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## The Effect of Regulatory Focus on Idea Generation and Idea Evaluation

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Running Head: REGULATORY FOCUS AND CREATIVITY

The Effect of Regulatory Focus on Idea Generation and Idea Evaluation

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Key Words: Creativity, idea generation, idea evaluation, regulatory focus

### Abstract

Regulatory focus, an individual difference characteristic, has been linked to decision making, such that those with a promotion focus show more risk taking and flexibility whereas those with a prevention focus are risk averse and more rigid. The relationship between regulatory focus and creativity has also been investigated, with similar results. However, the focus of these efforts has been on the idea generation phase (e.g., Friedman & Forster, 2001; Lam & Chiu, 2002). This study suggests that the influence of regulatory focus on creativity operates differently for the idea evaluation phase than with the idea generation phase. Furthermore, there are differential effects of promotion and prevention focus depending on the aspect of the idea that is being evaluated.

## The Effect of Regulatory Focus on Idea Generation and Idea Evaluation

Changes in technology, globalization, and increased competition have all created an environment in which creativity and innovation are needed in order to cope with the situational and economic pressures that confront organizations (Reiter-Palmon & Illies, 2004). Though there are many factors that can influence creativity, a majority of creativity research has focused on identifying individual differences associated with the “creative persona,” and on strategies for increasing creativity (Shalley, 1991). The body of research has focused on eminent individuals and how specific traits distinguish creative individuals from those not so creative (Mumford, 2003).

In contrast to the individual difference approach to studying creativity, other researchers have developed multi-faceted models of creativity. For example, Amabile (1996) provided a three-dimensional model of creativity which included: (a) domain-relevant skills and abilities, (b) creativity-related skills, and (c) task motivation. Domain-relevant skills include knowledge and information, technical skills, and talents and abilities pertinent to the domain. Creativity-related skills are cognitive style, heuristic use, and working style (Amabile, 1996). Task motivation refers to the motivational forces influencing the individual’s approach to the task (Amabile, 1996).

In an alternative approach focused more on a combination of individual difference and situational influences, Shalley (1991) proposed a somewhat different model with conditions for achieving creativity. People will benefit from possessing domain-relevant knowledge, and those who have higher intrinsic motivation, or an intra-driven focus on the task, are more likely to be more creative. Finally, people must engage in cognitive activities such as problem definition, data gathering, insight, evaluation of the solution, and implementation of the solution.

Taken together these models suggest that creativity is a combination of the cognitive processes, domain specific skills and knowledge, traits, and motivational factors. This study was conducted to better understand how these components are related to creative performance. It is hypothesized that an interactive approach will provide an optimal understanding of how creativity can be enhanced. Specifically, this study investigates whether different traits and motivations have a differential effect on the application of the same creative process.

Though creative problem solving models appear similar to general problem solving models, simply applying typical problem solving models will not necessarily result in creative outcomes (Brophy, 1998). Creativity is more likely to occur when the situation is novel and ill-defined (Dillon, 1982; Mumford, Mobley, Uhlman, Reiter-Palmon, & Doares, 1991). Ill-defined problems are typically unstructured, and sometimes have incomplete or ambiguous information (Abelson & Levi, 1985). Additionally, ill-defined problems are typified by multiple goals, numerous possible approaches to solving the problem, and various feasible and acceptable solutions (Dillon, 1982; Mumford et al., 1991; Schraw, Dunkle, & Benedixen, 1995). Further, when problems are new or novel, problem solvers cannot rely on previously attempted solutions or strategies, thus requiring the non-routine application of cognitive processes associated with creative problem solving.

Scientists have developed a number of cognitive process models associated with creative problem solving (Finke, Ward, & Smith, 1992; Mumford et al., 1991; Osborn, 1953; Sternberg, 1988). Though there is some disagreement regarding the distinction between typical problem solving and creative problem solving, most researchers agree on three core processes associated with the creative problem solving process (Reiter-Palmon & Illies, 2004). Those three processes are: (a) problem identification and construction, (b) idea generation, and (c) idea evaluation.

Although all of the cognitive processes associated with the creative problem solving process are important, numerous studies have focused on the idea generation process (e.g., Lam & Chiu, 2002; Paulus, 2000; Valacich, Jung, & Looney, 2006; Vosburg, 1998). Relatively few studies have investigated the idea evaluation process in creative problem solving, and no studies have evaluated individual difference and situational motivational influences on idea evaluation.

### *Idea Evaluation*

Once the individual problem solver has generated ideas, the next step involves evaluating the ideas generated and selecting the best idea. This particular process is considered part of the implementation phase of creative problem solving which has not received as much attention as earlier phases in the creative problem solving. Idea evaluation involves the assessment of an idea, or set of ideas, against a benchmark or standard(s). Through this process each idea is evaluated for implementation, rejection, or revision (Mumford, Lonergan, & Scott, 2002).

It is important to note that evaluation as a cognitive process is internal and does not include the external evaluation by other individuals. Though evaluation by external sources has an important effect on creativity (Amabile, 1996; Shalley, 1995; Shalley & Perry-Smith, 2001), it is not relevant in the discussion of idea evaluation as a cognitive process, and therefore, is not reviewed or considered in this study.

While the implementation phase has not received as much attention as idea generation, this does not reflect its relative importance in creative problem solving. Sharma (1999) noted that in typical organizational settings many ideas are generated, but few reach the implementation phase. Implementation success is influenced by idea evaluation because quality and originality of implemented ideas will depend on the quality of the evaluation and selection process. Indeed, people do not always choose the best idea when selecting among multiple alternatives, and the

definition of what ‘best’ is may vary. Thus it is important to identify the factors that influence idea evaluation and selection.

One important issue when discussing idea evaluation is what are the criteria or standards against which an idea is evaluated, and whether people can accurately evaluate ideas.

Throughout multiple studies, and across diverse populations, Runco and his colleagues have established that individuals are able to accurately evaluate ideas for originality and novelty (Basadur, Runco, & Vega, 2000; Runco & Basadur, 1993; Runco & Chand, 1995; Runco & Smith, 1992; Runco & Vega, 1990). Further, it is important to note that the goals and standards that problem solvers use to evaluate ideas influence the outcome of the evaluation process (Mumford et al., 2002). The Mumford et al. (2002) model suggested that the idea is judged relative to an array of goals and standards and that these allow for the problem solver to determine if the idea satisfies all, some, or none of the goals identified.

Additionally, the context in which the ideas are evaluated also has an influence on the criteria used to evaluate ideas. Feist (1991) and Sullivan and Ford (2005) found that the context modified how the evaluation of an idea occurs. Feist (1991) determined that the domain is pertinent to how an idea gets evaluated, finding differences between art and science. Sullivan and Ford (2005) found that the context of the problem focused the problem solver on the standards to apply for evaluation such that in a strategic selection assessment problem, problem solvers employed novelty and value evaluations, but in an advertising campaign problem a singular combined evaluation factor emerged.

Contextual factors affect not only the criteria used to evaluate ideas but also may have a direct or indirect effect on the motivation of the individual to engage in creative activities (Shalley & Perry-Smith, 2001). Aspects of the environment like goal setting, rewards,

competition, and personal discretion in work procedures can have both bolstering and hindering effects on individual creativity (Amabile, 1983; Shalley, 1991; Shalley, Gilson, & Blum, 2000; Shalley & Oldham, 1997; Shalley & Perry-Smith, 2001). For example, motivational influences like evaluation goals can provide meaning and purpose, and in turn provide motivation to participate in creative tasks (Shalley, 1991).

### *Regulatory Focus*

Though there are many constructs that could be examined to better understand how motivation influences creative problem solving, one such variable, namely regulatory focus, was chosen because the initial efforts to explain creative idea generation had shown interesting, but mixed results. Regulatory focus theory states that the hedonic nature of individuals, where people work to experience pleasure and to avoid pain, manifests itself in two ways, or through a promotion and prevention focus (Crowe & Higgins, 1997; Higgins, 1998). A promotion focus is related to advancement, growth, and accomplishment; promotion focus is about ideal states, and insuring against errors of omission, and working to experience pleasure (Higgins, 1998, 2000). A prevention focus is related to protection, safety, responsibility, and security; prevention focus is about oughts, inhibiting errors of commission, and working to avoid experiencing pain (Higgins, 1998, 2000). Regulatory focus has been shown to influence goal related emotional experiences (Higgins, Shaw, & Friedman, 1997), motivation to complete tasks (Roney, Higgins, & Shaw, 1995), and the experience of performance incentives (Higgins, 1998).

Regulatory focus influences the experience of emotions with respect to goal attainment (Higgins, Shaw, & Friedman, 1997). Those in a promotion focus experienced their goal-related emotions in terms of happiness and sadness, whereas those in a prevention focus feel their goal-related emotions in terms of nervousness or relaxedness. Roney et al. (1995) found that



individuals in a promotion focus are more likely to persist in the face of an unsolvable anagram task compared to individuals in a prevention focus. Additionally, they found that promotion focused individuals performed better on solvable anagram tasks. Regulatory focus also influences the effect of task incentives; Higgins (1998) found that promotion focused individuals were more influenced by incentives related to accomplishment while prevention focused individuals were more influenced by incentives related to safety and security.

Regulatory focus has been examined with respect to cognitive activities such as problem solving. Crowe and Higgins (1997) examined the effect of regulatory focus state on idea generation for anagram tasks. Crowe and Higgins (1997) found that individuals who were in a promotion focus and had worked on a challenging task, or individuals in a promotion focus who had recently been told of an unsuccessful outcome on their initial task, identified more solutions to an anagram task compared with prevention focused individuals. Additionally, Crowe and Higgins (1997) reported that individuals in a promotion focus generated more divergent solutions to the anagram task compared to individuals who were in prevention focus.

Crowe and Higgins (1997) suggested that individuals in a promotion focus state strive to assure success and avoid oversights. Further, they contend that individuals in a prevention focus state strive to accurately reject incorrect responses and avoid committing errors. They concluded that these response preferences (i.e., promotion and prevention foci) would influence decision making tasks through perseverance and strategies toward either avoiding making errors or being willing to make errors instead of missing opportunities. They referred to these two different strategies as response biases and contended that promotion focused individuals work toward achieving an outcome and will tolerate making errors in the process whereas prevention focused

individuals are motivated to avoid making errors and will fail to achieve the outcome if committing an error is required in the process.

### *Regulatory Focus and Creativity*

Only a few studies have evaluated the relationship between regulatory focus and creativity directly. Friedman and Forster (2001) found that promotion focus relative to prevention focus bolstered creative thought, creative generation, and improved memory search for novel responses. Lam and Chiu (2002) found that promotion focus encouraged individuals to search for more strategies, and as a consequence increase fluency in idea generation. Individual differences in regulatory focus as well as induced regulatory focus resulted in the same outcomes (Friedman & Forster, 2001; Lam & Chiu, 2002).

Friedman and Forster (2001) conducted the first effort to explicitly investigate the influence of regulatory focus on creative performance. In the first study, participants completed multiple questionnaires and were assigned into a regulatory focus state condition through a maze task. Participants received either a promotion or prevention cue in the maze task. Subsequently, participants were presented with an insight task in which multiple images of a simple object were embedded in visual clutter, to measure creativity. Images were presented sequentially, and participants attempted to identify the hidden objects. As predicted, participants in the promotion cue condition found more hidden objects than did participants in the prevention cue condition. Friedman and Forster (2001) concluded that this supported the differential effects of promotion and prevention focus on creative cognitive efforts.

Because the creative insight task used in the first part of Friedman and Forster's (2001) study did not allow for an investigation into creativity (creativity tasks usually have no right or wrong answer), Friedman and Forster (2001) also asked participants to generate as many uses as

they could for a brick. Though regulatory focus did not influence the total number of responses generated, promotion focus was associated with higher average creativity scores and higher number of creative responses generated. In this study, Friedman and Forster (2001) were also able to show that regulatory focus had an influence above and beyond the effects of emotional states, task difficulty judgments, and expectancies.

In two follow-up studies, Friedman and Forster (2001) investigated the mechanisms by which regulatory focus influenced creative insight and creative idea generation. Friedman and Forster partially replicated the Crowe and Higgins (1997) study investigating the influence of regulatory focus on risk preference. Participant regulatory focus was again induced through the maze activity. Participants then completed a recognition memory task where they were asked to judge if they had seen a word previously presented in a list of words. They again found support for regulatory focus influencing risk preference, such that those in the promotion focus were more risky in their responses compared to those in the prevention focus.

Based on the results of other studies (e.g., Crowe & Higgins, 1997) and the results of their studies investigating the relationship between promotion and prevention tendencies and risk preference, Friedman and Forster (2001) posited that individuals with a promotion focus demonstrate a more risk prone, or exploratory processing style. Individuals with a more preventative focus will be more risk averse and less open to exploration resulting in creative responses.

In an effort to extend what we know about the influences of regulatory focus on creativity, Lam and Chiu (2002) investigated regulatory focus from both a trait and a state perspective in a multi-study approach. Thirty-five participants were asked to complete the Regulatory Focus Questionnaire, which measures regulatory focus as a trait, and then respond to

a public relations and marketing idea generation task in which they were asked to generate as many ideas as possible. Participants with higher promotion focus trait generated more ideas than participants with a prevention focus trait. Though Lam and Chiu did not find a relationship between regulatory focus and expert ratings of solution originality, they did find that strongly promotion focused participants rated their ideas as more creative compared to weaker promotion focused participants. This study suggests that promotion and prevention focus may influence not only idea generation but also idea evaluation by the participants.

In the second part of the Lam and Chiu study, participants were induced to a promotion or prevention focus state. To manipulate regulatory focus state, participants were told they could enter a contest using the public relations and marketing problem ideas they generated earlier in the study. They were then told they would not be able to submit their two most highly evaluated ideas. This manipulation was conducted to reduce participants' attainment expectancies. They then indicated their perceptions of the likelihood of attaining their goal on a scale of 0% to 100%.

Lam and Chiu (2002) found that a promotion focus state encouraged individuals to search for as many new strategies as possible, and as a consequence, promotion focused individuals generated more ideas. Lam and Chiu (2002) also found that individuals in a prevention focus state tried to avoid the negative consequences of failing and persisted when the likelihood of success in a creative task was small. This finding was particularly important because it was the first time a prevention focus had been found to have a beneficial impact on a creative task. Specifically, in this case higher prevention focused participants were more persistent when they were presented with a task where their likelihood of failure was high.

*This Investigation*

Taken together, the studies examining regulatory focus are important for a few reasons. First, they demonstrate that individual differences in regulatory focus trait as well as induced regulatory focus influence cognitive and creative processes (Friedman & Forster, 2001; Lam & Chiu, 2002; Shah, Higgins, & Friedman, 1998). Second, Lam and Chiu's (2002) study showed that both promotion and prevention foci can have beneficial influences on different aspects of the creative process. Finally, the study by Lam Chiu, while not intended to investigate idea evaluation suggests that evaluation may be affected by regulatory focus.

Previous research on creativity suggests that motivation has an important effect on the application of creative cognitive processes, persistence, and willingness to engage in a creative task. An important motivational variable that has been studied only in a limited number of studies is that of regulatory focus. Specifically, research on regulatory focus and creativity found that promotion focus leads to more exploratory processing style and increased fluency in idea generation tasks compared to prevention focus. However, the research on the relationship between creativity and regulatory focus is limited and mixed, with one study finding that promotion focus is related to originality of the solutions generated, whereas another study found that there is no relationship. The study by Lam and Chiu (2002) as well as Higgins et al. (1997) suggests that regulatory focus may also influence the perception of goals of the task, the emotions the task generates, and evaluation criteria. However, no study to date has evaluated directly whether regulatory focus influences the process of idea evaluation.

The purpose of the current study was twofold. First, it was of interest to replicate previous results suggesting that promotion focus benefits creativity. The study further extends the previous research by looking at both quality and originality of the ideas generated. The second aim of the study was to determine whether promotion and prevention focus will influence

idea evaluation. It is hypothesized that prevention focus might be beneficial in the idea evaluation phased, as it requires individuals to critically think about the solution generated. In addition, this study also investigated whether the effect of promotion and prevention regulatory focus differed based on the measure used for creativity, quality or originality.

### Method

*Participants.* Participants used for the sample in this study were 105 volunteers that were recruited through organizations in the Midwest, and through a medium-sized university. Specifically, participants were found through posting flyers, internet newsletters, and contacting organizations located in the Midwest. Sixty-two percent of participants were female ( $n = 65$ ), and thirty-eight percent of the sample was male ( $n = 40$ ). The average age of participants was 32.73 ( $SD = 10.16$ ). Eighty-three percent of participants indicated that they had worked for at least 5 years outside the home since becoming an adult. Additionally, seventy-eight percent of participants responded that they worked more than 31 hours per week, reflecting a working adult population.

Participation in the study was voluntary and participants received one \$10 gift certificate for an internet based organization with over 500 online stores for their participation in the first part of the study. In addition, participants in the study received \$20 in cash after completion of the second part. Participants were treated in accordance with the “Ethical Principles of Psychologists and Code of Conduct” (APA, 1992).

*Procedure.* Participants were first presented a marketing problem and asked to generate a solution. Following this they evaluated their own ideas in terms of both quality and originality. Participants were given scales to evaluate their idea. Following the evaluation tasks they completed a Regulatory Focus State Measure.

Following the data collection phase of the study, three judges who were experts in creative problem solving evaluated the solutions generated by participants using the consensual assessment technique (Hennessey & Amabile, 1988; Reiter-Palmon, Mumford, O'Connor Boes, & Runco, 1997). Ideas were evaluated in terms of both quality and originality using the same scales that had been given to the study participants. The accuracy of the evaluation was then determined by calculating the difference between the participant's and experts' evaluation scores for the two criteria. These difference scores were then squared such that a value of larger magnitude indicated a less accurate evaluation.

### *Measures*

*Regulatory Focus State.* Regulatory focus was measured using a measure created for this study. The final measure included 19 items, 10 items measuring promotion focus state and nine measuring prevention focus state, presented in Appendix A. The promotion focus state had an alpha of .79, whereas the initial alpha associated with the prevention dimension was .73.

*Marketing Problem Task.* A problem depicting a marketing scenario for a new television product was used for the creative problem solving and idea evaluation. This problem was modified from a previous use in order to make the problem context more relevant (Redmond, Mumford, & Teach, 1990). Participants were told they had been nominated to develop a marketing strategy for a new television product. They are told that their selection for the project was, in part, due to their internet and technical expertise.

*Idea evaluation.* Participants were asked to evaluate their own ideas to the marketing problem. Participants were asked to evaluate their own solution in terms of originality, or the uniqueness, or cleverness of the solution using a 5-point Likert-type rating scale. Additionally,

participants were asked to evaluate their solution in terms of quality, or how logical, coherent, well thought out, and workable the solution was, using a 5-point Likert-type rating scale.

The solutions were also evaluated by the creative problem solving experts using a 5-point Likert-type scale. The same rating scales were used both by the participants and the raters so that accuracy of the evaluation can be determined. The rating scales used for this study were based on previous studies that evaluated quality and originality of ideas (Lonergan, Scott, & Mumford, 2004; Reiter-Palmon et al., 1998).

The associated inter-rater reliability values of alpha and inter-class correlation II for originality were calculated and resulted in metrics of .74, and .74, respectively. The associated inter-rater reliability values of alpha and inter-class correlation II for quality were calculated and resulted in metrics of .65 and .65, respectively. These values represent acceptable values of inter-rater reliability for solution ratings (Reiter-Palmon et al., 1997).

*Idea Evaluation Accuracy.* To assess idea evaluation, accuracy, which is a typical measure of idea evaluation, was used (Runco & Smith, 1992; Runco & Vega, 1990). To determine accuracy, the value of the participants' evaluations were subtracted from the respective item values provided by the experts, separately for quality and originality. These values were then squared so that larger differences reflected less accurate evaluations by the participants, regardless of direction. That is, evaluations were considered less accurate whether the participants inflated or deflated his or her evaluation compared to the expert judges.

## Results

The primary goal of this study was to explore the relationship between regulatory focus and two creative processes: idea generation and idea evaluation. Table 1 presents the correlations between regulatory focus promotion and prevention states and ratings of the idea generated by



expert judges. In this study, promotion focus state was positively related to the originality of the ideas generated ( $r = .29, p < .01$ ). This result is in line with previous research that suggests that originality is related to promotion focus (Friedman & Forester, 2001). There were no relationships found between prevention focus state and either originality or quality.

When looking at idea evaluation, however, a more complex pattern emerged (see Table 2). Interestingly, there was a benefit for both promotion and prevention focus state depending on the criterion on which the idea was evaluated. Specifically, those higher in promotion focus state were less accurate in their evaluations of quality ( $r = .22, p < .05$ ), but were more accurate in their evaluations of originality ( $r = -.21, p < .05$ ). This pattern was in contrast to the relationship between accuracy of the evaluation and prevention focus state. Those higher in prevention focus state were more accurate in terms of evaluations of quality ( $r = -.30, p < .01$ ), but were less accurate in terms of evaluations of originality ( $r = .29, p < .01$ ). These results suggest that contrary to previous research, there are benefits to both promotion and prevention foci that become evident depending on the criteria for which a solution, or idea, is evaluated. Furthermore, the relationship between regulatory focus and creativity appears to be different when a different cognitive process related to creativity is examined.

### Discussion

The results of this study add to the limited but growing body of research evaluating the relationship between regulatory focus and creativity. Specifically, this study found that promotion focus state was positively related to expert judges ratings of originality. This finding replicate previous research that found that promotion focus was positively related to creativity (Friedman & Forrester, 2001; Lam & Chiu, 2002).

It has been suggested that a prevention focus may be more beneficial for the evaluation phase due to the avoidance of errors and careful assessment associated with prevention focus (Higgins, 2000). However the results in this study suggest that both a promotion and a prevention focus may be beneficial depending on the criterion used. As expected, prevention focus state was associated with more accurate evaluation of quality. However, prevention focus was associated with less accurate evaluations of originality. Given that individuals with a prevention focus also generated less original ideas, this is not surprising. Previous research suggests that being able to evaluate ideas as original or creative is related to the ability to generate creative ideas (Basadur et al., 2000).

Similarly, individuals higher in promotion focus state were able to generate more original ideas, and were also able to evaluate the originality of their own ideas more accurately. These results fit past research which finds that individuals who are promotion focused generate more creative and original ideas (Friedman & Forster, 2001; Lam & Chiu, 2002), and with research suggesting that the ability to evaluate originality is associated with the ability to generate original ideas (Basadur et al., 2000).

However, an interesting finding of this study was that individuals higher in promotion state were at a disadvantage when evaluating ideas for quality, and were less accurate in the evaluation of the quality of their own ideas. It is possible that the focus on attainment, gain, and errors of omission direct the attention of the individual to trying new things at the expense of feasibility or appropriateness of the ideas that are generated. It is possible that this focus blinds the individual to any difficulties, obstacles, or concerns that might exist with his or her solution, resulting in a less accurate evaluation of quality. Some support for this notion is provided when evaluating the correlations between the actual differences between participants evaluation of

their solutions and the raters. High promotion scores were related to higher self evaluation relative to the raters ( $r = -.29$ ), indicating that high promotion was related more inflated ratings.

While this study replicates previous research findings, it also extends previous research in several ways. First, this study evaluated separately the effect of regulatory focus on idea generation and idea evaluation. Second, this study also separately evaluated two criteria for creativity, quality and originality. The finding of the different effects for the two regulatory focus styles based on the criterion used is of particular importance. Research on the effects of regulatory focus on creativity tends to focus on the positive effects of the promotion regulatory style and the negative effects of prevention regulatory style. However, this study suggests that the relationship between regulatory focus and creativity is more complex and depends on the process studied and criterion used. While promotion focus does indeed seem to be beneficial for idea generation, and specifically originality, the effects on idea evaluation are mixed, with promotion focus being beneficial for the evaluation of originality, but actually detrimental for the evaluation of quality. For prevention focus, the findings were reversed, suggesting a benefit of prevention focus for the self evaluation of quality and a detriment in the self evaluation of originality.

### *Practical Implications*

This study not only contributes to the body of research on the effects of motivational and contextual variables on different cognitive processes, but also has important implications for organizations and researchers interested in creativity and innovation in an organizational context. The predictor in this study were the variables of promotion and prevention focus states, that is, the more contextually related and transient aspect of these variables. While these states were not

directly manipulated in this study, the relationships found here may provide guidance to organizations. Contextual factors may create either a promotion or prevention state.

One such contextual factor is climate. Research on organizational or team climate found that a climate that promotes openness, provides support and psychological safety, and encouragement is related to creativity (Amabile & Gryskiewicz, 1988; Anderson & West, 1998; Hunter, Bedell, & Mumford, 2007). Creativity is viewed as a possible risk, with a higher likelihood of failure than tried and true solutions. It is not surprising that promoting safety and openness results in increased creativity. However, the climate of safety and openness may also create a promotion state, which contributes to creativity.

Other research, focusing on the role of leaders in influencing employee creativity, finds that leaders that provide support, encouragement, and motivation are more likely to have employees that develop creative ideas (Reiter-Palmon & Illies, 2004; Shalley & Gilson, 2004). Specifically, work on transformational leadership, which is characterized by supportive leadership, intellectual stimulation, and encouragement, found that a transformational leadership style is related to an increase in creativity in employees (Jung, 2001; Kahai, Sosik, & Avolio, 2003).

These studies tend to support the notion that a leader and climate that facilitate a promotion focus would result in increase in creative performance. However, this study also found that a prevention focus state was beneficial for the evaluation of quality – an important issue for the implementation, acceptance and success of a new product or process. Farris (1972) found that creative individuals were more likely to communicate with leaders when seeking feedback regarding a new idea. Leaders, because of their boundary spanning role may be able to provide more accurate feedback on a new idea especially regarding its quality, that is, feasibility

of implementation, acceptance, and potential difficulties. It is also possible that leaders change the tenor or emphasis during the various phases of the creative problem solving effort, emphasizing promotion during the generation phases, and more balanced approach, with both promotion and prevention during the implementation phase.

Finally, the results of this study suggest that both promotion and prevention focus may be important for evaluation. This may suggest that effective innovation and implementation may result from a team effort whereby different team members play different roles. Mumford and Hunter (2005) suggested that team innovation is dependent on a balance of differentiation and integration of expertise. It is possible that a similar need for differentiation and integration occurs with regulatory focus, such that both are needed for successful creativity and innovation.

### *Limitations*

While the study provided an interesting glimpse into the relationship between regulatory focus and creativity, several caveats and limitations still exist. The marketing task focused on a product that was fairly technical, and therefore may have provided a challenge for some people to respond. The researchers received anecdotal feedback that many people thought that they were too unskilled to do well on the task. Past research suggests that tasks can have an important effect on the outcomes of creativity and the factors that moderate the relationships between contextual variables and creativity. For example, Runco, Illies, and Eisenman (2005) found that participants generate more appropriate ideas and less original ideas in response to a realistic task. Similarly, Reiter-Palmon, Illies, Kobe, Buboltz, and Nimps (2009) found that complexity of the problem had an effect on solutions generated resulting in solutions of lower quality compared to less complex problems. The problem presented here was complex and realistic which may have

affected the results of this study. Further research should replicate these results with different types of problems and creative tasks.

The study also focused on two cognitive processes associated with creativity, namely idea generation and idea evaluation. Future research should evaluate additional processes such as problem construction or information search, to further identify the differential effects of promotion and prevention focus on these other processes. In addition, the focus of this study was self evaluation. Past research suggests that there are differences between self evaluation and evaluation of others (Runco & Smith, 1992). It is possible that different effects may be found for self evaluation compared to the evaluation of solutions generated by others. Future research should address this issue. Finally, the focus of this study was regulatory focus state, measured without a manipulation. Future research should replicate these findings while manipulating regulatory focus to allow for casual conclusions.

In summary, this research adds to the work that has focused on a newer construct in the psychology literature, regulatory focus. Prior to this effort, regulatory focus had not been examined with idea evaluation. Creativity is a complicated set of processes that are often examined by only considering idea generation. This study provides support that creativity needs to be examined with more explicit consideration of each of the processes as well as the criteria used to evaluate the creative product.

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Table 1

*Intercorrelations Between Regulatory Focus and Expert Judges Evaluation*

Variable	Expert Judges Quality	Expert Judges Originality
Regulatory focus state promotion	.08	.29**
Regulatory focus state prevention	.04	-.14

Note.  $N = 105$ .

\* $p < .05$ , \*\* $p < .01$ .

Table 2

*Intercorrelations Between Regulatory Focus and Self Evaluation*

Variable	Idea Evaluation Quality Accuracy	Idea Evaluation Originality Accuracy
Regulatory focus state promotion	.22*	-.21*
Regulatory focus state prevention	-.30**	.29**

Note.  $N = 105$ .

\* $p < .05$ , \*\* $p < .01$ .

## APPENDIX A

### Regulatory Focus State Measure

Please read each statement below and circle the answer that best matches your response using the options that are provided for each item.

1. I focused on how I would achieve success in following the instructions for solving the Marketing problem. (PR)
2. I was focused on developing a creative solution to the Marketing problem. (PR)
3. I feel like I tried to be as creative as I could when solving the Marketing problem. (PR)
4. When I thought about this task, I generally thought about how I could solve the Marketing problem more creatively. (PR)
5. I worry that I fell short of my responsibilities and obligations for being creative when solving the Marketing problem. (PV)
6. I worry that I failed to accomplish the creativity goals in solving the Marketing problem. (PV)
7. I was trying to avoid developing a routine or common solution to the Marketing problem. (PV)
8. When I was solving the Marketing problem I thought about how successful I could be. (PV)
9. I feel like I made progress in developing a creative solution for the Marketing problem. (PR)
10. When I was solving the Marketing problem, I thought about how to avoid failure, or being non-creative. (PV)
11. I am worried that I failed to accomplish the goal of coming up with a creative solution to the Marketing problem.
12. My major goal in this task was to develop a creative solution to the Marketing problem. (PR)
13. In solving the Marketing problem, I was more concerned about preventing being non-creative than I was toward being creative.
14. When I was solving the Marketing problem, I made an effort to be as creative as possible. (PR)
15. I focused on not generating a typical solution to the Marketing problem.
16. I was more oriented toward being creative than I was concerned about generating a non-creative solution to the Marketing problem. (PR)
17. When working on the Marketing problem, I thought about my shortcomings to being creative. (PV)
18. In solving the Marketing problem, I was concerned about providing an acceptable solution. (PV)
19. I felt comfortable working to be as creative as I could when working on the Marketing problem. (PR)

PR – Promotion State

PV – Prevention State