1989) and C. M. Ford (1996), has evolved into new models which incorporate more variables affecting creative self-efficacy and expand beyond the workplace. Underlying each, though, is the idea that support, as an extrinsic variable, can positively influence creativity under the right circumstances.
Capability Beliefs and Self-Efficacy

The Theory of Creative Individual Action also suggests motivation to be influenced by capability beliefs. As they are defined by C. M. Ford (1996), conceptual beliefs are expectations of success in a specific behavior at a specific point in time and thus are like self-efficacy, self-confidence, and self-esteem. I will describe both capability beliefs and self-efficacy below, argue they should be considered synonymous in the scope of the present research, and describe the Motivational System Theory by M. E. Ford and Smith (2007) which includes capability beliefs.

Capability Beliefs

Within the Theory of Creative Individual Action model, an individual’s capability beliefs, goals, receptivity beliefs, and emotions sum to the motivational portion of the model. Even isolated, capability beliefs considerably facilitate creative efforts (C. M. Ford, 1996). Creative people have been shown to be aware of and confident in their creative abilities; this cognizance is substantial enough to differentiate creators from other employees (Bergum, 1973). An extension and replication of this study, academic inventors and non-inventors were shown to significantly differ in terms of their creative capability beliefs, and individuals with higher rates of publishing research were found to think themselves significantly more original than their colleagues with lower publication rates (Bergum, 1975).

Research within academic settings has identified four groups in terms of capability beliefs: individuals with high capability beliefs, individuals with low capability beliefs, individuals with increasing capability beliefs, and individuals with decreasing capability beliefs.
Notably, high academic capability beliefs were stable, even as evidence to the contrary (i.e., falling grades) were apparent. Multiple factors seemed to influence grouping, the most relevant of which were parental expectations for education. When parents held high educational expectations, their children were more likely to be in the high capability beliefs group (Juang & Vondracek, 2001).

**Self-Efficacy**

Like capability beliefs, self-efficacy is defined as one’s beliefs about one’s ability to perform sufficiently in areas which influence one’s life (Bandura, 1994). Ford seems to argue the main difference between the two concepts is scope, with capability beliefs reflecting general and complex judgments as well as those which are specific to a task or situation (M. E. Ford & Smith, 2007). Whether Bandura would concur is uncertain, but I find the literature on self-efficacy to be noteworthy for three reasons.

First, according to Ford, self-efficacy and capability beliefs are not synonymous but are at least closely related (C. M. Ford, 1996). Therefore, some insight into capability beliefs should come from understanding its better-researched relative. This leads to the second reason: self-efficacy seems much more well-known as a concept than capability beliefs. While a search for “self-efficacy” in Google Scholar returns nearly 2.5 million results, a search for “capability beliefs” yields just over 1500 articles. Third, in many instances and despite the claimed distinction, these terms are often used interchangeably (Wallin et al., 2012). For these reasons, self-efficacy will be used as the predominant and encapsulating term in this research, except in theories which specifically refer to capability beliefs.
Self-efficacy plays a major role in a person’s decisions to approach challenges and to engage confidently in risky situations (Bandura, 1994), both of which are present in most creative tasks. Self-efficacy can be altered through feedback such as criticism and support. Criticism which is constructive can leave individuals with higher levels of self-efficacy than those who face destructive criticism (Baron, 1988), though individuals who begin with high self-efficacy are more reluctant to accept any negative feedback (Nease et al., 1999). Positive feedback and high self-efficacy, on the other hand, tend to enhance each other (Karl et al., 1993).

**Motivational System Theory**

While self-efficacy is much better studied than capability beliefs, the latter appears in Ford and Smith’s Motivational Systems Theory. In their theory, they propose that personal agency belief patterns can be inferred based on the strength of capability beliefs and the valence of context beliefs. Here, context beliefs refer to elements of the environment which may serve as a boon or as an obstacle to one’s goals, such as the availability of resources and the emotional climate surrounding the behavior (M. E. Ford & Smith, 2007).

While neither work environment nor creativity is found in the theory, the Motivational Systems Theory parallels previously discussed theories. Capability beliefs, of course, are found in the Theory of Creative Individual Action (C. M. Ford, 1996). Additionally, context beliefs could encompass the social and contextual influences of the IMOC (Woodman et al., 1993), the enthusiasm element of the Model of Organizational Innovation (Amabile, 1988), and the receptivity beliefs of the Theory of Creative Individual Action (C. M. Ford, 1996).
Aside from its generality, the Motivational Systems Theory is unique among these theories for describing the interaction between context beliefs and capability beliefs. Three levels of context belief valence (i.e., positive, moderate/variable, and negative) are crossed with three levels of strength for capability beliefs (i.e., strong, moderate/variable, and negative), resulting in nine patterns of personal agency beliefs. Three of these patterns are designated as facilitators of a thriving, steady state: robust (positive context beliefs and strong capability beliefs), encouraged (positive context beliefs and moderate/variable capability beliefs), and tenacious (moderate/variable context beliefs and strong capability beliefs). Each of these patterns is particularly useful depending on the situation. The robust pattern helps in risky situations requiring efficacy, the encouraged pattern helps in upcoming performance situations or in self-improvement situations, and the tenacious pattern helps in situations where one must persevere despite setbacks and challenges (M. E. Ford & Smith, 2007). I believe this lattermost category to be the most relevant to creativity, as it is often a process of trial-and-error. Indeed, persistence has been shown to be a vital trait of successfully creative employees (Mumford, 2000).

Gaps in Previous Research

Contextual beliefs, capability beliefs, and creative output are present within the Theory of Creative Individual Action. Contextual beliefs and capability beliefs are found to partially contribute to motivation. Motivation, sensemaking, and knowledge and availability then determine whether an individual chooses habitual action or creative action (C. M. Ford, 1996). While these connections are proposed, the exact relationships go unspecified. The Motivational
Systems Theory, on the other hand, clarifies the relationship but is a theory of motivation and seems not to have been applied to creativity, whether within or outside an organizational setting.

Perhaps the largest gaps are found within the organizational creativity literature. Sutton (2002) proposed several methods of improving workplace creativity, which seem to work in practice (Sutton, 2002). However, when considered alongside the ASA model (Schneider, 1987), such methods emphasize a lack of fit and would likely prompt higher turnover intentions. Thus, it would seem to be temporary solution to a problem that is likely to endure.

Furthermore, research into encouraging creativity is limited, possibly due to an early claim by a lead creativity researcher. Several articles were published to suggest creativity is enhanced by intrinsic motivation and harmed by extrinsic motivation such as rewards (Amabile, 1983, 1998; Amabile et al., 1986; Hennessey & Amabile, 1988). Later, some nuance was introduced (i.e., extrinsic rewards which confirm competence are beneficial), but this clarification came nearly thirty years after the original claim (Hennessey, 2010). By this time, much of the creativity literature had accepted the claim, and it continues to endure even after the clarification (Benedek et al., 2020; Gerhart & Fang, 2015; Xue et al., 2018). Due to this, the work on the extrinsic influences on creativity has been scarce.

The Current Study

This study aims to examine the relationship between psychological safety, self-efficacy, person-environment fit, and creative output. While these variables have been seen together in the literature in various combinations, the relationships are unspecified. In the following sections, I
will elaborate on the expected relationships between support, self-efficacy, psychological safety, and creativity. For the full model, see Figure 1.

Support and Creativity

Perhaps the main proposal of this research is the utility of support as an inexpensive and perpetual driver for creativity. The foundation for this claim can be seen in the theories previously discussed, but research has begun to investigate this idea more specifically.

For example, Stokols et al. (2002) found employees’ perceived support for creativity in the workplace was influenced by variables such as environmental distractions and social climate. Another study suggested that the supervisory work environment, specifically, can influence employee creativity (Amabile et al., 2004). Considering the Theory of Creative Individual Action (C. M. Ford, 1996), social climate (including supervisory work environment) would contribute to receptivity beliefs and overall motivation which in turn would influence the decision whether to engage in habitual or creative action.

The research by Stokols et al. (2002) and Amabile et al. (2004) solely focus on predicting perceived support for creativity instead of actual creative performance; however, empirical studies have demonstrated support’s influence on creativity. One study assessed the support for creativity which employees received from their workplace as well as their personal life and their creative performance as appraised by a supervisor. Both workplace and personal support contributed significantly and independently to employee creativity (Madjar et al., 2002). Likewise, a study by Diliello et al. (2011) looked at three different types of support (work-group, supervisor, and organizational) for creativity; broadly, they indicate support for creativity is embodied in actions such as the willingness to hear new ideas, trusting one’s group, and valuing
contributions. Using a self-report measure of creativity as well as a measure of creative self-efficacy, they found work-group and supervisor support to be meaningful in terms of creative performance. This is somewhat at odds with the Model of Organizational Innovation, which suggests that the strongest influences of creativity come from more distant sources such as CEOs (Amabile, 1988). Regardless, all the research seems to suggest a positive relationship between support and creativity measured through a variety of means.

_Hypothesis 1:_ Participants who perceive more support for creativity will have higher creativity scores than participants who perceive low support.

_Hypothesis 2:_ Participants who perceive more support for creativity will perceive a more psychologically safe environment than participants who perceive low support.

**Creative Self-Efficacy and Creativity**

While external factors seem to play a large role in creativity, they are likely only part of the equation. I expect creative self-efficacy to be just as, or possibly more, important in determining creative output. Bandura (1977) states that self-efficacy is necessary in any undertaking, but its influence extends beyond the decision of whether to engage. Most relevant here is self-efficacy’s role as a factor in the expenditure and maintenance of effort.

Creative self-efficacy has been studied in relation to creative performance using a sample of employees in the manufacturing division of a large company and of employees at a high-tech firm. In both samples, there was a main effect of creative self-efficacy on creativity ratings.
Furthermore, in the tech sample, a significant interaction between job-related and creative self-efficacies was seen. The study suggests that job-related self-efficacy is a significant predictor of creative performance only when creative self-efficacy is high (Tierney & Farmer, 2002).

Tierney and Farmer (2011) later replicated this relationship between creative self-efficacy and creative performance. Additionally, creative self-efficacy was shown to decrease as job requirements increase, a finding which corresponds with the literature on efficacy while in contrast with the creativity literature. Furthermore, it seems that creative self-efficacy can be hurt by complex and challenging tasks which seem outside of one’s control (Tierney & Farmer, 2011).

While the link between creative self-efficacy and creative performance has often been found (see Malik et al., 2014; Christensen-Salem et al., 2020). Pretz & McCollum (2014) offer some nuance to the relationship, suggesting the relationship is confined to a domain.

_Hypothesis 3_: Participants with higher creative self-efficacy will have higher creativity scores than participants with lower creative self-efficacy.

The relationship between self-efficacy and support may be less straightforward when considering feedback acceptance. For example, feedback has been shown to be able to change perceptions of self-efficacy. While this is unsurprising, it is only true to a point. In a study centered around reading ability, Karl et al. (1993) found that, regardless of valence, feedback will be less impactful in altering self-efficacy perceptions in individuals with high levels of self-efficacy, though they did find that positive feedback and high self-efficacy tended to enhance
each other. Nease et al. (1999) studied feedback acceptance specifically and found that individuals with high self-efficacy were less likely to accept repeated negative feedback while those with low self-efficacy did not differ in their acceptance across instances. Interestingly, in this study, those with high self-efficacy were not shown to have decreased acceptance of repeated positive feedback (Nease et al., 1999). Therefore, we may expect that individuals with low creative self-efficacy and individuals with high creative self-efficacy may react differently to different levels of support (i.e., encouraging and neutral). Specifically, individuals with low creative self-efficacy may experience increased effects from high support conditions (see Figure 2.).

**Hypothesis 4**: Creative self-efficacy will moderate the relationship between support and creative performance such that individuals with low self-efficacy will experience greater effects from support on creative performance.

**Psychological Safety and Creativity**

While interest in psychological safety originates in the 1960s, it was not until the 1990s that researchers took a renewed interest in the topic. Psychological safety is a perception of the reception of interpersonal behaviors, and there seems to be consensus that it underlies the exchange of information and ideas (Edmonson & Lei, 2014). From this alone, the importance of psychological safety in creative processes such as brainstorming is evident: initial ideas are needed to build to more creative solutions.

Indeed, this link between psychological safety and creative performance is the foundation for what is called the psychological safety perspective of creativity. This perspective posits that
Figure 2. Hypothesized relationship between creative support, creative self-efficacy, and creativity.
only in an environment which allows for interpersonal risk-taking can creativity arise and thrive, as ideas must be proposed at risk of ridicule or critique (Edmonson, 1999; Gong et al., 2012). Research seems to back this claim at multiple levels of creativity. In a study of 47 companies, Baer and Frese (2003) found a significant link between perceptions of psychological safety and innovation at the organizational level. This relationship, albeit to a lesser degree, was also found in a team setting among healthcare workers (Kessel et al., 2012). While other perspectives of creativity do exist, theory and research suggest creativity necessitates psychological safety.

*Hypothesis 5:* Participants who perceive a more psychologically safe environment will have higher creativity scores than participants who perceive a less psychologically safe environment.

*Hypothesis 6:* Psychological safety will mediate the relationship between support and creative performance, such that support will positively influence psychological safety, which in turn will positively influence creative performance.

*Hypothesis 7:* Creative self-efficacy will moderate the relationship between psychological safety and creative performance such that greater self-efficacy will reduce the relationship between psychological safety and creative performance.
CHAPTER 3

METHOD

Participants

One hundred fourteen participants were collected from undergraduate psychology courses. Three in-person and eleven online participants were removed for incompleteness. In the in-person sample, nine participants (including the three mentioned above) failed the attention check; in the online sample, all but two participants failed to respond to the attention check. The two who did pass the attention check failed to complete all divergent thinking tasks. In total, ninety-four participants were retained. Of these, sixty entries were conducted in-person and thirty-four were conducted online. All participants received course credit for their participation.

Of the 94 participants retained for analyses, 48 were women, 43 were men, and 3 were unspecified. The sample was 42.5% White; 21.3% Black; 13.8% Hispanic, Latino, or of Spanish origin; 8.5% Asian; and 1% Middle Eastern or North African. All other participants identified as either multiracial or other. The average age of participants was 21.9 years ($SD = 5.6$).

Design and Procedure

The study employed a 2 (creative self-efficacy; high-level vs low-level) x 2 (support; high support vs low support) experimental between-subjects design.

Upon arrival at a campus computer lab, in-person participants were greeted by a researcher and taken to one of several cubicles. They were informed of their tasks, the time limits
of those tasks when applicable, and how to find the researcher and gain credit following completion of the experiment. They were then given a chance to ask any questions.

Online participants were collected using the university’s online recruitment site (SONA) and through their professors.

Participants first viewed an online consent form. After consenting, participants were presented with a creative self-efficacy manipulation, a support manipulation, a psychological safety measure, a creativity measure, and demographic questions.

Manipulations

Participants were randomly assigned to one of four conditions: low creative self-efficacy and low creative support, low creative self-efficacy and high creative support, high creative self-efficacy and low creative support, and high creative self-efficacy and high creative support.

Creative Self-Efficacy

Participants were randomly assigned to either a low creative self-efficacy or a high creative self-efficacy condition and asked to list eight or three examples of personal creativity, respectively. This manipulation was based on the availability heuristic (Schwarz et al., 1991; Vaughn, 1999).

The availability heuristic suggests that people estimate the frequency or likelihood of an event by the ease with which they can think of past examples (Tversky & Kahneman, 1974). Schwarz et al. (1991) had participants list either 6 or 12 examples of times when they demonstrated assertive or unassertive behaviors. Those participants who had to list 12 examples
rated themselves as less extreme in the trait than those who only had to list 6 examples, an effect attributed to difficulty of recall. Due to the complexity of creativity as a construct and the subjective nature of creative works (Batey, 2012), the recall manipulation was reduced from 6 and 12 to 3 and 8 to reflect the study conducted by Vaughn (1999) which still produced the effect of the availability heuristic.

Following the manipulation, participants were asked the difficulty of listing examples and the creative self-efficacy instrument (Tierney & Farmer, 2011).

See Appendices C and D for the low self-efficacy and high self-efficacy manipulations, respectively.

**Support**

Participants were placed into a high creative support condition or a low creative support condition derived from Behfar et al.’s (2016) study of team dynamics on performance evaluation. Participants were told to imagine they were either part of a team which they knew would not hold a mistake against them, in which they felt comfortable bringing up concerns, and in which they felt their skills were valued or a team which would hold mistakes against them, in which they did not feel comfortable bringing up concerns, and in which they did not feel their skills were valued. Additionally, to increase the realism of the vignette, participants were asked to recall and briefly describe a similar scenario they experienced, as in Castro et al. (2018).

For the vignette and conditions, see Appendix F. For the recall item, see Appendix G.
Measures

Creativity

Participants were asked to think of as many unusual uses for common objects as they could within a 2-minute time limit per object. These objects were derived from a previous study using divergent thinking tasks and include a mug, a wire hanger, a shoelace, a brick, a paperclip, a newspaper, and a rubber band (Harrison et al., 2003; Sweetman et al., 2011).

While the divergent thinking task is not specifically an organizational creativity measure, popular workplace-specific measures of creativity are infeasible in this study. Organizational creativity measures often involve ratings of employee creativity often performed by supervisors (Sullivan and Ford, 2010; Tang et al., 2017; Yoo et al., 2019; Zhan et al., 2019). It is also worth noting that this is not the first time that divergent thinking tasks have been used to measure the construct of organizational creativity (Lu et al., 2017; Sullivan & Ford, 2010).

Following data collection, the full list of responses was coded into various categories of uses. Three raters then reviewed the categories and revised the list based on various criteria (e.g., practicality, specificity). Two raters then recoded the responses based on the revised category list (κ = .815); the third rater resolved any discrepancies.

A creativity score was computed based on the reciprocal of the frequency of a given use. For example, if a use for a specific object appeared twenty times across participants, a value of 1/20 would be assigned to the use. Participant creativity scores were the sum of the values of their proposed uses. Participant creativity scores across the six objects showed acceptable reliability (α = .85) and were summed to produce a total creativity score.

For the full measure, see Appendix I.
Manipulation Checks

After completing the self-efficacy manipulation, participants were asked to respond to the 3-item Creative Self-Efficacy Instrument ($\alpha = .81$; Tierney & Farmer, 2002). For the full measure, see Appendix G.

Additionally, as in Vaughn (1999), participants were asked to report the difficulty of recalling examples. In her study, participants reported on a 9-point scale more difficulty recalling eight examples ($M = 5.15$) than three ($M = 3.45$), $F(1, 167) = 21.16, p < .001$.

Edmonson’s (1999) team psychological safety measure ($\alpha = .92$) was used to assess psychological safety following the vignette.
CHAPTER 4

RESULTS

Table 1
Means, Standard Deviations, Alphas, and Correlations Across Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CSE condition</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. CSEI</td>
<td>5.09</td>
<td>0.94</td>
<td>-.04</td>
<td>.81</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. CSE Recall</td>
<td>-</td>
<td>-</td>
<td>-.11</td>
<td>-.34*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Creative Support</td>
<td>-</td>
<td>-</td>
<td>-.21*</td>
<td>-.03</td>
<td>.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Psychological Safety</td>
<td>4.55</td>
<td>1.45</td>
<td>-.26*</td>
<td>.03</td>
<td>.16</td>
<td>.64*</td>
<td>.92</td>
<td></td>
</tr>
<tr>
<td>6. Creativity</td>
<td>4.94</td>
<td>3.20</td>
<td>.04</td>
<td>.34*</td>
<td>-.27*</td>
<td>-.07</td>
<td>-.10</td>
<td>.85</td>
</tr>
</tbody>
</table>

Note. M and SD are used to represent mean and standard deviation, respectively. Alphas for each measure are noted on the diagonal. “CSE condition” indicates assigned creative self-efficacy condition, where 1 was assigned to low creative self-efficacy and 2 was assigned to high creative self-efficacy. “CSEI” indicates creative self-efficacy scores from the Creative Self-Efficacy Instrument. “CSE Recall” indicates the difficulty participants experienced in listing instances of creativity as part of the creative self-efficacy manipulation. “Creative Support” refers to creative support condition, where 1 was assigned to low creative support and 2 was assigned to high creative support.

* indicates p < .05

Creativity scores were generated within the divergent thinking task for each object before being summed across the tasks within participants. The creativity score was computed as the reciprocal of the frequency of a given response within a certain task. 194 responses deemed to be impractical, vague, or redundant were ignored in the scoring process. The mean creativity score was 4.94 (SD = 3.20), with a range of 0.48 to 21.12. The measure was found to have acceptable
reliability, and no significant difference in creativity score emerged between the in-person and online samples, \( F(1,92) = 1.23, p = .27 \).

Two ANOVAs were run to look for sample differences in terms of creative self-efficacy as measured by the CSEI (“CSEI”; Tierney & Farmer, 2011) and psychological safety. In terms of CSEI, a significant difference was found between the in-person \((M = 4.85, SD = .9)\) and online \((M = 5.51, SD = .86)\) samples, \( F(1,92) = 11.97, p < .001 \). Psychological safety yielded a marginally significant difference between the in-person \((M = 4.76, SD = 1.27)\) and online \((M = 4.16, SD = 1.68)\) samples, \( F(1,92) = 3.87, p = .052 \). Given these differences, all analyses were initially run using sample as a moderator. No significant interactions with sample occurred; therefore, sample was excluded in subsequent analyses.

The first hypothesis stated more creative support should yield higher creativity scores. An ANOVA comparing the high support \((M = 4.71, SD = 3.21)\) and low support \((M = 5.17, SD = 3.20)\) conditions showed no significant difference between creativity scores, \( F(1,92) = 0.484, p = .488 \). Thus, Hypothesis 1 was not supported. Results are displayed in Figure 3.
The second hypothesis stated that more creative support should yield higher perceptions of psychological safety. An ANOVA revealed a significant effect of creative support on psychological safety, $F(1,92) = 65.39, p < .001$. Those in the high creative support condition ($M = 5.48, SD = 1.03$) perceived significantly higher psychological safety than those in the low creative support condition ($M = 3.61, SD = 1.20$). Thus, Hypothesis 2 was supported. Results are displayed in Figure 4.
The third hypothesis stated higher creative self-efficacy should yield higher creativity scores. Prior to running analyses with creative self-efficacy, analyses were run on the three variables representing creative self-efficacy: a dichotomous variable representing assigned condition ("CSE condition"), a continuous variable representing difficulty in recalling instances of personal creativity ("recall difficulty"), and a variable representing the composite score on the creative self-efficacy instrument ("CSEI"). First, an ANOVA compared the low ($M = 5.13, SD = 0.89$) and high ($M = 5.05, SD = 1.01$) CSE conditions in terms of CSEI scores and found no significant difference between the groups, $F(1,92) = 0.17, p = .68$. A second ANOVA compared the recall difficulty across low ($M = 4.18, SD = 1.56$) and high ($M = 3.82, SD = 1.87$) CSE conditions and again found no significant differences between groups, $F(1,92) = 1.04, p = .31$. Taken together, these findings suggest the manipulation itself did not work as intended.

*Figure 4.* Psychological safety across creative support conditions.  
*Note.* $N = 94$. 
However, regressing CSEI score on recall difficulty yielded a significant negative relationship, \( p < .001 \). For full results, see Table 1. A regression analysis was then run, using CSEI to predict creativity scores. A significant effect of CSEI was found in the expected direction, \( p < .001 \). For full results, see Table 2. Thus, Hypothesis 3 was supported.

**Table 2**  
*Recall Difficulty as a Predictor of CSEI*

<table>
<thead>
<tr>
<th>Estimate</th>
<th>SE</th>
<th>( t )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>7.16</td>
<td>0.93</td>
<td>7.73</td>
</tr>
<tr>
<td>Recall Difficulty</td>
<td>-0.19</td>
<td>0.05</td>
<td>3.46</td>
</tr>
</tbody>
</table>

*Note. N = 94.*

**Table 3**  
*CSEI as a Predictor of Creativity*

<table>
<thead>
<tr>
<th>Estimate</th>
<th>SE</th>
<th>( t )</th>
<th>( P )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.90</td>
<td>1.73</td>
<td>-0.52</td>
</tr>
<tr>
<td>CSEI</td>
<td>1.15</td>
<td>0.33</td>
<td>3.43</td>
</tr>
</tbody>
</table>

*Note. N = 94.*

The fourth hypothesis stated creative self-efficacy would moderate the relationship between creative support and creativity score. First, a two-way ANOVA was run to compare CSE conditions and creative support conditions in creativity. No significant differences were found (for full results, see Table 4). However, due to earlier analyses suggesting a disconnect between CSE condition and other measures of creative self-efficacy, another analysis was run. A regression analysis using CSEI and creative support condition to predict creativity score found a marginally significant main effect of creative self-efficacy, \( p = .06 \), but no other significant effects. See Table 5 for full results. Thus, Hypothesis 4 was not supported.
### Table 4

Results of two-way ANOVA comparing CSE conditions and Creative Support in Creativity

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psych Safety</td>
<td>1</td>
<td>9.00</td>
<td>9.01</td>
<td>0.87</td>
<td>.36</td>
</tr>
<tr>
<td>Creative Support</td>
<td>1</td>
<td>0.20</td>
<td>0.15</td>
<td>0.02</td>
<td>.90</td>
</tr>
<tr>
<td>Psych Safety* Creative Support</td>
<td>1</td>
<td>5.80</td>
<td>5.81</td>
<td>0.56</td>
<td>.46</td>
</tr>
<tr>
<td>Residuals</td>
<td>90</td>
<td>937.10</td>
<td>10.41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 94.

### Table 5

CSEI and Creative Support Condition as Predictors of Creativity

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.92</td>
<td>2.27</td>
<td>-0.40</td>
<td>.69</td>
</tr>
<tr>
<td>CSEI</td>
<td>1.11</td>
<td>0.44</td>
<td>2.52</td>
<td>.01</td>
</tr>
<tr>
<td>Creative Support</td>
<td>0.02</td>
<td>3.55</td>
<td>-0.01</td>
<td>.995</td>
</tr>
<tr>
<td>CSE*Creative Support</td>
<td>0.08</td>
<td>0.69</td>
<td>0.11</td>
<td>.91</td>
</tr>
</tbody>
</table>

Note. N = 94. CSE = Creative Self-Efficacy.

The fifth hypothesis stated that higher psychological safety would predict higher creativity scores. A regression analysis using psychological safety to predict creativity score was nonsignificant. See Table 6 for full results. Thus, Hypothesis 5 was unsupported.

### Table 6

Psychological Safety as a Predictor of Creativity

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>5.91</td>
<td>1.09</td>
<td>5.43</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Psychological Safety</td>
<td>-0.21</td>
<td>0.23</td>
<td>-0.94</td>
<td>.35</td>
</tr>
</tbody>
</table>

Note. N = 94.

The sixth hypothesis stated psychological safety would mediate the relationship between creative support and creativity. Using Hayes’s PROCESS macro, a mediation analysis was run
using creative support to predict creativity, mediated by psychological safety. The effects of creative support on creativity and psychological safety on creativity were each nonsignificant, $p_s = .90$ and .53, respectively). Unsurprisingly, the indirect effect of creative support on creativity through psychological safety was also nonsignificant, 95% CI = -1.49 to 0.55. Thus, Hypothesis 6 was not supported.

Using the lavaan package in R, a full structural model was constructed and tested using maximum likelihood estimation. In this model, psychological safety, creative support, and creative self-efficacy were used to predict creativity, and creative support was used to predict psychological safety, with psychological safety specified as a mediator of the relationship between creative support and creativity. The model did not differ significantly from the data, $\chi^2(1, N = 94) = 0.29, p = .59$. All other fit indices also suggest good model fit and are detailed in the note for Figure 5.

Creative support positively predicted psychological safety ($p < .001$) and CSEI positively predicted creativity ($p < .001$). No other relationships were significant. The full model is presented in Figure 3. For variable correlations, see Table 1 above.
Figure 5. Structural model of creativity and constructs.

Note. Full empirical model of creativity (N = 94). Standardized regression estimates for each path are presented adjacent to their respective paths. Model fit: CFI = 1.00, TLI = 1.06, RMSEA < .001, RMSR = .014.

*p < .05

Table 7
Summary of Relationships in the Structural Model

<table>
<thead>
<tr>
<th></th>
<th>Std Est</th>
<th>z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS → Creativity</td>
<td>-0.11</td>
<td>-0.91</td>
<td>.36</td>
</tr>
<tr>
<td>CS → Creativity</td>
<td>0.01</td>
<td>0.07</td>
<td>.95</td>
</tr>
<tr>
<td>CSE → Creativity</td>
<td>0.34</td>
<td>3.03</td>
<td>.002</td>
</tr>
<tr>
<td>CS → PS</td>
<td>0.65</td>
<td>3.03</td>
<td>.01</td>
</tr>
<tr>
<td>CS → PS → Creativity</td>
<td>-0.07</td>
<td>-0.89</td>
<td>.38</td>
</tr>
</tbody>
</table>

Note. N = 94. Std Est = Standardized Estimate. PS = Psychological Safety. CS = Creative Support. CSE = Creative Self-efficacy. *This row represents the indirect path of mediation.
CHAPTER 5
DISCUSSION

The creativity literature rarely investigates extrinsic motivators of creative performance, as many researchers seem to misinterpret the findings of Amabile et al. (1986) to mean extrinsic motivation is inherently detrimental (e.g., Benedek et al., 2020; Gerhart & Fang, 2015; Xue et al., 2018). Despite this, much of the research on creativity involve external influences. Sutton (2002) proposes creativity can be influenced by new hires while theories such as the Model of Organizational Innovation (Amabile, 1988), the Interactionalist Model of Organizational Creativity (Woodman & Schoenfeldt, 1989), and the Theory of Creative Individual Action (C. M. Ford, 1996) all propose an environmental variable (akin to support for creativity) influences creative performance.

The present study investigated the roles of creative support, psychological safety, and creative self-efficacy in bolstering creativity. In terms of creativity, only a marginally significant relationship emerged between it and creative self-efficacy. No relationship was found between it and creative support or psychological safety. At first, this finding seems to reflect much of the creativity literature to-date: internal influences (such as self-efficacy) are much more impactful on creative performance than external influences. However, one important aspect of creative self-efficacy in the current study is its manipulation; these results suggest that external forces can change self-efficacy and thus influence creative performance. In practice, this may not be as straightforward. Further analyses showed the Creative Self-Efficacy Instrument scores predicted creative performance and not self-efficacy condition. However, difficulty of recall was strongly
associated with self-efficacy scores ($p < .001$). In other words, an individual’s ease in recalling their own creative endeavors and accomplishments may be able to influence creative performance through self-efficacy. Future research may wish to address whether another person may contribute examples and thereby influence ease of recall; if this is the case, individual creativity may be improved simply by enumerating past creative efforts.

Additionally, creative support and psychological safety were found to have a positive relationship, a finding which replicates previous research (e.g., Stokols et al., 2002). A psychologically safe climate has been described as one in which ideas can freely be exchanged (Edmonson & Lei, 2014), a characteristic which is also found in climates which support creativity (Diliello et al., 2011).

Interestingly, neither psychological safety nor creative support appeared to increase creative performance. The latter finding is particularly interesting, as it does not seem to align with the theories of creativity cited here. These theories each propose an environment that is accepting of creativity increases creative performance (Amabile, 1988; C. M. Ford, 1996; Woodman & Schoenfeldt, 1989), but the results of this study imply otherwise. At best, creative support may be seen as a necessary but insufficient condition for creativity; alternatively, creative support may not be necessary for creativity in any sense. This idea, that creativity may occur in harsh environments not unlike a weed sprouting through the sidewalk, has been found in the literature on occasion, most notably in Sutton’s (2002) weird rule that creativity may be aided through the recruitment of a worker who remains focused on personal objectives despite supervisory intervention. In that scenario, no intent to support creative actions can be found; if anything, creativity is being discouraged through the orders of a supervisor. Returning to the
present study, one major limitation is the lack of a manipulation check for creative support. While the two versions of the vignette plainly state the participant’s uniqueness and contributions to be encouraged or discouraged by the team dynamic, these components of creativity may not have been understood as such; instead, a reasonable participant may see this information as having more to do with, for instance, knowledge sharing. Such an interpretation would also explain the association between the vignette condition and psychological safety. Future research should seek to better define and separate these constructs and ascertain which is captured within the vignette manipulation.

Psychological safety unfortunately lacked any relationship with creative performance. The lack of findings may be due to one of several reasons. First, it may be that no relationship exists between psychological safety and creativity. This possibility seems somewhat unlikely, given the similarities between psychological safety and support for creativity (Diliello et al., 2011; Edmonson & Lei, 2014) and the replicated relationship between support for creativity and creative performance (e.g., Amabile, 1996; Diliello et al., 2011; Woodman et al., 1993). This leads to a second possibility: the relationship may be misrepresented in the model. Instead, creative support may mediate the relationship between psychological safety and creative performance. Third, it is possible that one or more variables may not have been properly captured; this limitation is talked about in more detail below.

Limitations

Several limitations are worth noting. Most obviously, while workplace creativity was the focus of this research, a workplace sample was not utilized; even though these measures have been used to gauge organizational creativity, participants lacked several components of a
traditional workplace. Perhaps most importantly, other workers or teammates were not included in the study. The simulated coworkers found within the vignette may not have properly conveyed creative support. Due to an oversight, no creative support manipulation check was included, so whether the change in condition affected perceptions of creative support is not entirely certain. Alternatively, the vignette may have manipulated creative support to the extent that participants knew they ought to feel supported without actually feeling supported. Furthermore, while the divergent thinking task was framed through the vignette as a workplace assignment, the task itself was not immediately relevant to the workplace, instead being a common paradigm involving uses for household objects. Given this, participants may have had a disconnect between the workplace setting of the vignette and the task, which in turn could be responsible for the lack of relationship between creative support and creativity as well as psychological safety and creativity. Perhaps a task which involved creating a new product line, for example, would have better preserved the organizational mindset intended to be introduced in the vignette.

Secondly, and relatedly, participants took the study in one of two settings: a controlled laboratory environment or a setting of their choosing. Though the study was online regardless, dividing the sample in this way had obvious impacts on the study. Significant and near-significant differences were observed in two variables of interest, creative self-efficacy and psychological safety, respectively. Creative self-efficacy was higher in the online sample, while psychological safety was higher in the in-person sample. Of course, various confounding variables which went unmeasured could have also influenced results, such as distractions within the environment. While dividing the sample was done out of necessity, care should be taken in any future research to keep the setting constant.
Thirdly, the term creativity was not defined for participants in the CSE manipulation. As a result, participants may have experienced varied difficulty in the task. For example, one participant may have defined creativity very broadly and therefore had ease in listing eight instances. Meanwhile, another participant may have had a narrower definition of creativity (e.g., an ability demonstrated through artistic expression) and felt challenged to list even three instances.

Fourthly, sample size may have been a limitation. An a priori power analysis using G*Power recommended approximately 120 participants, assuming a medium effect size (Faul et al., 2007). However, following cleaning procedures, the final sample consisted of ninety-four participants. Therefore, the present research may have lacked statistical power, inflating the Type I error rate.

Future Directions

Future research should address as many of the above limitations as possible. Perhaps most obviously, future research should use either an online or in-person setting; while this alteration was done as a matter of necessity, noticeable differences did emerge between the samples. Neither online nor in-person seems particularly advantageous, as no significant differences emerged between groups in terms of analyses. In-person may be preferred for the control it offers, but online samples may be particularly interesting given the prevalence of work-from-home in modern society.

Future studies may also benefit from the use of employee samples, if the objective involves organizational creativity, to increase external validity. Furthermore, confederates could be used in place of a vignette, and creative performance could relate directly to the area of
employment. The results of research using confederates could be contrasted with those using vignettes or simulated partners (e.g., a virtual chat) to increase realism and see if a so-called human element contributes to creativity. The latter suggestion may also increase realism and illustrate the effects of preexisting knowledge on creative output. Additionally, the use of confederates could circumvent some of the possible issues of disconnect discussed earlier.

One of the more interesting findings of this research is the specific relationship creative self-efficacy and creative performance. While this is not an entirely novel finding (e.g., Puente-Diaz & Cavazos-Arroyo, 2017), the former variable was successfully manipulated in this study, albeit unexpectedly through the difficulty of the creative self-efficacy manipulation. These findings suggest the ease with which one can provide examples of creativity—a sort of creativity salience— influences creative self-efficacy and therefore creative performance. Beyond replicating this finding, future research may wish to investigate the potential of influence others may have in this respect. Specifically, if another were to enumerate one’s creative achievements, would this increase creative self-efficacy as well? Would this depend on situational variables such as trust or belonging or on the specificity of the reminders? If creative self-efficacy can be influenced by other people in this way, the variation in perception of ease of listing examples, a slight hiccup in the assignment to condition in this study, becomes a nonissue. It may be that reminding a person of their creative feats is all that is required to improve creative performance. This would align with the social learning view of self-efficacy, which suggests others may affirm or imbue self-efficacy in an individual (Bandura, 1982; Puente-Diaz, 2015; Tierney & Farmer, 2002). On the other hand, past successes may also increase self-efficacy; this enactive mastery is
thought to be among the strongest influences on self-efficacy (Bandura, 1977; Bandura, 1982). Either explanation seems possible given the circumstances of this study.

In sum, while the full model was not supported, relationships were found between creative support and psychological safety and creative self-efficacy and creative performance. This latter finding may have particularly interesting implications for future research and applications within and outside the workplace. Future research has the potential to expand its focus into external motivators, particularly creativity salience. Furthermore, any environment which may make use of creativity, whether work, school, or otherwise, may benefit by implementing an activity in which individuals think of past, current, or future creative endeavors.
REFERENCES


APPENDIX A

RECRUITMENT SCRIPT
Northern Illinois University’s SONA system will be used to recruit participants. The title of the study will be listed as “Creative Task Engagement,” and the description of the study will read as follows:

Participants will perform an ideation task which requires them to think of unique uses for everyday objects and will respond to several background measures.

Students will receive one unit of credit for participating in a 30-minute study.
APPENDIX B

INFORMED CONSENT
Informed Consent

Creative Task Engagement

You are invited to participate in a study that looks at creative engagement.

Key Information
- This voluntary study evaluates your ability to engage in creative tasks.
- This study should take approximately 30 minutes and asks you to think of unique uses for everyday objects.
- The benefits of this study for you will be to see the research process. The benefits for the field will be to see how individuals engage in creative tasks.
- There are no reasonably foreseeable risks.

Eligibility
Only individuals who are 18 years or older and who are comfortable reading and understanding English can participate in this study.

Description of Study
The purpose of this study is to examine how individuals engage in creative tasks.

Risks and Benefits
There are no reasonably foreseeable risks associated with this study. If you experience any discomfort because of participating in this study, you may contact the primary researcher (Cody Gibson, cgibson7@niu.edu) or academic advisor (Lisa Finkelstein, lisaf@niu.edu).

Confidentiality
This study is strictly confidential meaning that the information collected will be kept in a locked file and all electronic information will be secured on a password-protected computer. No names will be collected in connection to your responses to this survey.

Future Use of the Research Data
The results of this study may be published in scientific research journals and presented at professional conferences. However, your record will remain confidential. Your data will be used as part of a larger data set with no identifying information. The data set, once deidentified, could potentially be posted to a scholarly, public online medium (for example, Open Science Framework).

Compensation
You will receive class credit for participating in this study.

Right to Refuse or Withdraw
Participation is completely voluntary, and you may choose not to continue at any point. You may change your mind about being in the study and quit after the survey has started. You may skip any questions you do not feel comfortable answering.
Questions
If you have any questions or concerns about your rights as a research participant, you may contact the Northern Illinois University Office of Research Compliance (researchcompliance@niu.edu). This research has been approved by the Institutional Review Board of Northern Illinois University. If you have questions about this research study, you can contact the investigators below:

Cody Gibson
Cgibson7@niu.edu
Lisa Finkelstein
lisaf@niu.edu

By selecting “I have read and understood the above. I would like to proceed to the survey”, you are acknowledging that you have decided to volunteer as a research participant for this study and that you have read and understand the information provided above. It is advised that you save or print a copy of this form for your own records.

○ I have read and understood the above. I would like to proceed to the survey.
○ I would like to exit the survey.
APPENDIX C

CREATIVE SELF-EFFICACY MANIPULATION - HIGH
Please take a moment to list three examples of things that you are doing, have done, or are planning to do which demonstrate your creative ability.

1.

2.

3.
APPENDIX D

CREATIVE SELF-EFFICACY MANIPULATION – LOW
Please take a moment to list eight examples of things that you are doing, have done, or are planning to do which demonstrate your creative ability.

1.
2.
3.
4.
5.
6.
7.
8.
APPENDIX E

CREATIVE SELF-EFFICACY MANIPULATION CHECK
<table>
<thead>
<tr>
<th>Item</th>
<th>Extremely easy</th>
<th>Moderately easy</th>
<th>Slightly easy</th>
<th>Neither easy nor difficult</th>
<th>Slightly difficult</th>
<th>Moderately difficult</th>
<th>Extremely difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td>How easy or difficult was it to list examples?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
APPENDIX F

SUPPORT FOR CREATIVITY VIGNETTE AND MANIPULATIONS
This scenario describes an experience of a team working at a local company where you live. Imagine you are a member of this team.

The team is part of a company called GenCo, and it has responsibility for developing marketing ideas for various new electronic products. As part of the team, you work with them to combine your knowledge of how manufacturing works and the products people need, to develop new ideas for this market. Others on the team include Pat, a software developer who has worked at the company for several years, as well as Chris, who is an engineer who knows about how to manufacture items made from plastic materials. While you have some experience with Pat and Chris, the three of you have not worked in a team before.

You, Pat, Chris, and your team supervisor hold an introductory meeting to discuss each of your roles and responsibilities on the team. This meeting also gives you a chance to better understand how the group will work together.

**High Support for Creativity Manipulation**
Towards the end of the meeting, you feel good about the norms that were established for the team. You know that if you were to make a mistake on the team, it would not be held against you. You and others feel comfortable bringing up issues of concern, because you know that it is safe to take risks on this team. You feel that your unique skills and contributions are valued.

**Low Support for Creativity Manipulation**
Towards the end of the meeting, you did not feel good about the norms that were established for the team. You know that if you were to make a mistake on the team, it would be held against you. You and others do not feel comfortable bringing up issues of concern, because you know that it is not safe to take risks on this team. You feel that your unique skills and contributions are not fully valued.

Before leaving, your team supervisor suggests a team-building exercise in which the three of you generate unique uses for everyday objects. You, Pat, and Chris decide to generate lists separately before sharing your ideas in a meeting to discuss and further develop them.
We are specifically interested in how people feel about working in a team. We would like to know if you ever experienced a similar situation while working in a team, whether that is a work team, a school group, a sports team, etc. Please think of a specific example and elaborate on why you felt that way in the team.
APPENDIX H

PSYCHOLOGICAL SAFETY MEASURE
Please respond to the questions below with these teams in mind on a scale of 1 (Not at all accurate) to 7 (Extremely accurate).

1. If you make a mistake on this team, it is often held against you.

2. Members of this team are able to bring up problems and tough issues.

3. People on this team sometimes reject others for being different.

4. It is safe to take a risk on this team.

5. It is difficult to ask other members of this team for help.

6. No one on this team would deliberately act in a way that undermines my efforts.

7. Working with members of this team, my unique skills and talents are valued and utilized.
APPENDIX I

DIVERGENT THINKING TASK
The following prompts will provide you with an everyday object. For each prompt, please think of and list as many unusual uses as you can for the object. You will have 2 minutes per prompt. An example using a mug as the object is shown below.

Ex. Please think of and list as many unusual uses as you can for:

A **mug**

- Drawing a circle
- Planter
- Pencil holder

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>A wire hanger</td>
</tr>
<tr>
<td>2.</td>
<td>A shoelace</td>
</tr>
<tr>
<td>3.</td>
<td>A brick</td>
</tr>
<tr>
<td>4.</td>
<td>A paperclip</td>
</tr>
<tr>
<td>5.</td>
<td>A newspaper</td>
</tr>
<tr>
<td>6.</td>
<td>A rubber band</td>
</tr>
</tbody>
</table>
APPENDIX J

CREATIVE SELF-EFFICACY INSTRUMENT
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Please indicate the degree to which you agree with the following statement from 1 (strongly disagree) to 7 (strongly agree)</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I have confidence in my ability to solve problems creatively.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2.</td>
<td>I feel that I am good at generating novel ideas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>3.</td>
<td>I have a knack for further developing the ideas of others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>