Constraints that Help or Hinder Creative Performance: A Motivational Approach

Marieke Roskes

Threatening situations, in which people fear negative outcomes or failure, evoke avoidance motivation. Avoidance motivation, in turn, evokes a focused, systematic and effortful way of information processing that has often been linked to reduced creativity. This harmful effect of avoidance motivation on creativity can be problematic in financially turbulent times when people fear for their jobs and financial security. However, particularly in such threatening times, creativity may be crucial to innovate, adapt to changing demands and stay ahead of competitors. Here, I propose a theoretical framework describing how different types of constraints in the workplace affect creative performance under approach and avoidance motivation. Specifically, under avoidance motivation, constraints that consume or occupy cognitive resources should undermine creativity, but constraints that channel cognitive resources should facilitate creativity. Understanding the impact of different types of constraints on creative performance is needed to develop strategies for maximizing creativity in the workplace.

Introduction

In the wake of the worldwide economic crisis, companies need to adjust, innovate and adopt new technologies to survive. However, these companies are confronted with numerous constraints, such as time pressure, stringent demands and a scarcity of resources, which can thwart creativity (e.g., Amabile, Goldfarb & Brackfield, 1990; Shalley & Perry-Smith, 2001). Paradoxically, constraints can also challenge people, increase motivation and drive creative performance to greater heights (e.g., Byron, Khazanchi & Nazarian, 2010; Ohly & Fritz, 2010). But under what conditions do constraints have a negative versus a positive impact on creativity? Which types of constraints undermine, and which facilitate, creative performance?

Here, I advance a theoretical framework predicting how the interplay between constraints and motivation affects creativity. A distinction is made between limiting constraints that consume or occupy cognitive resources, such as time pressure and dual-task demands, and channelling constraints that help people to efficiently focus their resources, such as procedural instructions and task structure. It is important to make this distinction in order to understand when and why creativity can be stimulated and undermined, depending on the situation. For example, in turbulent economic situations people may strive to impress by working fast and tackling many projects simultaneously. The proposed theoretical model suggests that this strategy may be useful in prosperous times, but detrimental in times of uncertainty.

Whereas safe and prosperous environments are associated with approach motivation (a focus on achieving success and positive outcomes), threatening situations are associated with avoidance motivation (a focus on avoiding failure and negative outcomes) (Elliot, 1999, 2008). Compared to approach motivation, avoidance motivation evokes focused and vigilant behaviour, which makes it difficult to be creative (Friedman & Förster, 2000; Lichtenfeld et al., 2012; Mehta & Zhu, 2009; Roskes, De Dreu & Nijstad, 2012). Drawing on the literature on how approach and avoidance motivation influence cognitive processes, I
propose that constraints that consume or occupy cognitive resources should undermine creative performance more under avoidance motivation compared to approach motivation. In contrast, constraints that do not limit, but rather channel, cognitive resources should facilitate creativity more under avoidance motivation compared to approach motivation (see Figure 1).

Specifically, the paper (1) presents a theoretical framework discussing the role of cognitive resources in achieving creative performance under approach and avoidance motivation, (2) discusses the role of constraints that limit versus channel cognitive resources in predicting creative performance in the workplace, and (3) discusses concrete examples of constraints in the workplace that may boost or undermine employee creativity (i.e., the generation of new and useful ideas; Hennessey & Amabile, 2010; Sternberg & Lubart, 1999), depending on their motivational focus.

### Avoidance Motivation Hinders Creativity

The distinction between approach and avoidance motivation is fundamental and basic. As stated by Elliot (2008, p. 5): ‘Both approach and avoidance motivation are integral to successful adaptation; avoidance motivation facilitates surviving, while approach motivation facilitates thriving’. Approach and avoidance motivation can be evoked by situations (e.g., avoidance motivation can be triggered by fear of losing one’s job in times of financial crisis), but people also differ in the extent to which they are approach and avoidance motivated by nature. Because approach motivation is associated with safe environments, and the presence of potential positive outcomes (e.g., a promotion or bonus), approach motivation evokes more explorative behaviour and a broader focus compared to avoidance motivation (Friedman & Förster, 2002, 2005a, 2005b). Avoidance motivation, on the other hand, is associated with potentially threatening environments (e.g., a personnel lay-off or major reorganization) and, compared to approach motivation, evokes more focused and vigilant behaviour (Elliot, 2006; Friedman & Förster, 2005b; Maier, Elliot & Lichtenfeld, 2008).

When people are avoidance motivated, they are less likely to perceive obstacles as positive challenges and more likely to perceive them as threats. Striving to avoid negative outcomes is often paired with anxiety, stress and fear of failure (Elliot, Thrash & Murayama, 2011; Roskes, Elliot & De Dreu, 2014). For example, university students who were higher in avoidance temperament experienced more social-evaluative threat when working on a standardized maths test, and as a result performed worse than those who were lower in avoidance temperament (Liew et al., 2014). The cautious and systematic way of thinking elicited by avoidance motivation has often been associated with diminished creativity (Friedman & Förster, 2000; Lichtenfeld et al., 2012; Mehta & Zhu, 2009). An extensive body of research has associated approach motivation with explorative behaviour and higher risk tolerance (Friedman & Förster, 2002, 2005a, 2005b), abstract, global and holistic thinking (Förster & Higgins, 2005; Förster et al., 2006; Kuschel, Förster & Denzler, 2010), and with the ability to flexibly switch between many different ideas and approaches (Friedman & Förster, 2005b; Roskes, De Dreu & Nijstad, 2012). This flexible style of information

<table>
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<tr>
<th>Type of constraint</th>
<th>Constraints that limit cognitive resources (e.g., time pressure, dual-task demands, noise)</th>
<th>Limiting constraints mildly undermine creativity or have a positive effect when interpreted as a positive challenge, increasing intrinsic motivation.</th>
<th>Limiting constraints strongly undermine creativity due to cognitive overload, and they are experienced as a negative threat.</th>
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<tr>
<td>Type of constraint</td>
<td>Constraints that channel cognitive resources (e.g., systematic procedural instructions, restricted goal definitions)</td>
<td>Channelling constraints undermine creativity because they misfit a flexible and explorative way of thinking, thwart the need for autonomy and undermine intrinsic motivation.</td>
<td>Channelling constraints boost creativity because they fit a need for structure, provide clarity and focus attention and resources on task-relevant efforts.</td>
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**Figure 1. The Effects of Limiting and Channelling Constraints on Creativity**
Processing can enhance performance on tasks that require insight and creativity, and indeed approach motivation has often been associated with higher levels of creativity (Cretenet & Dru, 2009; Friedman & Förster, 2000; Lichtenfeld et al., 2012; Mehta & Zh, 2009).

Avoidance motivation, on the other hand, has typically been associated with a more risk-averse, vigilant way of thinking (Elliot, 2006; Friedman & Elliot, 2008; Friedman & Förster, 2002), a relatively detailed focus and narrow attention scope (Maier, Elliot & Lichtenfeld, 2008; Mikulincer, Kedem & Paz, 1990), recruitment of cognitive control (Koch et al., 2009; Koch, Holland & van Knippenberg, 2008; Miron-Spektor et al., 2011), a preference for diversity aversion (Ayal, Zakay & Hochman, 2012) and systematic thinking and in-depth exploration of only a few ideas and approaches (Roskes, De Dreu & Nijstad, 2012). Although this systematic style of information processing can enhance performance on tasks that require vigilance, cognitive control and attention to detail (Friedman & Förster, 2000, 2005a; Koch, Holland & van Knippenberg, 2008; Koch et al., 2009), it is rather intensive and energy consuming (Elliot et al., 2014; Oertig et al., 2013; Stähl, Van Laar & Ellemers, 2012).

Recent work shows that when people's goals are active or unfulfilled, they are equally creative under avoidance as under approach motivation (Baas, De Dreu & Nijstad, 2011; Roskes, De Dreu & Nijstad, 2012), and people high in avoidance temperament experience more creative flow when their goals match their avoidance orientation (Oertig et al., 2014). Unlike approach motivated people, whose creative performance relies chiefly on cognitive flexibility, avoidance motivated people achieve creative performance through cognitive persistence (Roskes, De Dreu & Nijstad, 2012; cf. dual pathway to creativity model, Baas, De Dreu & Nijstad, 2008; De Dreu, Baas & Nijstad, 2008; Nijstad et al., 2010). Avoidance motivated people are thus not unable to be creative, but they have to compensate for their inflexible processing style by effortful and controlled processing (Roskes, De Dreu & Nijstad, 2012). In other words, creative performance requires a larger investment of attention and effort when people are avoidance motivated than when they are approach motivated, which makes avoidance motivated people more likely to invest in creativity when creative performance helps them to achieve their goals. Another consequence of the relatively large required investment for creativity under avoidance motivation is that creative performance relies more on the availability of cognitive resources under avoidance motivation than under approach motivation. By identifying how such differences in cognitive styles influence creative performance, concrete interventions can be tailored to stimulate creativity among all (Thaler & Sunstein, 2008).

The theoretical framework presented here predicts the effects of different types of constraints in the workplace on creative performance. On the one hand, constraints such as time pressure, high workload and unfamiliarity with new tasks can occupy or consume cognitive resources due to an increased need to monitor task progress, feelings of anxiety and stress and distracting not-task related thoughts (Hockey, 1997; Keinan et al., 1999; Kelly, Jackson & Hutson-Comeaux, 1997; Perlow, 1999). Constraints that limit cognitive resources should be particularly problematic under avoidance motivation, when creative performance depends strongly on cognitive resources. On the other hand, constraints that provide task structure and goal clarity, such as rules, procedural instructions, fixed time schedules and strictly defined expectations set by managers or other stakeholders, may help to focus or channel cognitive resources in an efficient way. Constraints that channel cognitive resources should be particularly beneficial under avoidance motivation.

**Effects of Limiting Constraints**

When people are avoidance motivated, their creative performance relies more heavily on the availability of cognitive resources than when they are approach motivated, and they have to manage stress, anxiety and fear of failure. As a consequence, creative performance under avoidance motivation is relatively difficult and depleting (Roskes, De Dreu & Nijstad, 2012). Moreover, factors that limit the availability of cognitive resources, such as stressors, noise, cognitive overload and other distracters, should undermine their creative performance. Indeed, in a series of laboratory studies, performance on creative insight problems was undermined more by working under a high time pressure among people who were high in avoidance temperament and in situations in which people strove to avoid losses as opposed to situations in which they strove for gains (Roskes, Elliot, Nijstad & De Dreu, 2013). Research conducted in the field provides further evidence of the undermining effects of time pressure under avoidance motivation. The performance of employees at R&D departments at 21 Portuguese organizations who tended to focus on avoiding negative outcomes was evaluated as less creative by their managers when the employees had worked under high pressure than when they had...
worked under low pressure (Sacramento, Fay & West, 2013). Similarly, having to divide attention over two simultaneous tasks (i.e., memorizing series of numbers while solving creative problems) impaired creative performance more when people were avoidance motivated than when they were approach motivated (Roskes, De Dreu & Nijstad, 2012).

Negative effects of such constraints should be less pronounced, however, when people are approach motivated (i.e., when creativity relies less on the availability of cognitive resources). Potentially, constraints that moderately limit cognitive resources may even positively affect creativity under approach motivation. Under approach motivation, creativity requires fewer cognitive resources, and when people feel that they have enough resources to meet the demands in a given situation, they are likely to view constraints as challenges (Lowe & Bennett, 2003; Smith & Lazarus, 1993). Challenge appraisals are characterized by a focus on gains (Drach-Zahavy & Erez, 2002; Seery, 2011; Tomaka et al., 1993). Whereas avoidance motivated people are sensitive to potential failure and thus are likely to interpret limiting constraints as a negative threat, approach motivated people are more sensitive to potential opportunities and gains and thus are more likely to interpret limiting constraints as a positive challenge that ultimately increases their intrinsic motivation.

Additionally, there is evidence that when people encounter obstacles, they ‘step back’ and adopt a broader perspective which facilitates dealing with the obstacle (Marguc, Förster & Van Kleef, 2011; Marguc, Van Kleef & Förster, 2012). For example, people who perform tasks such as solving anagrams, and are confronted by auditory obstacles (i.e., random words or numbers) adopt a broader and more global conceptual scope (Marguc, Förster & Van Kleef, 2011). Work on creative solutions in negotiations further shows that people are better at overcoming early obstacles in negotiations (i.e., difficult issues on which there are large disagreements) when they are in a more global mindset, enabling them to see the big picture (De Dreu et al., 2009). Because people are more likely to adopt such a global conceptual scope when they are approach motivated, constraints that are encountered in the workplace should be more likely to broaden the perceptual scope when people are approach motivated than when they are avoidance motivated.

Moderate levels of limiting constraints, such as time pressure, distracting noise and evaluative pressure, can indeed stimulate creative performance, while high levels tend to have only negative effects (Baer & Oldham, 2006; Byron, Khazanchi & Nazarian, 2010). However, positive effects of time pressure disappear in situations that are suboptimal for creativity. For example, when people are low on openness to experience, and when employees do not experience support for innovation in their organization, only negative effects of working under time pressure are obtained (Baer & Oldham, 2006). Similarly, working under approach motivation is more optimal for creativity than working under avoidance motivation, and people thus are more likely to experience positive effects of mild limiting constraints when they are approach motivated. Indeed, very recent research shows that time pressure and workload can enhance creative insight performance and creative idea generation among people focusing on achieving success and positive outcomes (Sacramento, Fay & West, 2013). To sum up, although constraints that limit cognitive resources, such as working under a high time pressure or a high cognitive load, can positively impact creative performance under approach motivation, these limiting constraints are more likely to undermine creative performance under avoidance motivation.

**Effects of Channelling Constraints**

Constraints that limit or consume cognitive resources can under some circumstances be viewed as positive challenges and increase intrinsic motivation. In contrast, constraints that channel rather than limit cognitive resources, such as task procedures, strictly defined goals and imposed task structure, can on the one hand increase efficient usage of cognitive resources and thereby enhance creativity, but on the other hand undermine intrinsic motivation because these constraints restrict autonomy and freedom. An abundant body of research has shown that reducing autonomy and the experience of external control can undermine intrinsic motivation and thereby creative performance (e.g., Amabile et al., 2004; Hennessey & Amabile, 1998; Liu, Chen & Yao, 2011; Zhang & Bartol, 2010), and that order produces conventionality rather than creativity (Vohs, Redden & Rahinel, 2013). However, providing extrinsic constraints and boundaries does not always undermine intrinsic motivation (Amabile, 1993; Eisenberger & Cameron, 1998; Eisenberger & Rhoades, 2001; Koestner et al., 1984). Sometimes extrinsic constraints can support one’s sense of competence, which Amabile (1993, p. 194) labelled ‘extrinsics in the service of intrinsics’.
Constraints that provide task structure and goal clarity are likely to serve intrinsic motivation and creative performance when people are avoidance rather than approach motivated, as such structure fits with their preferences and their systematic way of thinking (Friedman & Elliot, 2008; Friedman & Förster, 2002; Roskes, De Dreu & Nijstad, 2012). Indeed, creative performance can be enhanced by working according to a predetermined task structure (Goldenberg & Mazursky, 2002; Sagiv et al., 2010), and the proposed framework suggests that this positive effect is most likely to occur under avoidance motivation. In addition to fitting the systematic and structured way of thinking that is evoked by avoidance motivation, such channelling constraints can enhance efficiency of the use of cognitive resources. This should be particularly beneficial under avoidance motivation when creative performance depends strongly on the availability of cognitive resources.

Initial evidence that the creative performance of people who tend to think and work in systematic and organized ways benefit from channelling constraints is provided by Slijkhuis, Rietzschel and Van Yperen (2013). In a field study among call-centre employees and in an experiment, they found that providing feedback in a controlling way reduced intrinsic motivation and creativity among people low in personal need for structure, but stimulated intrinsic motivation and creativity among those high in personal need for structure. Furthermore, people high in need for structure perform better on creative tasks when they are instructed to follow specific task instructions (provided that this structure does not include uncreative examples), while the creativity of those low in need for structure suffers from having to follow specific instructions (Rietzschel, Slijkhuis & Van Yperen, 2014). When people high in need for structure can choose whether to work autonomously or according to a predetermined task structure, they prefer being provided with task structure (Rietzschel, Slijkhuis & Van Yperen, 2014). Also, the creative performance of people high in fear of invalidity (i.e., those with a strong aversion of being wrong or making mistakes) is enhanced by structure (Rietzschel, De Dreu & Nijstad, 2007). Based on these findings, it seems plausible that creativity under avoidance motivation benefits from constraints that channel cognitive resources, because avoidance motivation is characterized by a fear of failure and making mistakes, and by enhanced systematic and focused processing. Providing structured tasks and clearly specified goals should thus fit with the cognitive style and preferences of avoidance motivated people, and reduce uncertainty and anxiety. However, this remains to be tested directly.

Practical Implications and Directions for Future Research

The proposed framework predicts the effects of working under two distinct types of constraints (those that limit vs. channel cognitive resources) depending on people’s motivational orientation (approach vs. avoidance). The main predictions are that constraints that limit cognitive resources undermine performance more under avoidance than under approach motivation, and that constraints that channel cognitive resources facilitate creativity under avoidance but not under approach motivation. While some of the predictions within this framework deserve more (direct) study, they provide several directions for developing strategies to successfully stimulate creative performance.

Creativity is often undermined by avoidance motivation, and in the best cases seems to be difficult and depleting. Yet, avoidance goals are prevalent in the workplace – a study comparing goal orientations in different domains revealed that approximately 61 per cent of the people participating in the study had a dominant avoidance goal in the work domain (Van Yperen, Hamstra & van der Klauw, 2011). Moreover, avoidance goals tend to be stronger than approach goals (Van Yperen & Orehek, 2013). In addition, threatening situations, such as a financial crisis in which people fear losing their jobs and security, are likely to evoke avoidance motivation. It has been proposed that avoidance motivation is best shunned, particularly when striving for creativity, but this may not always be feasible. Therefore, it is important to consider ways to stimulate creativity, even among avoidance motivated people and in situations that evoke avoidance motivation.

The framework promotes a better understanding of the factors that undermine and boost creativity, an endeavour that not only supports the development of theory concerning motivation, constraints and creativity, but can also stimulate creativity in practice (e.g., in the workplace or in schools). As discussed in this paper, it is likely that people suffer more from working under limiting constraints such as time pressure or multi-tasking when they are avoidance motivated, which has implications for efficient managing of creative processes. For example, creativity may be stimulated by working under limiting constraints in prosperous times, but in uncertain times and for people who tend to be avoidance...
motivated by nature, it may be better to refrain from setting tight deadlines and from doing many tasks simultaneously.

Another implication is that certain actions and interventions that are generally believed to facilitate creativity should be used with caution, as they can undermine creativity when applied in the wrong situation. Although constraints that limit autonomy can undermine creativity under approach motivation, they may be functional under avoidance motivation. For example, autonomy has often been related to creativity (Hennessey & Amabile, 2010), and indeed low task specificity was found to enhance creative performance in teams, whereas creativity was reduced in teams that were provided with highly specified and structured tasks (Nouri et al., 2013). Straightforward advice from these findings is to provide people with as much freedom as possible and refrain from providing procedures or a task structure that must be followed. However, for avoidance motivated people, who think in a systematic and focused way, setting clear and restricted goals or providing specific task instructions do not seem to be problematic. Under avoidance motivation, people may rather embrace such constraints that provide structure and clarity, because they reduce ambiguity and help avoidance motivated people focus their resources on creativity-relevant actions, and reduce the amount of resources wasted on task-irrelevant efforts. In uncertain times, managers may thus want to offer tasks in a structured way, and divide demanding tasks into smaller, more manageable tasks in order to prevent work overload to facilitate creative output.

Another example of an intervention that often facilitates creativity, but may be counterproductive when people are avoidance motivated, is providing people with unexpected, counterintuitive or seemingly contradictory information. Confronting people with information that is inconsistent with one’s expectations can enhance flexibility and creativity (Gocłowska, Crisp & Labuschagne, 2013; Maddux, Adam & Galinsky, 2010; Ritter et al., 2012). However, for people with a high need for structure, such information reduces creativity (Gocłowska et al., 2014). Following these findings, it seems likely that creativity is stimulated by providing people with unexpected and counterintuitive information when people are approach motivated, but it could be undermined when people are avoidance motivated and therefore think in an organized way and prefer structure.

Beyond these direct implications, it may be useful to consider potential moderators in future research. For example, identifying
performance for people who plan in accordance to their motivational focus and those who do not. Moreover, planning smartly may help avoidance motivated people consciously shift from working under limiting constraints (e.g., time pressure) to working under channelling constraints (e.g., higher structure). Studying the effects of planning on creative performance, may help in developing concrete interventions aimed at facilitating creativity in situations that elicit avoidance motivation, such as periods of financial turbulence.

**Conclusion**

Avoidance motivation does not need to be an insuperable obstacle on the way to creativity. Understanding how constraints in the workplace influence creative performance will help in developing ways to strategically use constraints to facilitate creativity. Understanding how creative performance can be achieved not only under approach, but also under avoidance motivation, has implications for theory and our understanding of the processes underlying creative performance. Additionally, it has implications for practice, as creative and innovative ideas are constantly sought after, both in times of prosperity, when the potential for positive outcomes is high, and in times of uncertainty, when the threat of negative outcomes is real.

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**References**


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