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THE POWER OF PAUSE:

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SAMANTHA ENGLAND

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THE POWER OF PAUSE:

AN INVESTIGATION OF THE ROLE OF BREAKS IN CREATIVE PERFORMANCE

A DISSERTATION APPROVED FOR THE

DEPARTMENT OF PSYCHOLOGY

BY THE COMMITTEE CONSISTING OF

Dr. Michael Mumford, Chair

Dr. Shane Connelly

Dr. Ryan Bisel

Dr. Dingjing Shi

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Abstract

Although studies indicate that intrinsic interest is likely a stronger motivator for creativity than external factors, companies that prioritize creativity have increasingly implemented external motivators into their work environments in the form of respite activities. Despite this growing trend, little research has investigated the usefulness of breaks for promoting creativity. The purpose of the present effort was to address this gap in the literature by exploring the impact of external motivational influences on creative problem-solving performance – specifically, the impact of imposed work breaks, performance pressure, and creative self-efficacy. Participants were asked to take on the role of a product development manager tasked with developing a new restaurant proposal for the firm. Results from the present effort yielded a pattern of findings that demonstrated no significance. However, the findings may still provide valuable insights. More specifically, this study emphasizes the need for more caution when considering the types of tasks used to study motivation in creativity. The findings of the present effort suggest that intrinsically motivating tasks may take priority over externally imposed motivational influences.

Keywords: creativity, breaks, motivation, creative performance,

The Power of Pause: An Investigation of the Role of Breaks in Creative Performance

In the field of industrial organizational psychology, it is commonly believed that performance results from both ability and motivation. Given the crucial role of motivation in performance, researchers have investigated the internal and external motivational factors that can affect creative output. Although studies indicate that intrinsic interest is likely a stronger motivator for creativity than external factors (Amabile, 1985; Hennessey & Amabile, 1998), companies that prioritize creativity have increasingly implemented external motivators into their work environments. For instance, recent news coverage of technology firms highlights their incorporation of respite activities, such as snack bars, foosball tables, and yoga studios, into the workplace (Rodriguez, 2013). The idea is that providing access to enjoyable and stress-reducing activities during work breaks can improve employee morale and increase productivity and creativity. This growing trend raises an important question: what is the impact of work breaks on creative performance?

The impact of work breaks on creative problem-solving is a crucial yet understudied question. Most of the existing research has focused on incubation, where taking a break from a problem leads to better performance than working on it continuously (Wallas, 1926). However, studies examining the relationship between incubation and creativity have yielded mixed results. While some studies have shown support for the incubation effect (Smith & Blankenship, 1989; Beeftink et al., 2008; Segal, 2004; Dreistadt, 1969), others have produced insignificant, inconsistent, or even negative findings (Olton & Johnson, 1976; Dominowski & Jenrick, 1972; Gick & Holyoak, 1980). One possible explanation for these inconsistent findings is that they are due to the limitations of the methods used to measure creativity, which often rely on insight problem-solving and divergent thinking tasks. These tasks differ in important ways from creative

problem-solving tasks and may not fully capture the complex process of creative problem-solving. Although some studies have suggested that breaks can improve aspects of creativity, such as idea generation (Baird et al., 2012; Paulus et al., 2006; Dijksterhuis & Meurs, 2006), research on the impact of breaks on creative problem-solving performance is still scarce. Given the increasing popularity of work break infrastructure in leading technology firms (Rodriguez, 2013), and the likelihood that many of their employees engage in creative problem-solving tasks (Mumford et al., 2011), more research is urgently needed in this area.

As noted earlier, while intrinsic interest is thought to be the primary motivator for creativity, external motivational factors can also play a role. To build on this observation, this study aims to explore the impact of external motivational influences on creative problem-solving performance. Specifically, we will investigate the impact of work breaks on creative performance, addressing gaps in the literature on the relationship between breaks and creative problem-solving. In addition, we will examine the potential impact of two other factors that are known to influence creative performance: performance pressure and creative self-efficacy. Performance pressure can either enhance or hinder creative performance, depending on how it is perceived (Amabile et al., 1996). Further, creative self-efficacy, or an individual's belief in their ability to be creative, has been found to be positively associated with creative performance (Tierney & Farmer, 2002). Therefore, by examining the combined influence of work breaks, performance pressure, and creative self-efficacy on creative problem-solving performance, we hope to gain a deeper understanding of the interplay between these factors and their potential impact on creativity in the workplace.

Creativity and Creative Performance

Firms operating in complex and dynamic environments require innovation for survival and profitability (Cefis & Marsili, 2005; Zhang et al. 2018; Makri & Scandura, 2010; Love et al., 2009). Since innovation involves the successful implementation of creative ideas (Scott & Bruce, 1994; Amabile, 1998), it is critical for firms to invest in the creative potential of their workforce. Creativity involves developing original, high-quality, and elegant solutions to novel, complex, and ill-defined problems (Mumford & Gustafson, 2007; Christiaans, 2002; Amabile, 1983). This implies that the production of creative solutions is closely tied to the nature of the problem at hand, and not all employees encounter problems that require creative thinking.

Cognitive process models of creativity are particularly useful for understanding how individuals work with extant knowledge when solving a creative problem. Mumford et al. (1991) identified eight key processing activities that are involved in creative problem-solving, including problem definition, information gathering, concept selection, conceptual combination, idea generation, idea evaluation, implementation planning, and adaptive monitoring (see Figure 1). The validity evidence for the cognitive process model of creativity has been demonstrated in an extensive series of studies conducted by Mumford and colleagues (Baughman & Mumford, 1995; Mumford et al., 1996; Scott, Lonergan, & Mumford, 2005). The creative process model can be divided into two stages: early and late-stage processes or cycle capacities. Early-stage capacities involve the cognitive processes that are crucial in generating initial ideas. This includes problem definition and understanding, information gathering, and the use of procedures to combine and reorganize information into new concepts. However, the value of these new ideas only comes to fruition when they are put into action. Late-stage processes involve generating and evaluating ideas, planning implementation activities, and monitoring the success of the creative effort. Together, these two stages of the creative process model capture the essential cognitive

processes involved in creative problem-solving. What is important to note, however, is that engagement in the creative problem-solving process is highly demanding, requiring cognitive effort on the part of individuals (Redmond et al., 1993). This point has implications for breaks, in that individuals may benefit from taking breaks in order to recuperate from the demanding nature of the creative process.

Breaks at Work

Generally, a break can be defined as a planned or spontaneous recess from active work on a task that serves to interrupt task flow and continuity (Jett & George, 2003). The method by which breaks occur can vary, with natural breaks happening as work progresses (e.g., time between meetings), scheduled breaks occurring at specific times (e.g., lunch, vacation), and spontaneous breaks occurring as employees need (e.g., using the restroom, making a personal call) (Fritz et al., 2013; Jett & George, 2003; Roy, 1960). Whether work breaks are formally scheduled by organizational routines or informally initiated by workers, there is a wide range of activities that can be pursued during these breaks. These activities include physical exercises like taking a walk, social interactions such as water cooler conversations, skill-building activities like reading a book, and relaxation practices such as meditation (Fritz et al., 2013). The range in potential work break activities is a critical consideration, as research suggests that the specific activities carried out during breaks are more important than the act of taking a break itself (Fritz et al., 2013).

After discussing the different types of work breaks, an important question arises - what are the psychological effects of taking breaks during work? To address this question, numerous researchers have conducted studies examining the impact of breaks on various outcomes, including fatigue (Henning et al., 1989), boredom (Roy, 1960; Fisher, 1993), well-being and job

satisfaction (Jett & George, 2003), and productivity (Dababneh, Swanson, & Shell, 2001; Henning et al., 1997). Research has demonstrated that taking breaks can boost productivity and performance by mitigating fatigue and enhancing focus, attention, self-control, and cognitive function (Kim et al., 2017; Trougakos et al., 2008; Steinborn & Huestegge, 2016). This effect is thought to be due to the attention-resource model, which proposes that maintaining control of attention over time requires mental resources that become depleted over time (Maclean et al., 2010; Sarter et al., 2001). Since sustaining attention is a cognitively demanding task, it cannot be sustained over extended periods (Maclean et al., 2010). The effort-recovery model (Meijman & Mulder, 1998) suggests that individuals should rest momentarily to allow their cognitive systems to recuperate from continuous work, and breaks can help replenish depleted mental resources and provide an opportunity for recovery (Sonnentag & Natter, 2004). This point is further emphasized by the fact that labor laws in many jurisdictions mandate that certain workers take breaks during their shifts. For example, in California, employers are required to provide a 10-minute rest break for every four hours worked (California Department of Industrial Relations, n.d.).

With respect to the negative consequences of work breaks, work breaks can impede productivity if they are either too long or disrupt the momentum of continuous work on a task (Jett & George, 2003). When breaks are taken because of a person's resistance to starting or continuing work, they can lead to procrastination which erodes the time available to complete work and enhances distress. Further, when breaks are frequent or extended over long periods of time they can lead to disengagement and forgetting of essential task details. This necessitates a start-up period where individuals become re-oriented and engaged with the task at hand. This has important implications, as it implies that the duration and frequency of breaks can impact the

effectiveness of work breaks (Jett & George, 2003). In fact, research has shown that short breaks may prove to benefit performance more than breaks that extend over longer durations of time (Tucker, 2003; Galinsky et al., 2000).

Breaks and Creativity

The previously discussed research highlights the importance of work breaks for enhancing the productivity, well-being, and satisfaction of employees. Given these findings, it is not surprising that there has been an increase in organizations incorporating respite activities into the workplace to enhance employee morale and promote productivity and creativity (Rodriguez, 2013). One prominent example of these creativity-driven office spaces is Google's Googleplex, their expansive signature complex featuring sand volleyball courts, lap pools, various eateries, and yoga and meditation rooms (Perryer, 2019). However, the popularity of incorporating respite activities into the workplace begs a question – do breaks contribute to the creative performance of employees?

The effectiveness of breaks for promoting creative problem-solving is an important question for which there is surprisingly little empirical evidence. The majority of research has investigated breaks in relation to incubation and insight processes in creativity. The term incubation was first coined in Wallas's (1926) four stage creative problem-solving model. Incubation is the second stage of the model and represents time away from the task at hand that is initiated when a solution is not reached in the first stage. Insight comes into play during the third stage illumination, when a sudden realization about the problem solution occurs. An incubation effect is said to occur when taking a break from a problem produces better problem-solving performance than working on it continuously (Wallas, 1926). There is ongoing controversy regarding the causes of incubation effects. While some researchers propose that

unconscious processes during incubation facilitate creativity, others suggest that the absence of conscious thought during this period leads to creative insights (Ritter & Dijksterhuis, 2014). However, evidence has demonstrated that incubation can enhance problem-solving performance by stimulating the forgetting of fixating elements (Smith & Blankenship, 1989), promoting mental set-shifting (Schooler & Melcher, 1995), enhancing relaxation (Ritter & Dijksterhuis, 2014), and facilitating cues from the environment (Langley & Jones, 1988).

Studies examining the influence of incubation on creativity have provided mixed evidence, with some demonstrating support for the incubation effect (Smith & Blankenship, 1989; Beeftink et al., 2008; Segal, 2004; Dreistadt, 1969), and others finding insignificant, inconsistent, or negative findings (Olton & Johnson, 1976; Dominowski & Jenrick, 1972; Gick & Holyoak, 1980). This may in part be due to the use of insight problem-solving tasks which are characterized by the use of problems that have one specific, and often counterintuitive, correct solution (Dijksterhuis & Meurs, 2006). What is important to note, however, is that insight problem-solving tasks differ in foundational ways from creative problem-solving tasks. Creative problem-solving tasks, as defined by Mumford and Gustafson (2007), are tasks characterized by the use of open-ended problems that are complex, ill-defined, and novel. Instead of one correct solution, there are a wide number of possible acceptable solutions, with solutions being evaluated for creativity on the basis of quality, originality, and elegance (Besemer & O'Quinn, 1999; Christiaans, 2002) rather than on the basis of being right or wrong.

Researchers have also investigated the influence of breaks and incubation on creativity in relation to divergent thinking. Often measured through idea generation tasks such as the Consequences Test or Alternative Uses, divergent thinking captures an individual's ability to produce multiple novel ideas in response to ill-defined open-ended problems (Guildford, 1950;

Guilford, 1967; Merrifield et al., 1962). The research examining the impact of breaks and incubation on divergent thinking task performance has provided support for the incubation effect, with breaks contributing to an increase the number of ideas generated (Paulus et al., 2006; Madjar & Shalley, 2008; Baird et al., 2012). What is important to note, however, is that divergent thinking processes are one of many operations functioning within a larger more complex creative thinking process. So, while components of the creative process involve divergent thinking, such as the emergence of new features through the generation of new archetypes in conceptual combination, others involve convergent thinking, such as the feature search and mapping done during conceptual combination (Mumford & McIntosh, 2017). This distinction has important implications, as it implies that the use of only divergent thinking tasks as a method for capturing creative problem-solving performance is insufficient. Thus, more research is needed that examines the usefulness of breaks in promoting performance on creative problem-solving tasks that capture the full scope of the creative process as identified by Mumford et al. (1991).

Taken together, these findings highlight the need for more empirical research investigating the impact of breaks on creative problem-solving performance. The limited evidence that is available provides mixed and inconsistent findings that may be due to the methodologies used to capture creativity. The predominant use of insight problem-solving and divergent thinking tasks limits our understanding of the effectiveness of breaks on creativity, as they are not comprehensive measures capturing the full scope of the creative problem-solving process. While studies have provided preliminary evidence suggesting breaks may benefit aspects of creativity such as the generation of ideas (Baird et al., 2012; Paulus et al., 2006; Dijksterhuis & Meurs, 2006), research on the influence of breaks on creative problem-solving

performance remains limited. Given the prevalence and popularity of infrastructure supporting breaks at leading technology firms (Rodriguez, 2013; Perryer, 2019), and the likelihood that at least some of their employees are tasked with work that requires creative problem-solving (Mumford et al., 2011), it is clear that there is a critical need for more research.

The goal of the present effort is to address this gap in the literature by investigating the impact of breaks on creative problem-solving performance. Given the evidence suggesting that the timing of breaks may be more important than the actual duration of the break (Tucker, 2003; Rogers, Hwang, & Scott, 2004), we will be evaluating the influence of an imposed break at a designated point in the creative process as identified by Mumford et al. (1991) – either an early-stage break, or a late -stage break. The difference in the functions of the early and late-stage processes may prove to influence the impact of the break on creative performance. For instance, early-stage processes, which include defining problems, acquiring information bearing on the problem, and combining and reorganizing information into new concepts, are the foundation for the initial generation of ideas. Given the past findings supporting the usefulness of breaks in promoting the generation of ideas (Baird et al., 2012; Paulus et al., 2006; Dijksterhuis & Meurs, 2006), an imposed break after the early-stage processes may prove to promote subsequent creative performance.

Research Question 1: How does the imposition of breaks into the creative process influence creative problem-solving performance?

Research Question 2: How might breaks differentially influence creative problem-solving when imposed early in the creative process versus later in the process?

Performance Pressure and Creativity

According to Janssen, Van De Vliert, and West (2004), pressure is an unavoidable force that drives the need for creativity and innovation. Although there are numerous ways to understand pressure, performance pressure is the outcome of difficult demands being imposed on a situation or task (Stenmark et al., 2011). The transactional model of stress posits that pressure is perceived as individuals assess their environment for the presence of challenge and/or threat and evaluate their likelihood of overcoming the challenge/threat based on their capability (Gutnick et al., 2012; Lazarus, 1963). With regards to the effect of pressure on creative performance, research has provided inconsistent findings. Some studies have shown that pressure can diminish creativity (Amabile et al., 2002; Oldham & Cummings, 1996; Shalley & Perry-Smith, 2001), while others have shown a positive or curvilinear relationship (Baer & Oldham, 2006; Eisenberger & Aselage, 2009). The inconsistency may in part be due to the different types of pressure incorporated into studies of creativity (Gutnick et al., 2012). For instance, excessive workload pressure, characterized by the presence of high time pressure, frequent interruptions, and attenuated control, has been shown to have a negative influence on creativity (Amabile et al., 1996; Amabile et al., 2002). On the other hand, pressure may serve to enhance creativity when it results from the intellectually challenging nature of the problem itself (Amabile, 1988).

Research from the creative climate, motivation, and stress literatures supports the previous point discussed. Stressors can be appraised as hindrances or challenges, as shown by Schaubroeck et al. (1989). While both hindrance and challenge stressors result in pressure, challenge stressors tend to elicit positive emotions and attitudes that offset the negative effects of pressure (Podsakoff, LePine, & LePine, 2007). The creative climate literature further emphasizes this point by demonstrating that intellectually stimulating and challenging environments promote creativity (Hunter et al., 2005, 2007). Moreover, challenging work increases intrinsic motivation

by stimulating task concentration and engagement (Amabile, 1988; Eisenberger & Aselage, 2009).

The aforementioned findings indicate that performance pressure can enhance creativity when the pressure is due to the intellectually challenging and urgent nature of the task. However, it is important to note that the presence of pressure makes the climate a more significant influence on creativity (Hunter, Bedell, & Mumford, 2007). Work breaks and other environmental variables may play a crucial role in determining how individuals respond to pressure and ultimately affect their creative performance. While some suggest the need for breaks during high-pressure situations (Jett & George, 2003), others have demonstrated that individuals may choose to forfeit break time during such times (Collins & Amabile, 1999; Perlow, 2001). As a result, more research is necessary to gain a better understanding of how the presence of performance pressure affects creativity when breaks are introduced into the environment.

Research Question 3: How might performance pressure influence the relationship between work breaks and creative problem-solving performance?

Creative Self-Efficacy and Creativity

Creativity is a complex and dynamic process that demands a substantial investment of time and energy (Redmond, Mumford, & Teach, 1993). To overcome the inherent challenges of creative work, individuals need an internal sustaining force to propel them forward (Amabile, 1983; Bandura, 1977; Tierney & Farmer, 2002). Self-efficacy, defined as an individual's overall belief in their capability, is a crucial factor that influences both motivation and ability to engage in behavior and pursue tasks (Chen, Gully, & Eden, 2001). According to social cognitive theory, self-efficacy beliefs play a central role in how individuals exert control over their lives (Bandura,

1997). Those with strong efficacy beliefs are more persistent and able to cope more effectively when facing challenges (Bandura, 1997). Self-efficacy judgments are formed based on an assessment of personal and situational resources and constraints (Gist & Mitchell, 1992).

Creative self-efficacy is a specific form of self-efficacy that reflects an individual's belief in their ability to produce creative outcomes (Tierney & Farmer, 2002). While different types of efficacies can impact performance, more proximal types of efficacies, such as creative self-efficacy, have a significant effect on targeted performance (Amabile, 1988). Creative self-efficacy specifically targets the ability to be creative and has been found to have a greater influence on creative performance than general job self-efficacy (Oldham & Cummings, 1996; Tierney & Farmer, 2002). People with high creative self-efficacy are likely to possess the key abilities for effective creative performance, such as breaking mental sets, adopting non-conforming perspectives, taking risks, and acting independently of social approval (Amabile, 1988). Thus, individuals with high creative self-efficacy are likely to demonstrate better creative problem-solving performance (Tierney & Farmer, 2002). This has been supported by research demonstrating a positive relationship between creative self-efficacy and creativity (Jaussi, Randel, & Dionne, 2007; Zhang & Zhou, 2014; Redmond et al., 1993).

Taken together, these findings highlight the importance of incorporating creative self-efficacy into studies of creative performance. The aforementioned evidence suggests that feelings of self-efficacy contribute not only to motivation to engage in creative tasks, but to the effective application of cognitive resources during creative efforts as well (Redmond et al., 1993). With respect to the present effort, creative self-efficacy may impact the relationship between taking a break and creative problem-solving, with individuals' perceptions of their capability potentially influencing how effectively they leverage their downtime to enhance their

creative output. Given that little to no research has investigated this relationship, more research is needed to understand how creative self-efficacy might interact with work breaks to influence creative problem-solving.

Research Question 4: How might creative self-efficacy influence the relationship between work breaks and creative problem-solving performance?

Present Effort

The purpose of the present effort is to explore the impact of external motivational influences on creativity. More specifically, the goal is to fill current gaps in the literature by examining the impact of imposed work breaks, performance pressure, and creative self-efficacy on creative problem-solving performance.

Method

Sample

The sample for this study consisted of 231 undergraduate students attending a large southwestern university. Participants in this sample ranged in age from 18 years to 63 years (M = 18.99, SD = 3.60) and were 74% female and 26% male. Participants were recruited from undergraduate psychology courses and were provided with course credit for participation in experimental studies. Undergraduates seeking credit were instructed to review study descriptions provided through an online system called SONA and to sign up to participate in studies they are interested in.

Design

A 3 x 2 x 2 between-subjects design was employed to examine the impact of taking a break (no break vs. early-stage break vs. late-stage break), as well as the influence of creative

self-efficacy (low vs. high) and performance pressure (low vs. high) on creative problem-solving performance. Participants were randomly assigned to one of the twelve experimental conditions. Dependent variables of interest included quality, originality, and elegance.

General Procedure

Participants were recruited to participate in a 2-hour study examining creative problem—solving. This study was conducted online, through the use of a survey designed in Qualtrics. Once participants clicked on the survey link, they were randomly assigned into one of twelve experimental conditions. Once participants were directed to the survey corresponding to their assigned condition, participants were asked to read the consent form and to electronically provide consent for participation. Once consent was obtained, participants then completed a set of timed covariate measures examining various cognitive abilities. When participants finished the timed covariates, they were then directed to the first manipulation. For this manipulation, deception was used to provide participants with a creativity ability score report based on their performance on the previous timed covariates. Depending on their experimental condition, participants were told that their creative ability was either above or below average. After the first manipulation, participants then began working on the experimental task. The second and third study manipulations were presented during the task. After completion of the experimental task, participants were asked to complete additional untimed covariates. The experiment was then concluded once participants were debriefed.

Experimental Task

The experimental task used in the present effort was the O'Toole restaurant development task. This task has been well validated and successfully used in past research examining creative problem-solving performance (Medeiros et al., 2018; McIntosh, Mulhearn, & Mumford, 2021).

In this task, participants are asked to assume the role of a new Product Development Manager working in the Research and Development department in a firm called O'Toole Restaurant Consultants, Inc. Participants were tasked with developing a new restaurant proposal for the firm. To begin this task, participants first read through relevant background information including a detailed description of their role, the company, and the current market (see Appendix A for detailed task information). After reading through the background information, participants were exposed to the second study manipulation when they received an "email" from their administrator at O'Toole describing important information about the restaurant development industry. This email was used to manipulate the presence of performance pressure in the task. Then, participants received an additional series of "emails" from their supervisor, the Vice President of O'Toole, asking them to complete various tasks. Participants would complete these tasks one at a time, clicking to move onto the next "email" and associated task. Each of these "emails" was designed to map on to a specific stage of the creative process model (Mumford et al., 1991) from early-stage processes to late-stage processes. The intent of these "emails" was to encourage the execution of said stage of the creative process. Depending on their experimental condition, participants were exposed to the third and final manipulation either after completion of the early-stage creative tasks, after the completion of the late-stage creative tasks, or not at all. This manipulation was intended to impose breaks into the task. Once participants worked through and completed these tasks, participants were then instructed to create their final proposal for their new restaurant concept.

Experimental Task Prompts

Prompts used in the present effort were adapted from past studies using the O'Toole restaurant development task (Medeiros et al., 2018; McIntosh et al., 2021). Each prompt maps on

to a creative problem-solving process identified in the creative process model (Mumford et al., 1991).

Problem Identification. "You have been asked to identify and describe the key challenges for this project."

Information Gathering. "You have been asked to list key information you think should be attended to as we move forward. In other words, let us know what information is the most important to pay attention to."

Conceptual Selection. "You have been asked to consider major causes, constraints, user groups, and other factors that would be crucial to pay attention to while creating a new successful restaurant."

Conceptual Combination. "You have been asked to incorporate ALL of the executives' ideas into a proposal."

Idea Generation. "You have been asked to come up with your own ideas for the restaurant proposal."

Idea Evaluation. "You have been asked to evaluate your best 3 ideas."

Manipulations

Breaks. The imposition of breaks into the situation was manipulated by instructing participants to stop their work on the current task to engage in a short mindfulness exercise. Research suggests that the activities carried out during breaks have a greater effect on the individual than the break itself (Fritz et al., 2013). As such, a mindfulness exercise was selected as the break activity due to evidence suggesting that engaging in mindfulness serves to promote emotional and stress regulation and improve an individual's sense of presence (Adair &

Fredrickson, 2015; Bullis et al., 2014). This implies that mindfulness serves to help individual's process and gather evidence about their current situation so that they can react accordingly instead of jumping to conclusions (Chen & Wilton, 2018). The mindfulness exercise utilized was adapted from Erisman and Roemer (2010) and has been successfully used in past mindfulness research (Cleirigh & Greaney, 2015; Kiburz et al., 2017; Watier & Dubois, 2016). This exercise consists of a 10-minute audio-taped recording that walks participants through an introduction of mindfulness and a mindfulness breathing activity. This exercise was drawn from established mindfulness interventions, such as those used in mindfulness-based cognitive therapy (Segal, Williams, & Teasdale, 2018). To manipulate the timing of the break, participants received these instructions either right after the early-stage creative processes (e.g., conceptual selection), after the late-stage creative processes (e.g., idea evaluation), or they did not receive break instructions at all (control). To ensure that participants engaged in the break, a timer was used to record the amount of time spent on the activity. A detailed description of the mindfulness break manipulation can be found in Appendix B.

Performance Pressure. Performance pressure was imposed into the task through an "email" that participants received from their administrative assistant. This manipulation was adapted from procedures used in Stenmark and Mumford (2011) and Stenmark et al. (2011). In the "email", participants were provided with a description of the current state of the restaurant industry and its impact on how the board will evaluate their restaurant proposal. In conditions of high-performance pressure, participants were informed that the restaurant industry is highly saturated and risky, with a majority of new restaurants failing. As a result, the board evaluating their proposal will be critical – rejecting 95% of proposals received – with bonuses for the year tied to the production of a viable idea. Participants in the low performance pressure condition

were informed that the restaurant industry has been fruitful, with limited competition and many new restaurants becoming successful. As a result, the board evaluating their proposal will be lenient – accepting 95% of the proposals received – with bonuses for the year not tied to the production of a viable idea. A detailed description of the performance pressure manipulation can be found in Appendix C.

Creative Self-Efficacy. Participant creative self-efficacy was manipulated through an "email" that participants received immediately following the completion of the timed covariates at the start of the study. Following the procedures from Redmond, Mumford , and Teach (1993), participants were told that their creative ability was evaluated based on their performance on the prior timed covariate tasks. Depending on their experimental condition, participants were then told that their scores indicated their ability to be creative as either below average or above average, indicating that they perform worse or better, respectively, than most people when developing creative solutions. Participants were debriefed on the use of deception at the end of the study and were provided with the opportunity to remove their data from consideration. A detailed description of the creative self-efficacy manipulation can be found in Appendix D.

Rated Dependent Variables

The following variables were rated by three trained graduate student judges. To enhance the reliability and validity of ratings, judges were provided with benchmarked ratings scales (Redmond, Mumford, & Teach, 1993) and underwent a thorough 20-hour training program. Judges met on a regular basis to ensure adequate interrater agreement. Each of the dependent variables was rated on a five-point Likert scale, with 1 indicating a low score on the respective variable and 5 indicating a high score.

Quality. Judges rated the quality of participants' creative solutions. Quality was defined as the extent to which the participant's restaurant proposal was logical, complete, and useful (Besemer & O'Quin, 1999). Interrater agreement for quality was acceptable (r_{wg} = *.85)*.

Originality. Judges rated the extent to which the participants' creative solutions demonstrated originality. Originality was defined as the extent to which the participant's restaurant proposal was novel, unpredictable, and unique (Besemer & O'Quin, 1999). Interrater agreement for quality was acceptable (r_{wg} = *.72)*.

Elegance. Judges rated the elegance of participants' creative solutions. Elegance was defined as the extent to which participant's restaurant proposal was articulated in a succinct, flowing, refined, and clever nature (Besemer & O'Quin, 1999). Interrater agreement for quality was acceptable (r_{wg} = *.79)*.

Covariate Control Measures

The following covariate measures were used to capture and control individual differences that were likely to impact performance on this creative task. This battery of covariate measures mirrors the standard covariates that have been successfully used in past investigations of creative problem-solving performance. Given the evidence demonstrating that divergent thinking, intelligence, and expertise influence creative problem-solving (Vincent, Decker, & Mumford, 2002), these variables were included as covariates. In addition, due to the nature of the task, motivation was included as a covariate, as it has been shown to influence the engagement in cognitively demanding efforts (Jaussi et al., 2007). Personality was also included as a covariate, as research has shown that personality can impact creative performance (Feist, 2019). Finally, demographic information, such as age and gender, was also considered.

Intelligence. Intelligence was measured using the Employee Aptitude Survey (Grimsley, Ruch, Warren, & Ford, 1985). This 30-item verbal reasoning measure presents participants with sets of four to five factual statements. Each set of factual statements is presented in conjunction with a set of five conclusions. Participants are then asked to indicate, based on the facts provided, whether they believe each conclusion is true, false, or if they are unsure. This measure has been shown to yield retest reliabilities above .80, and validity evidence has been provided by Grimsley et al. (1985).

Divergent Thinking. Divergent thinking was measured using Guilford's Consequences Test (Merrifield et al., 1962). This assessment presents participants with five unlikely events. For each event, participants are given two minutes to list as many consequences as possible. Responses to this measure were rated for fluency, which represents the number of consequences produced for each event. This measure yields an internal consistency of .70, and validity evidence has been provided by Merrifield et al. (1962).

Domain Expertise. Domain expertise was assessed using a background data measure that captures interest in, and familiarity with, the restaurant domain. This measure has been successfully used in past studies (Gibson & Mumford, 2013; Medeiros et al., 2018). Participants were asked to respond to six questions using a five-point Likert response scale. This measure yields an internal consistency of .69 and validity evidence has been provided by Medeiros et al. (2018).

Motivation. Intrinsic motivation was measured using Cacioppo and Petty's (1982) Need for Cognition scale. This measure presents participants with 18 statements in which participants indicate their level of agreement. This measure yields an internal consistency of .90 and validity evidence has been provided by Cacioppo et al. (1996).

Personality. Personality was measured using Gill and Hodgkinson's (2007) Five Factor Model Questionnaire (FFMQ), which measures neuroticism, openness, conscientiousness, agreeableness, and extraversion. This measure presents participants with 80 adjective items to which they are asked to indicate the extent to which it reflects their own personality. This measure yields an internal consistency of .80 and predictive and construct validity evidence has been provided by Gill and Hodgkinson (2007).

Analyses

Analysis of covariance (ANCOVA) tests were conducted to appraise the effects of each manipulation on the quality, originality, and elegance of creative problem solutions. In all analyses, covariates were retained only if they produced a significant relationship at the .05 level. In addition to the ANCOVAs, a multivariate analysis of covariance (MANCOVA) was conducted with each covariate, manipulation, and outcome variable included. However, since the MANCOVA did not provide any additional information beyond the conducted ANCOVAs, these results were excluded from the present effort.

Results

Table 1 presents the means, standard deviations, and correlations for each of the study variables. As seen in Table 1, our measures of creative performance were found to be significantly and positively related to both motivation and intelligence. More specifically, intelligence was positively correlated with quality ($r = .26$, $p < .01$), originality ($r = .18$, $p < .01$), and elegance ($r = .24$, $p < .01$). In addition, motivation was found to be positively correlated with quality ($r = .13$, $p < .05$) and originality ($r = .13$, $p < .05$). These findings are in alignment with past creative problem-solving research which has shown both motivation and intelligence to

influence creative performance (Vincent, Decker, & Mumford, 2002; Jaussi et al., 2007). As such, these findings provide construct validity evidence for the present effort.

With regard to the effects of manipulations on creative performance, Table 2 presents findings from the ANCOVA investigating the impact of work breaks, performance pressure, and creative self-efficacy on the quality of creative problem solutions. Results indicated that work breaks did not have a significant impact on the quality of creative problem solutions ($F(2, 229) = .51$, $p = .60$, $\eta_p^2 = .01$). Further, creative self-efficacy did not have a significant impact quality ($F(1, 230) = .24$, $p = .62$, $\eta_p^2 = .00$). Finally, performance pressure was not found to have a significant impact on quality ($F(1, 230) = .05$, $p = .83$, $\eta_p^2 = .00$).

Table 3 presents the results of the ANCOVA investigating the impact of work breaks, performance pressure, and creative self-efficacy on the originality of creative problem solutions. Results indicated that work breaks did not have a significant impact on the originality of creative problem solutions ($F(2, 229) = .09$, $p = .92$, $\eta_p^2 = .00$). In addition, creative self-efficacy did not have a significant impact originality ($F(1, 230) = .17$, $p = .68$, $\eta_p^2 = .00$). Lastly, performance pressure was not found to have a significant impact on originality ($F(1, 230) = .81$, $p = .37$, $\eta_p^2 = .00$).

Table 4 presents the results of the ANCOVA investigating the impact of work breaks, performance pressure, and creative self-efficacy on the elegance of creative problem solutions. Results indicated that work breaks did not have a significant impact on the elegance of creative problem solutions ($F(2, 229) = .54$, $p = .59$, $\eta_p^2 = .01$). Furthermore, creative self-efficacy did not have a significant impact elegance ($F(1, 230) = 1.09$, $p = .30$, $\eta_p^2 = .01$). Finally, performance pressure was not found to have a significant impact on elegance ($F(1, 230) = .45$, $p = .50$, $\eta_p^2 = .00$).

Discussion

Limitations

Before discussing the findings and implications of the present effort, a few limitations should be noted. To begin, this study utilized a low fidelity simulation where participants were exposed to a fictional leadership scenario. While low fidelity simulations are less salient than leadership in real world organizations, they have been used effectively in past research (Medeiros et al., 2018; McIntosh et al., 2021). Furthermore, this study utilized a convenience sample comprising undergraduate students which limits the generalizability of findings to other populations. In addition, the fixed nature of the manipulations prevents us from examining the impact of these variables if they were presented in another order. Further, the online nature of the study serves as a limitation, in that it made it difficult to control the experimental environment of participants. As such, findings may differ if the study was conducted in-person. In addition, the individual-level focus of the present effort serves as a limitation, as findings may be different if the study was conducted at the team-level. Further, while the sample size if sufficient, effects found in the present effort may shift with an increase in sample size.

The nature of the way the breaks were introduced within the present effort also serves as a limitation, in that participants were instructed to take a break at a specific point in time. While research suggests that some breaks are formally scheduled and initiated (Fritz et al., 2013), this process of engaging in a break is likely different from how breaks occur organically in real-world organizational settings. Relatedly, the duration of, and activities engaged in during, the break may serve as another limitation, in that participants were given 10 minutes to work through a mindfulness exercise. The use of a brief mindfulness break is one of many different types of potential breaks that employees can take in organizational settings (Fritz et al., 2013), and as

such does not provide a comprehensive understanding of the impact of breaks on creative performance. Furthermore, breaks can range in duration, with some breaks extending over multiple days (e.g., vacation), over the course of an hour (e.g., lunch breaks), or a couple of minutes (e.g., taking a personal call) (Fritz et al., 2013; Jett & George, 2003). In the present effort we utilized a short 10-minute break, and as such, findings may not generalize to breaks that span shorter or longer durations.

Discussion of Findings and Implications

Although the current study yields findings that suggest no statistical significance, it is crucial to recognize their potential value. Specifically, insignificant findings can establish a baseline for future research in areas where knowledge is scarce, which is the case in this study. Additionally, by publishing such results, it helps prevent publication bias, which can impede a comprehensive understanding of the topic. Thus, despite the lack of significance, there are still implications that can be drawn from the present effort. However, it is important to note the inherent ambiguity in interpreting nonsignificant findings, and cautious consideration is warranted when drawing speculative conclusions from them.

The lack of significant findings is a rather surprising outcome, given the verified methodology used in the present effort. The experimental task employed has been successfully utilized in prior research on creative performance (Medeiros et al., 2018; McIntosh et al., 2021). The manipulations implemented in this study were also based on procedures used successfully in past research. For example, the creative self-efficacy manipulation mirrored the standard procedure used in prior studies on creative problem-solving (Redmond et al., 1993). Likewise, the performance pressure manipulation was adapted from effective methods used to induce performance pressure in previous research (Stenmark & Mumford, 2011; Stenmark et al., 2011).

Additionally, the mindfulness break manipulation was developed based on research indicating that short breaks can effectively interrupt task flow and continuity (Jett & George, 2003; Tucker, 2003; Kim et al., 2017) and used a mindfulness exercise that has been successful in prior research (Erisman & Roemer, 2010; Kiburz et al., 2017).

Despite using a verified methodology, no significant results were observed in this study, prompting the question of why. The most obvious explanation is that no relationships exist to be found. However, alternative explanations should be considered as well. One potential explanation could be the nature of the task used in this study. While the O'Toole restaurant development task has been successful in past cognitive studies of creativity (Medeiros et al., 2018; McIntosh et al., 2021), the aim of the present study was to explore how external motivational factors could impact creative problem-solving performance. It is plausible that the motivational goals of the study were at odds with the high level of task motivation and engagement required for the experimental task, thus leading to insignificant findings.

Hunter et al. (2007) found that a creative climate can be promoted through factors such as mission relevance, intellectual stimulation, and challenge. The O'Toole restaurant development task used in the present study possesses these qualities, as it presents a complex, ill-defined, and novel problem with a clear mission. The challenging and intellectually stimulating nature of the task enhances task engagement and concentration, which, in turn, promotes intrinsic interest in the task (Amabile, 1988). Research has shown that when it comes to motivating individuals to engage in creative endeavors, their intrinsic interest in the task itself is a more influential driver of creativity than external motivational factors (Amabile, 1985; Hennessey & Amabile, 1998). Therefore, it is possible that the intrinsically motivating nature of the task itself may have affected the results of external motivational manipulations imposed in the present effort. This

observation has important implications, as it highlights the need for greater skepticism when considering the types of tasks used to study motivation in creativity.

There has been little attention given to whether some tasks are inherently more self-motivating than others in the creativity literature. However, research on affect and creativity has provided some initial insights. Bass, De Dreu, and Nijstad (2008) conducted a meta-analysis investigating the influence of mood in motivating creativity. One key finding from this investigation was that the motivational implications of mood states for creative performance vary as a function of the situation or task at hand. For instance, Friedman et al. (2007) found that positive moods enhanced creativity on tasks construed as fun, whereas negative moods enhanced creativity on tasks construed as serious. Based on these findings, Bass et al. (2008) suggested that those in a negative mood are likely to benefit from tasks framed as serious where extrinsic rewards are emphasized and those in positive moods will benefit from tasks framed as fun where intrinsic rewards are emphasized. These findings have important implications for the present effort, as it implies that when the task is intrinsically motivating and enjoyable, it may take priority over external motivational influences, rendering the task an unsuitable avenue for investigating the impact of external motivational factors on creativity. As such, future studies should take into account the nature of the task when examining the effects of external motivational factors on creativity. This observation also points to an important practical implication – rather than focusing on external rewards, organizations should consider how to structure work so people have intellectually stimulating, challenging, and mission relevant tasks to do.

Other alternative explanations for the insignificant findings may lie in the manipulations used in the present effort. When creative people are highly engaged in a task, breaks may be

more task-based than imposed. Some research suggests that the ability to switch between tasks at one's discretion, especially when an impasse is reached, can enhance incubation effects and subsequent creativity (Madjar & Shalley, 2008; Beeftink et al., 2008). According to recent research, the level of work engagement can affect how breaks impact performance. Specifically, when work engagement is low, taking breaks can have a positive impact on performance, but when engagement is high, breaks may not have any noticeable impact (Kim et al., 2018). Additionally, the persistent and obsessive nature of creative individuals can improve their focus on task execution (Furnham, 2020), which may affect their perception of performance pressure. Consequently, highly engaged individuals may not perceive performance pressure as saliently as others. Furthermore, while most studies examining creative self-efficacy have found significant relationships, it is important to note that self-efficacy is task specific (Amabile, 1988; Tierney & Farmer, 2002). Therefore, the intrinsically motivating nature of the task used in the study may have conflicted with the creative self-efficacy manipulation. Overall, these findings suggest the need for further research to understand how these factors may impact the results of motivation studies in creativity.

Conclusion and Future Directions

In conclusion, although the lack of significant findings calls for cautious interpretation, the study's potential value should not be disregarded, as it highlights important factors that may influence studies of creativity. More specifically, this study emphasizes the need for more caution when considering the types of tasks used to study motivation in creativity. The findings of the present effort suggest that intrinsically motivating tasks may take priority over externally imposed motivational influences. To date, little research has investigated the impact of specific types of creative tasks when studying motivation and creativity. Generally speaking, there are

two sets of creative tasks – creative problem-solving tasks that are challenging, intellectually stimulating, and mission relevant, and divergent thinking tasks centered around idea generation. The findings from the present effort imply that the former set of creative tasks may require different considerations when looking at motivation, as the task may be more important than external motivational influences. However, more research is needed to understand how task characteristics may influence studies of motivation and creativity. For instance, future studies should investigate what aspects of a creative task are considered intellectually stimulating, challenging, and mission relevant. These aspects are more likely to motivate creative individuals than extrinsic influences that may often be used to attempt to boost creative performance. Along similar lines, future research may consider implementing an instrumental variable study, as it may be helpful for understanding the impact of intrinsic interest in studies of motivation and creative performance.

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Table 1.

Descriptive Statistics and Correlations

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Quality	2.35	1.01	1													
2. Originality	2.37	1.07	.64**	1												
3. Elegance	2.37	1.00	.90**	.73**	1											
4. Age	18.99	3.60	.12	.05	.08	1										
5. Gender	1.74	.44	.05	.10	.07	.02	1									
6. Divergent Thinking	6.22	2.10	.12	.12	.15*	-.01	.14*	1								
7. EAS Intelligence	22.40	7.32	.26**	.18**	.24**	.00	.00	.132*	1							
8. Need for Cognition	55.83	10.66	.13*	.13*	.12	.00	-.19**	.006	.18**	1						
9. Expertise	2.33	.71	-.03	-.00	-.06	.00	.01	.086	-.07	.10	1					
10. Agreeableness	64.80	7.55	.03	-.08	-.00	-.04	.14*	.003	-.10	.01	.02	1				
11. Conscientiousness	54.10	8.14	.04	-.03	.03	.10	-.04	.079	.08	.15*	-.01	.29**	1			
12. Openness	53.52	7.14	.02	.03	.05	-.03	-.01	.070	-.12	.19**	.19**	.14*	-.13*	1		
13. Extraversion	52.70	9.43	-.04	-.01	-.01	-.08	.02	.114	-.14*	.11	.13*	.27**	-.05	.30**	1	
14. Neuroticism	46.82	9.02	-.06	-.01	-.00	-.06	.21**	.044	-.13*	-.27**	-.02	-.04	-.19**	.03	-.02	1

Table 2.

ANCOVA Results for Quality

	SS	*df*	*MS*	*F*	*p*	Partial η^2
Covariates						
EAS Intelligence	15.60	1	15.60	15.97	.00	.07
Main Effects						
Break (Absent/Early/Late)	.99	2	.50	.51	.60	.01
Creative Self-Efficacy	.24	1	.24	.24	.62	.00
Performance Pressure	.04	1	.04	.05	.83	.00
Interactions						
Break * Creative Self-Efficacy	1.15	2	.57	.59	.56	.01
Break * Performance Pressure	.85	2	.42	.43	.65	.00
Creative Self-Efficacy * Performance Pressure	.36	1	.36	.36	.55	.00
Break * Creative Self-Efficacy * Performance Pressure	.24	2	.12	.13	.88	.00

Table 3.

ANCOVA Results for Originality

Source	*SS*	*df*	*MS*	*F*	*p*	Partial η^2
Covariates						
EAS Intelligence	8.80	1	8.80	7.80	.01	.04
Main Effects						
Break (Absent/Early/Late)	.20	2	.10	.09	.92	.00
Creative Self-Efficacy	.19	1	.19	.17	.68	.00
Performance Pressure	.92	1	.92	.81	.37	.00
Interactions						
Break * Creative Self-Efficacy	2.89	2	1.44	1.28	.28	.01
Break * Performance Pressure	.04	2	.02	.02	.98	.00
Creative Self-Efficacy * Performance Pressure	.81	1	.81	.72	.40	.00
Break * Creative Self-Efficacy * Performance Pressure	3.94	2	1.97	1.75	.18	.02

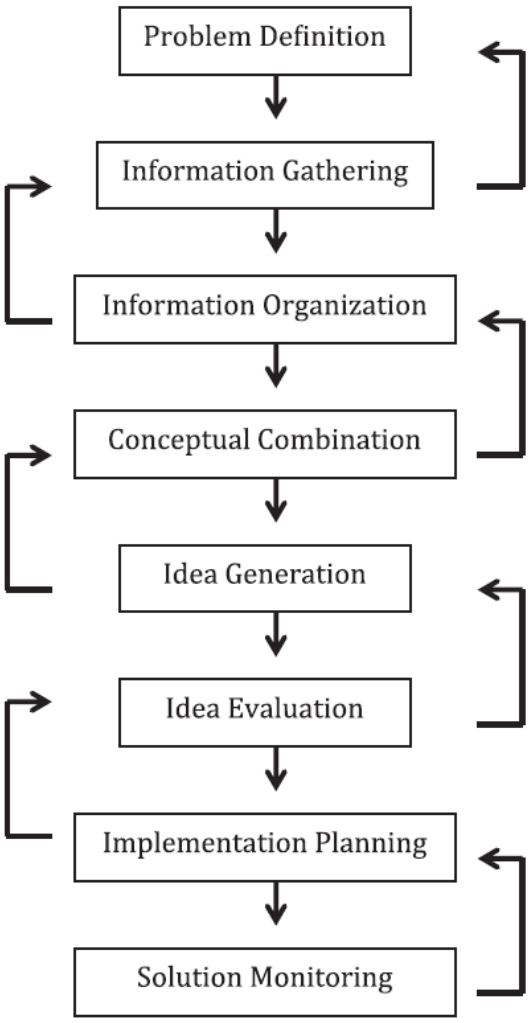
Table 4.

ANCOVA Results for Elegance

Source	*SS*	*df*	*MS*	*F*	*p*	Partial η^2
Covariates						
Divergent Thinking	2.83	1	2.83	2.96	.09	.01
EAS Intelligence	11.18	1	11.18	11.71	.00	.05
Main Effects						
Break (Absent/Early/Late)	1.02	2	.51	.54	.59	.01
Creative Self-Efficacy	1.04	1	1.04	1.09	.30	.01
Performance Pressure	.43	1	.43	.45	.50	.00
Interactions						
Break * Creative Self-Efficacy	3.06	2	1.53	1.60	.20	.02
Break * Performance Pressure	.13	2	.06	.07	.94	.00
Creative Self-Efficacy * Performance Pressure	.08	1	.08	.09	.77	.00
Break * Creative Self-Efficacy * Performance Pressure	.39	2	.19	.20	.82	.00

Figure 1

Eight-Stage Creative Process Model



Appendix A: O'Toole Restaurant Development Task Information

O'Toole Restaurant Inc. General Instructions

In this study, you will be asked to take on the role of Riley Green, a New Product Development Manager working in the Research and Development Department of a Restaurant Development Firm. You will receive a series of emails from other members of this firm. Read these emails carefully as they contain important information. You will be asked to complete various tasks with respect to New Product Development at this firm. Be sure to attend to the details of the task as they are important components which the executives want to attend to. In the end, you will be asked to create a final proposal for a new restaurant idea. You will work through this portion of the study at your own pace.

O'Toole Restaurants – New Hire Welcome Packet

Company History

O'Toole Restaurant Consultants, Inc (ORC), founded in 1955 by food critic Piere O'Toole, is a leading national restaurant consulting firm. We help our clients manage world class restaurants across the United States. We provide information and support to clients who operate various types of restaurants. Our team has a wide range of expertise, from fast-food chains to high-end, niche restaurants. We have consulted for many of the best-liked and critically acclaimed restaurants across the country. In fact, two of our concepts are previous James Beard award winners – a coveted award recognizing the top restaurant and chefs in North America.

Job Description

Title: Manager, New Product Development

Department: Research and Development

Duties: As New Product Development (NPD) Manager, your primary responsibility is to develop new ways to serve our clients and expand our business. You have a team of researchers that gathers information for you. You are expected to put together proposals for new business and present them to the executive board. The executive board then makes the final decision on whether or not to implement the proposal.

Reports to: Reese Teagan, Vice President, Research and Development You report directly to Reese Teagan, the Vice President of Research & Development. Reese is a member of the executive board and is responsible for acquiring resources for R&D projects. To do this, Reese uses the information provided by NPD Managers, such as yourself, to persuade the board to fund certain projects. Reese also decides when to cancel a project in favor of another.

Appendix B: Work Break Manipulation

Break Manipulation Instructions

Before moving on to the next stage, please download and listen to the audio clip on the following page. This clip will walk you through a short mindfulness exercise. Please complete this mindfulness exercise before continuing work on your new restaurant concept.

Break Mindfulness Exercise Script

For the next several minutes, I'm going to ask you to think about, and try, a particular kind of awareness, called mindfulness. The term mindfulness comes from Eastern spiritual and religious traditions, but psychology has begun to find that mindfulness (without the spiritual and religious context) can be helpful for people in many ways. Today I'm just going to tell you a little bit about this way of paying attention, and have you try it out, to see what it's like for you. Mindfulness is paying attention in the present moment, with openness and curiosity, instead of judgment. We often focus on things other than what is happening in the moment – worrying about the future, thinking about the past, focusing on what is coming next, rather than what is right in front of us. And it is useful that we can do a number of things without paying attention to them. However, sometimes it is helpful to bring our attention, particularly a curious and kind attention, to what we are doing in the moment. Sometimes we do pay close attention to what we are thinking and feeling, and we become very critical of our thoughts and feelings, and we try to either change them or distract ourselves because this critical awareness can be very painful. For example, we might notice while we are talking to someone new that our voice is shaky, or we aren't speaking clearly, and think, "I'm such an idiot! What is wrong with me? If I don't calm down, this person will never like me!" Being mindful falls between these two extremes – we pay attention to what is happening inside and around us, we see events and experiences as what they are, and we allow things we can't control to be as they are while we focus our attention on the task at hand. For example, when talking to someone new we might notice those same changes in our voice take a moment to reflect, "This is how it is now, there go my thoughts again", and gently bring our attention back to the person and our conversation. This second part of mindfulness, holding our judgments loosely and not trying to change our thoughts or feelings can be especially hard. In fact, often being mindful involves practicing not judging our tendency to have judgments! Mindfulness is a process: We do not reach a final and total state of mindfulness. It is a way of being in one moment that comes and goes. Mindfulness is losing our focus 100 times and returning to it 101 times. The best way to understand mindfulness is to practice it, so let's do that now.

MINDFULNESS EXERCISE

First, allow your eyes to close gently, or to lower …PAUSE… and bring yourself to sit in an upright position …LONGER PAUSE…Begin by noticing how you are sitting in the chair…PAUSE… noticing the places where you are touching the chair, the places where you are touching the floor…LONGER PAUSE…noticing where the air is touching your skin and what that feels like….LONG PAUSE… and now gently drawing your attention to your breath… PAUSE… noticing (without trying to change it) where your breath is coming from…LONGER PAUSE…noticing where it enters your body when you inhale… PAUSE… how it travels through your body before you exhale it…. LONGER PAUSE… Noticing how your body moves with each inhalation, each exhalation… PAUSE… allowing any thoughts or feelings that occur to naturally rise and fall, without trying to hold onto them or get rid of them…LONG PAUSE…just continue bringing your awareness to your experience in this moment…PAUSE… and continuing to notice your breath…PAUSE…as you allow whatever comes to come and whatever goes to go and whatever stays to stay...LONG PAUSE… and again, bringing your awareness to the room… to the way you are sitting in the chair…and gradually open your eyes when you are ready.

Appendix C: Performance Pressure Manipulation

High Performance Pressure Condition

From: Peyton Thatcher (peytonthatcher@otoole.com)
To: Riley Green (rileygreen@otoole.com)
Sent: 3/10/2022 8:50am
Subject: FYI

Hi Riley,

Before getting started on developing your new restaurant concept, I thought it would be important to let you know that the restaurant development industry is highly competitive and risky. This means that the market is highly saturated with many new restaurant concepts failing.

As a result of this, the review board evaluating your idea will be very critical. They typically reject 95% of the proposals they receive. Keeping this in mind, it will be important for you to develop a viable new restaurant concept. Failure to produce a viable idea will mean you do not receive your bonus this year.

Regards,

Peyton Thatcher
Administrator, Research & Development
O'Toole Restaurant Consultants, Inc.

Low Performance Pressure Condition

From: Peyton Thatcher (peytonthatcher@otoole.com)
To: Riley Green (rileygreen@otoole.com)
Sent: 3/10/2022 8:50am
Subject: FYI

Hi Riley,

Before getting started on developing your new restaurant concept, I thought it would be important to let you know that the restaurant development industry has been quite fruitful this year. There is not a lot of competition within the market, and many new restaurant concepts have been successful.

As a result of this, the review board evaluating your idea will be lenient. They typically accept 95% of the proposals they receive. Further, you will receive your bonus this year even if your proposal for a new restaurant concept is not accepted.

Regards,

Peyton Thatcher
Administrator, Research & Development
O'Toole Restaurant Consultants, Inc.

Appendix D: Creative Self-Efficacy Manipulation

High Creative Self-Efficacy Condition

From: Reese Teagan (reeseteagan@otoole.com)
To: Riley Green (rileygreen@otoole.com)
Sent: 1/11/2017 9:31am
Subject: Creative Ability Assessment

Hi Riley,

We are so happy to have you on board. I don't know if Peyton let you know, but I will be your supervisor throughout your time here. When we hired you, we evaluated your creative ability.

To evaluate your creative ability, we've measured your performance on the tasks you just completed. Your scores on these tasks indicate your ability to be creative is above average. Because your performance indicates that you have an above average level of creative ability, you are better than most people at developing creative solutions to complex problems.

I will be in touch shortly with instructions for your first assignment.

Regards,
Reese Teagan
Vice President, Research & Development
O'Toole Restaurant Consulting

Low Creative Self-Efficacy Condition

From: Reese Teagan (reeseteagan@otoole.com)
To: Riley Green (rileygreen@otoole.com)
Sent: 1/11/2017 9:31am
Subject: Creative Ability Assessment

Hi Riley,

We are so happy to have you on board. I don't know if Peyton let you know, but I will be your supervisor throughout your time here. When we hired you, we evaluated your creative ability.

To evaluate your creative ability, we've measured your performance on the tasks you just completed. Your scores on these tasks indicate your ability to be creative is below average. Because your performance indicates that you have a below average level of creative ability, you are worse than most people at developing creative solutions to complex problems.

I will be in touch shortly with instructions for your first assignment.

Regards,
Reese Teagan
Vice President, Research & Development
O'Toole Restaurant Consulting