FREEDOM, STRUCTURE, AND CREATIVITY

There is no lack of advice on how to stimulate individual creativity, either in the workplace or the personal domain, and there are many techniques to help people generate more creative ideas or insights. The underlying message of many techniques and recommendations seems to be that everybody can be creative; one simply needs to learn the right techniques, tricks, or shortcuts. At the same time, however, there seems to be a pervasive belief that creativity cannot really be directed, and that spontaneity and a lack of rules are key to performing truly creatively. In fact, many highly creative individuals are characterized by their disregard for rules and procedures and their fierce individuality (Feist, 1998). Thus, there seems to be something of a paradox: If creativity is best achieved through freedom and a disregard for “the rules,” how can creativity be stimulated or taught by giving people procedures to use?

In this chapter I will summarize much of the literature on the dynamic tension between freedom and structure within the context of creativity. In the first section, I will address the role of autonomy in creativity, and outline how its effects may partly depend on individual differences. Next, I will go into the possible benefits of constraints and structure, looking at the role of individual differences there as well. Finally, I will attempt to integrate the findings and theories discussed so far into some practical recommendations for organizations interested in stimulating creativity by optimally arranging autonomy and structure.
CREATIVITY AND FREEDOM

Of all our knowledge on organizational creativity, the importance of autonomy and a lack of external control may be the best known. Autonomy here is defined as the degree to which people (employees, research participants) can decide for themselves what to do, and how and when to do it (e.g., Breauagh, 1985; Hackman & Oldham, 1976; Humphrey, Nahrgang, & Morgeson, 2007; Langfred & Moye, 2004; Spector, 1986). The theme of external control and its detrimental influence on creativity was extensively studied in the second half of the 20th century, often in the context of self-determination theory (SDT; e.g., Deci & Ryan, 2002). A basic tenet of SDT is that (work) motivation and creative performance depend on the fulfillment of three basic human needs: the need for autonomy, the need for competence, and the need for relatedness. Situations (such as work environments) that contribute to need fulfillment are motivating; situations that thwart need fulfillment lead to lower motivation and hence lower performance. Since external control (or the feeling of external control) thwarts the fulfillment of people’s need for autonomy, controlling situations are demotivating and hence should lead to lower creativity.

The notion that autonomy is important for motivation and performance is not unique to the creativity literature or SDT. For example, within the broader literature on organizational behavior and work performance, an influential model that also addresses the importance of autonomy is Hackman and Oldham’s (1976) job characteristics model (JCM). According to the JCM, job characteristics such as autonomy, task variety, and challenge increase a job’s motivating potential and hence are expected to lead to more favorable outcomes, such as motivation and performance. Empirical research has largely supported these propositions, and the JCM remains influential (see, e.g., Morgeson & Humphrey, 2006; Oldham & Cummings, 1996).

An extensive research program has yielded substantial support for the hypothesis that creativity suffers when people’s sense of autonomy is threatened. This research has mostly focused on the role of rewards, evaluation, and supervisory behavior (see, e.g., Amabile, 1996; Hennessey & Amabile, 2010; Shalley, Zhou, & Oldham, 2004; Zhou & Shalley, 2008, for overviews). For example, an early study on evaluation and creativity was done by Amabile (1979), who found that college students performed less creatively when they expected their creative artworks to be evaluated by experts (as compared to a condition where participants were told their artworks would not be evaluated at all), except when they also received detailed instructions on how to make their artworks more creative. Similar results were obtained in subsequent studies. For example, Amabile, Hennessey, and Grossman (1986) conducted three studies on the relation between rewards and creativity,
finding that both children and adults were less creative when they did a creative task in order to obtain a reward.

While much of the work on autonomy and creativity has focused on rewards and evaluation, the importance of autonomy has been supported by a wide range of studies. In a recent field study, for example, Joo, Yang, and McLean (2014) found that autonomy positively predicted employee creativity. In another field study, Mathisen (2011) found that autonomy positively predicted employees’ creative self-efficacy (the degree to which they felt capable of generating creative ideas).

On the whole, then, the notion that autonomy is important for creativity, and that factors that may reduce autonomy, such as rewards and evaluations, can be a threat to creativity has been solidly supported. However, it is certainly not the case that all rewards or evaluations kill creativity. One important factor is the contingency of the reward: are people rewarded for doing a task, for high performance, or for creative performance? Research by Eisenberger and colleagues (e.g., Eisenberger & Rhoades, 2001) showed that creativity-contingent rewards can actually increase creativity, and that this effect may even be mediated by self-determination (because people are given the information they need in order to perform well and attain desired outcomes, their needs for autonomy and competence are supported). A recent meta-analysis by Byron and Khazanchi (2012) confirms that reward contingency is a crucial moderator for the relation between rewards and creativity.

Another relevant factor is the way in which a reward or evaluation is delivered. For example, Shalley and Perry-Smith (2001) showed that creativity was inhibited by controlling evaluation (where people were told that the evaluation would revolve around whether they performed as they should), but not by informational evaluation (where people were told the evaluation could help them develop themselves). Byron and Khazanchi’s (2012) meta-analysis also confirms that creativity-contingent rewards are more effective when employees perceive more choice and freedom. Thus, while the importance of autonomy for creativity has been—and continues to be—solidly demonstrated, this does not mean that the effect is unconditional and independent of other factors.

**Autonomy and Individual Differences**

SDT takes the perspective that the need for autonomy is a basic and fundamental need shared by all people, and hence has addressed variability in need fulfillment by looking at differences between environments (i.e., more or less autonomy-supporting environments). Another approach is to look at interindividual differences in need strength, and to see whether these differences predict how people respond to different kinds of environments (e.g., Van Yperen, Rietzschel, & De Jonge, 2014).
In their influential analysis of task autonomy and its effects, Langfred and Moye (2004, also see Lawler, Hackman, & Kaufman, 1973) stress that the effects of autonomy will depend on its “overall utility”: “Giving autonomy to an employee who perceives great benefit and little cost to autonomy is likely to be motivating, just as giving autonomy to the employee who perceives little benefit but great cost to autonomy is likely to harm motivation” (p. 936). While the benefits of autonomy have been emphasized extensively in the research literature, especially in the creativity literature, the potential costs have remained somewhat neglected. As an example, Langfred and Moye mention “the perception that more autonomy in the job can result in more work, involving more difficult and uncomfortable decisions and greater stress” (p. 936). Autonomy means that employees get control over how to perform their work tasks, how to schedule and plan them, or even over which tasks they want to do. Thus, working under high autonomy requires more information processing, especially in terms of choosing, planning, and monitoring one’s tasks. Not everybody will respond to these extra demands in the same way, suggesting that the effects of autonomy on motivation and (creative) performance are probably moderated by relevant individual differences (also see Langfred, 2004, for an example of moderated team-level effects of autonomy).

**Growth Need Strength**

A classic example of this “need strength” approach is the research on the role of “growth need strength” in the job characteristics literature (Hackman & Oldham, 1976). Although the JCM states that some jobs have a higher motivating potential than others, this effect is proposed to be more pronounced for some employees than for others: some employees are not that interested in self-development and hence will not react as strongly to challenge or job autonomy as employees who find self-development very important and have a high growth need strength (Hackman & Lawler, 1971). Growth need strength has been found to moderate the motivational effects of job design (e.g., Hackman & Oldham, 1976; also see Beehr, Walsh, & Taber, 1976), and Shalley, Gilson, and Blum (2009) applied the concept to creative performance at work. In a survey study among employees they found, among other things, that a creativity-supporting climate in the organization was especially strongly related to (self-reported) creativity when growth need strength was high.

**Need for Autonomy**

An obvious candidate trait to moderate the effects of job or task autonomy is, of course, need for autonomy itself (also sometimes called need for control or need for independence; see Langfred & Moye, 2004). Generally, highly creative people tend to have more “independent” personalities; that
is, they are less influenced by social norms and peer influence, and more likely to follow their own preferences and initiatives (e.g., Feist, 1998, 1999). However, these traits show considerably interindividual variance in the general population, and as such may well moderate people’s response to different contexts or situation. Some studies have found that autonomy relates more strongly to outcomes such as job satisfaction among people who have a strong need for autonomy or independence. In an early study on this topic, Vroom (1959) hypothesized and found that participation (i.e., the degree of influence employees had on their work tasks and work-related decisions) was more strongly related to performance and attitudes toward the job among employees with a high need for independence than among employees with a low need for independence. Further, Orpen (1985) conducted a study among managers in several industries and found that many job characteristics, including autonomy, correlated more strongly to performance and job satisfaction among managers with a high need for independence. However, several other studies have failed to find evidence for such moderation effects (see, e.g., Abdel-Halim & Rowland, 1976; De Rijk, Le Blanc, Schaufeli, & De Jonge, 1998; Strain, 1999).

**Personality Traits**

Barrick and Mount (1993) studied the relation between the Big Five personality traits and job performance as moderated by autonomy, with results (obtained in a field study among US Army training participants) showing that personality traits were more predictive of job performance when autonomy was high; however, these results can also be interpreted as evidence for a moderating role of personality on the relation between autonomy and performance, such that autonomy was especially related to performance among employees high on conscientiousness and extraversion, and low on agreeableness. With regard to the latter, this result is consistent with moderation effects found for need for autonomy, as people high in agreeableness tend to be more oriented toward cooperation and maintaining good relations than toward independence and individualism (e.g., McCrae & Costa, 1987; also see Feist, 1998).

**Need for Structure**

Given the ambiguity and complexity that may result from autonomy, people’s general attitude toward ambiguity should also be expected to moderate its effects. Thus, for example, Slijkhuiss, Rietzschel, and Van Yperen (2013) looked at the moderating role of personal need for structure (Neuberg & Newsom, 1993; Thompson, Naccarato, Parker, & Moskowitz, 2001). People with a high need for structure are chronically averse to ambiguity, and prefer situations and environments that are well ordered and predictable. Slijkhuiss et al. argued that autonomy should be less important for people with a high need for structure, because a lack of autonomy often implies clarity and
structure. Thus, while employees with a low need for structure should respond negatively to (i.e., be demotivated by) controlling environments, this should not be the case for employees with a high need for structure (also see Billing, Bhagat, & Babakus, 2013). In a field study, Slijkhuis et al. (2013) found support for this hypothesis; a follow-up experiment also showed that a controlling (as compared to informational) evaluation (cf. Shalley & Perry-Smith, 2001) only inhibited creative performance for participants low in need for structure. In a later study, Rietzschel, Slijkhuis, and Van Yperen (2014a) found that need for structure also moderated the effects of close monitoring (George & Zhou, 2001; Zhou, 2003) on employee motivation and satisfaction: whereas employees with a low need for structure were less motivated and satisfied when they perceived high levels of supervisory close monitoring (and this effect was mediated by perceived autonomy), the opposite was the case for employees with a high need for structure. Among the latter group, moreover, this effect was mediated by role clarity.

**Motivation**

A particularly interesting study was reported by Dysvik and Kuvaas (2011). Whereas most research approaches (intrinsic) motivation as a dependent variable (or a mediator) affected by autonomy, Dysvik and Kuvaas argued that “although perceived job autonomy provides an opportunity for employees to try out and master new tasks … the extent to which they actually seize this opportunity depends on their intrinsic motivation” (p. 368). In two field studies, they found that the relation between job autonomy and performance indeed was only significant for employees who were highly intrinsically motivated. Intrinsic motivation is often linked to explorative behavior (Amabile, 1996), and as such appears to be a necessary precondition for employees to make use of their job autonomy.

**Self-Control and Self-Efficacy**

Beside people’s preferences for high levels of autonomy, growth, or structure, or their level of intrinsic motivation, the positive effects of autonomy on creative performance will also depend on people’s *ability* to effectively make use of the autonomy they have. For example, Chang, Huang, and Choi (2012) studied the role of self-control (Tangney, Baumeister, & Boone, 2004) in the relation between task autonomy and creative performance. In line with the analysis by Langfred and Moye (2004), Chang et al. argue that task autonomy can be cognitively distracting, and might therefore not be equally beneficial for everybody—people with low self-control might not be able to deal effectively with the ambiguity inherent in high task autonomy. Their results showed that participants with low self-control performed less creatively under conditions of high task autonomy. For participants with high self-control, task autonomy did not make much of a difference in terms of creative performance.
Orth and Volmer (2017) recently conducted a field study on the within-person relations between job autonomy and innovative behavior (i.e., the implementation of creative ideas in the work context), and found that employees reported higher levels of innovative behaviors on days when they experienced higher levels of job autonomy. Importantly, these relations were especially pronounced for employees who had high levels of creative self-efficacy (i.e., a strong belief in their creative abilities; Tierney & Farmer, 2002). In line with the argument put forward by Dysvik and Kuvaas (2011), Orth and Volmer argue that employees with high levels of CSE are “more inclined to translate perceived autonomy into desirable innovative outcomes” (p. 604).

**Conclusion**

All in all, then, autonomy does not seem to be equally motivating or helpful for everybody, and even its relation with creativity appears to depend on individual differences. Generally speaking, people are most likely to benefit from high levels of autonomy when they have a low need for structure, when they are highly intrinsically motivated, and when they have high levels of self-control, conscientiousness, or creative self-efficacy. However, the results with regard to actual need for autonomy are inconclusive. Several other studies have approached the issue from the perspective of possible positive consequences of a lack of autonomy. In the next section, I will explore this in some more depth.

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**CONSTRAINTS AND CREATIVITY**

External control and a lack of autonomy are often considered “constraints” (also see Caniëls & Rietzschel, 2015), because they limit a person’s range of behavioral options and sense of self-determination. However, an increasing amount of research suggests that these kinds of limits can in fact be beneficial for creativity. In other words, reducing autonomy (in the sense of restricting a person’s range of behavioral options) may stimulate creative performance. The underlying reason is the complexity inherent in autonomy. Autonomy, while motivating, also implies an absence of information, either regarding desired outcomes (what one is expected to do or achieve) or regarding procedures (how one is expected to do it). This requires the individual employee to explore and find his or her own way within the job. Of course, this room for exploration is why autonomy is generally thought to be beneficial for creativity, but the question is whether people are always likely to actually use the leeway they have (cf. Dysvik & Kuvaas, 2011) and hence to arrive at creative performance. In fact, theory and research suggest that a lack of autonomy may sometimes be more helpful for creativity.
The Path of Least Resistance

Ward (1994) and Finke, Ward, and Smith (1995) stipulated that creativity tends to follow the *path of least resistance*, in that people usually come up with whatever ideas are easiest to generate. This means that ideas tend to be based on highly accessible knowledge and schemas (also see Nijstad & Stroebe, 2006). This reliance on highly accessible knowledge can be considered a heuristic: it helps people deal with an ill-structured task. However, it does not help creativity, since high accessibility usually means that people generate mostly “obvious” ideas of low originality (but presumably high feasibility). Thus, for example, Ward, Patterson, Sifonis, Dodds, and Saunders (2002) found that participants who were instructed to come up with novel ideas regarding hypothetical extraterrestrial animals, fruits, or tools, tended to use highly accessible (and hence common) exemplars as starting points for creative idea generation, even when explicitly instructed to generate imaginary or highly creative exemplars.

Problematically, there are reasons to assume that people are especially likely to follow the path of least resistance when faced with a total lack of constraints. When problems are completely open and ill structured, and “anything goes,” the number of possible approaches, strategies, and solutions can be cognitively overwhelming. The tendency to use mental shortcuts is especially strong when faced with complex and ill-structured problems (Branscombe & Cohen, 1991; Simon, 1955) and under conditions of high cognitive load (e.g., Ford & Kuglanski, 2005; Van Prooijen & Van de Veer, 2010). Since research suggests that this indeed carries over into people’s ability to come up with creative ideas, Finke, Ward, and Smith (1992) suggested that “Restricting the ways in which creative cognitions are interpreted encourages creative exploration and discovery and further reduces the likelihood that a person will fall back on conventional lines of thought” (p. 32). In other words, people could—paradoxically—be forced off the path of least resistance (cf. Moreau & Dahl, 2005; Rietzschel, Nijstad, & Stroebe, 2007) by restricting their room for exploration, because this limits the complexity of the task and thereby decreases people’s reliance on heuristics. Another positive consequence of constraints could be that, by diminishing task complexity, they reduce the load on working memory (Baddeley, 1996), which several studies have also linked to creativity (Benedek, Jauk, Sommer, Arendasy, & Neubauer, 2014; De Dreu, Nijstad, Baas, Wolsink, & Roskes, 2012; Lee & Therriault, 2013).

The Benefits of Constraints

The notion that constraints can stimulate creative performance has found substantial empirical support. For example, several studies showed that participants generated more ideas when they were instructed to
address subcategories of a brainstorming topic sequentially, rather than simultaneously (Coskun, Paulus, Brown, & Sherwood, 2000; Dennis, Aronson, Heninger, & Walker, 1999; Dennis, Valacich, Conolly, & Wynne, 1996). Addressing only one subtopic at a time apparently enabled participants to go deeper into each subcategory than they would otherwise have done. Following similar logic, Rietzschel et al. (2007) used a priming procedure to activate participants’ domain knowledge about certain subcategories of a brainstorming problem, and found that this caused participants to be more productive and more original within the primed subcategories. In a later study, Rietzschel, Nijstad, and Stroebe (2014) had participants generate ideas about a broad or a more narrow problem (improving education at a university vs improving the lectures at that university), and found that participants generated ideas of higher originality with the narrow problem. In a design study, Moreau and Dahl (2005) found that participants who were instructed to use a preselected set of elements made more creative designs than participants who were instructed to make their own selection of which elements to use. Further, Goldenberg, Mazursky, and Solomon (1999) identified creativity “templates,” sets of operations that can be used to come up with novel designs or ideas (such as “displacement,” where a core element or feature of an existing product is removed, and people get to explore the possibilities that this opens up), and found that use of these templates indeed contributed to the generation of more creative ideas.

Another way in which creative tasks can be constrained is by giving people explicit instructions on the kinds of ideas they are expected to generate. Thus, for example, participants may be given specific criteria to use or targets to strive toward (e.g., “generate original ideas”). Often, such instructions are already embedded in the general instructions for the creativity task, but the degree to which specific outcome dimensions are emphasized or elaborated upon may differ. Giving people such instructions generally seems to be helpful (e.g., Evans & Forbach, 1983; Harrington, 1975; Parnes & Meadow, 1959; Rietzschel, Nijstad, & Stroebe, 2014; Runco, Illies, & Reiter-Palmon, 2005). Arguably, these kinds of instructions are “weaker” constraints than some of the examples mentioned previously, because participants are not forced to follow or use any particular procedure. In a sense, participants’ behavior is not so much constrained as calibrated. Nevertheless, information about the kinds of ideas that one is expected to produce can reduce the ambiguity and complexity of the task.

**Task Structure**

Some studies have addressed the issue of constraints by looking at the potential benefits of task structure, or procedural information about how to perform a (creative) task. Like the previously discussed constraints, task structure has two interrelated consequences: it limits the degrees
of freedom people have in executing the task and thereby reduces task complexity and cognitive load. The studies on sequentially addressing subcategories in a brainstorming task (e.g., Dennis et al., 1996) are good examples of this approach. A somewhat different, but related approach to the benefits of structure was taken by Binyamin and Carmeli (2010), who found that the degree to which organizational HRM practices were structured positively predicted employee creativity, and that these effects were partly mediated by a reduction in uncertainty.

Although little theory exists on the nature or consequences of task structure, some older theories have addressed its role and importance. For example, House’s (1971, 1996) path-goal theory of leadership states that a leader’s role is to clarify which outcomes are desired and how these should (or can) be attained. Specifying these desired outcomes and the way toward them reduces ambiguity for employees, and hence is expected to lead to higher performance. A similar notion is found in Fiedler’s (1965) contingency theory of leadership, which states that increasing task structure is a core task for supervisors. According to Fiedler, task structure has four dimensions: (1) decision verifiability (is there a demonstrably “correct” solution or outcome?), (2) goal clarity (are there clear requirements regarding task execution?), (3) goal-path multiplicity (can the task be performed in only one way, or in several ways?), and (4) solution specificity (is there one possible or permissible outcome, or are multiple solutions possible?). Thus, task structure is highest when it is unambiguously clear which outcomes are expected and how these are supposed to be attained.

Although the research discussed previously suggests that task structure can enhance creative performance, it also seems clear that this is not necessarily the case. Taking Fiedler’s dimensions of task structure, for example, it seems plausible that high levels of decision verifiability and solution specificity actually decrease the opportunity for creative performance, because there is little room for novel responses. In contrast, low levels of goal-path multiplicity and high levels of goal clarity have the potential to “free up” cognitive resources without limiting the opportunity for creative behavior. In terms of the motivational research discussed earlier in this chapter, one could speculate that the former would be more “constraining” in the sense of reducing autonomy and the opportunity for exploration (also see Onarheim, 2012), whereas the latter would be considered helpful in the sense of reducing task complexity and ambiguity (also see Runco et al., 2005, for similar arguments and results).

**A Model of Constraints and Creativity**

In line with the reasoning earlier, Roskes (2015) proposed a model of constraints and creativity, distinguishing between constraints that limit cognitive resources and constraints that channel cognitive resources. Examples of the former are time pressure, environmental noise, and
dual-task demands; examples of the latter are clear procedural instructions and restricted goal definitions. Moreover, Roskes argues that the effects of these constraints are contingent on individual differences in approach and avoidance motivation; that is, the degree to which people strive to attain positive outcomes or to avoid negative outcomes (Elliot, 1999). Approach and avoidance motivation have been linked to creative performance: Approach motivation positively predicts creativity because it is associated with greater flexibility and exploration, whereas avoidance motivation negatively predicts creativity because it is associated with a narrower focus and feelings of threat (e.g., Elliot, 2006; Friedman & Förster, 2002). Roskes’ model posits that constraints will differentially affect creativity depending on people’s approach and avoidance motivation. For example, according to the model, people with a strong avoidance motivation are likely to benefit from channeling constraints, because these fit with their focused and systematic thinking style.

**Individual Differences and Constraints**

Roskes’ hypothesis that different types of constraints may not have the same effects on everybody is in line with several studies. For example, Sagiv, Arieli, Goldenberg, and Goldschmidt (2010) found that the effects of task structure were moderated by participants’ cognitive style: Whereas participants with a more intuitive thinking style were more creative than participants with a systematic thinking style under unstructured conditions, this difference disappeared when the creative task was presented in a more structured way. Similar results were obtained by Rietzschel, Slijkhuis, and Van Yperen (2014b), who found that the effects of task structure on creative performance were moderated by participants’ need for structure, such that participants with a high need for structure performed less creatively, except under conditions of high task structure.

Importantly, however, the positive effects of task structure found by Rietzschel et al. also depended on the way in which task structure was operationalized. As explained previously, task structure may contain both procedural- and outcome-related information. Although both kinds of information reduce ambiguity and complexity, only procedural information leaves room for creative outcomes. This would imply that a form of task structure where outcomes are specified or implied should kill creative performance, but might still be attractive to people with a high need for structure, and indeed this is what Rietzschel, Slijkhuis, and Van Yperen (2014b) found. When participants were given structured task instructions accompanied by a highly typical example of what the outcome could look like (in this case, drawing an alien), participants tended to stick close to this example, and hence produced drawings of lower creativity than those who were not given task structure. This finding fits with earlier work on fixation effects in creative tasks (e.g., Jansson & Smith, 1991; Smith, Ward,
& Schumacher, 1993), which has shown that it can be very difficult not to use a given example in idea generation. However, despite this negative effect on creativity, people with a high need for structure were more satisfied than participants with a lower need for structure, suggesting that a lack of ambiguity was more important for them than the opportunity to perform creatively.

**Conclusion**

Constraints can be helpful for creativity, because they reduce the complexity of the task and hence nudge people off the path of least resistance. Giving employees the opportunity to do what they want can also mean that they are left to their own devices, and in those situations people will often tend to rely on the most accessible (and hence least creative) ideas. Individual differences seem to play an important moderating role here, as well as the way in which autonomy or constraints are operationalized or communicated.

**PRACTICAL RECOMMENDATIONS**

Given the paradoxes and the complexities surrounding the issue of autonomy and structure, is there any way organizations or supervisors can stimulate creative performance as broadly as possible? In this section, I will give some brief suggestions on how the existing research could be fruitfully applied in organizational settings.

**Avoid External Control**

Although autonomy is not equally helpful for everybody, and a lack of autonomy is not equally problematic for everybody, the sense of being externally controlled is never helpful for creativity. Even in a study like the one reported by Rietzschel, Slijkhuis, and Van Yperen (2014a), who found that employees with a higher need for structure felt more satisfied and motivated when they experienced high levels of supervisory close monitoring, this did not translate into higher levels of creative or innovative performance. The fact that the favorable effects of close monitoring for these employees were mediated by role clarity also suggests that what these people liked was not so much the absence of autonomy, as the presence of information regarding what was expected of them. The large body of literature on external control, intrinsic motivation, and creativity has amply demonstrated the risks of external control; the more recent findings by Dysvik and Kuvaaas (2011) add to this by showing that lower levels of intrinsic motivation may not only predict lower levels of creativity per se, but may also inhibit employees’ tendency to make creative use of the job.
autonomy they have. Thus, a sense of self-determination remains important, and recognizing the possible pitfalls of autonomy or the benefits of task structure should not be an excuse to impose external control. Similarly to the literature on goal setting (see, e.g., Locke & Latham, 2002), it is likely that high levels of task structure will only motivate people to perform creatively if the structure allows for a sense of responsibility, ownership, and commitment (also see De Treville & Antonakis, 2006); simply giving people a procedure they have to follow may not work so well.

Provide Procedural Information

In contrast to the popular stereotype of creativity as spontaneous and undirected (e.g., Ritter & Rietzschel, 2017), total freedom often makes creative tasks overwhelming. In the absence of any information about how to do a task, people will rely on highly accessible knowledge and schemas, and hence fail to produce creative work. Procedural information (e.g., decomposing a problem into subcategories) can reduce the cognitive load of the task and hence help people explore less accessible “areas” of problem space. Importantly, this procedural information need not take the form of specific task instructions; Goldenberg et al.’s (1999) innovation templates are good examples as well. These templates provide people with a series of operations they can perform on a problem or an object, many of which are counterintuitive and therefore likely to push people off the path of least resistance. These templates may also have the advantage that they are less likely to be seen as actual “instructions” that could make people feel controlled. Rather than giving people detailed information on how to come up with creative ideas, Goldenberg et al.’s inventive templates are easily presented as tools that can help people come up with novel ideas. The unexpected nature of the templates (since most people would not spontaneously come up with the kinds of operations and transformations specified in the templates) probably also aligns with people’s expectations and stereotypes regarding creativity and creative tasks (e.g., Baas, Koch, Nijstad, & De Dreu, 2015; Ritter & Rietzschel, 2017), and as such could lead to “fit” effects (cf. Cesario, Grant, & Higgins, 2004), which in turn could serve intrinsic motivation and creativity (however, also see Levine, Alexander, Wright, & Higgins, 2016).

Avoid Outcome Information

Although reducing autonomy somewhat by providing people with task-relevant information can be helpful, not all such information will have positive effects on creativity (Onarheim, 2012). Creative performance depends on the possibility to deviate from the norm and to produce work that is unexpected. The more salient the “standard” is made,
the more difficult it becomes to deviate from it. This is not just because such outcome standards set a norm for what is allowed (e.g., Ruscio & Amabile, 1999) but also because of fixation effects: When presented with a typical example of task execution, people can easily get cognitively fixated on this example and keep generating new ideas along the lines of the example (Jansson & Smith, 1991; Smith et al., 1993). Of course, there may be beneficial effects of providing people with highly creative examples or role models (e.g., Shalley & Perry-Smith, 2001), for example, because these can give an idea of the kinds of highly novel performance that apparently are allowed or expected (in the absence of such information, people may perhaps assume that only moderately original ideas are valued); nevertheless, even highly creative examples may come with the risk of fixation effects. Therefore, procedural information is probably to be preferred.

Take Individual Differences Into Account

Research on organizational creativity has long recognized the need for an interactionist perspective (e.g., Woodman, Sawyer, & Griffin, 1993). Because creative performance is interactively predicted by contextual and personal characteristics, practical recommendations on how to stimulate creativity must involve both. The effects of autonomy and task structure clearly depend on individual differences in personality, needs and preferences, and abilities, and so will the effects of interventions in this area. Not every employee will be equally overwhelmed by high levels of autonomy, and not every employee will benefit equally strongly from procedural instructions. Some of these individual differences are “given” in that they reflect more or less stable traits that may be difficult to change substantially in an organizational context, but others, such as intrinsic motivation or creative self-efficacy, may lend themselves more readily to development on the job. For example, Tierney and Farmer (2011) found that creative self-efficacy at work could be developed over a 6-month period, and that this development was positively predicted by increases in employee creative role identity and supervisor creative expectations. As employees develop higher levels of creative self-efficacy, their ability to turn job autonomy into creative or innovative performance might increase as well (Orth & Volmer, 2017). Thus, rather than merely training employees to become more creative (Scott, Leritz, & Mumford, 2004), or to change aspects of job design (like autonomy) that are expected to be conducive to creativity, organizations might want to invest in developing those states, traits and abilities that will allow employees to make the most out of the autonomy and structure that their job is able to provide.
CONCLUSION

The aim of this chapter was to give an overview of some of the literature on autonomy, structure, and creativity. Clearly, the relation between these variables is somewhat paradoxical, and some of the common beliefs we have about what stimulates creativity have been qualified by recent research, especially in the field of individual differences. The main paradox is that autonomy, crucially important though it remains, in itself poses a risk for creativity because of the complexity it implies. Limiting the cognitive demands of creative work by restricting the available (procedural) options may, as we have seen, be helpful here, but no intervention is without its risks. Hopefully, the principles and recommendations outlined previously will go some way toward helping organizations, supervisors, and employees resolve the paradox of freedom, structure, and creativity.

References


3. MOTIVATION / AFFECT / PREFERENCES


