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## **I get by with a little help from my supervisor: Creative-idea generation, idea implementation, and perceived supervisor support**

MIHA ŠKERLAVAJ

MATEJ ČERNE

ANDERS DYSVIK

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## I GET BY WITH A LITTLE HELP FROM MY SUPERVISOR: CREATIVE-IDEA GENERATION, IDEA IMPLEMENTATION, AND PERCEIVED SUPERVISOR SUPPORT

**Abstract** In two studies using both field (165 employees and their 24 direct supervisors from a manufacturing firm in Study 1) and experimental (123 second-year undergraduate student participants in lab Study 2) data, we explore how perceived supervisor support acts as a crucial contingency that enables higher levels of idea implementation from creative-idea generation. First, we suggest that excessive creative-idea generation (in terms of *both* frequency and creativity of ideas) can lead to diminished returns with regards to idea implementation. Drawing on a resource allocation framework, we hypothesize and find a curvilinear inverse U-shaped relationship between employee creative-idea generation and implementation. Second, we examine perceived supervisor support as a moderator of the curvilinear inverse U-shaped relationship between idea generation and implementation. In line with our second hypothesis, we find that higher levels of perceived supervisor support dampen the curvilinear relationship between creative-idea generation and idea implementation. Accordingly, perceived supervisor support seems to provide employees with access to resources and support needed for idea implementation, making highly creative ideas more implementable.

Innovation processes include several stages. First, and perhaps foremost, creativity, formally defined as the generation of novel and useful ideas (Amabile, 1996; Amabile, Conti, Coon, Lazenby, & Herron, 1996; Paulus & Yang, 2000) is the obvious point of departure for innovation to take place. Another important phase, however, is selecting and implementing the chosen alternatives (Amabile, 1988; Scott & Bruce, 1994; Hammond, Neff, Farr, Schwall, & Zhao, 2011). In reality, the innovation process is complex, and idea generation and implementation do not necessarily proceed in a linear fashion, but can take place interchangeably (Anderson, De Dreu, & Nijstad, 2004). However, creative-idea generation is widely accepted as the necessary antecedent of innovation implementation at the individual level (Amabile, 1988; Baer, 2012). For research purposes, such a distinction enables a deeper and more nuanced insight into the innovation process, which could help the managers provide knowledge of how to stimulate idea implementation from idea generation, as it is this final step that provides a tangible value for the firm. If organizations fail to implement highly creative ideas, this would mean sunk costs because they fall short of contributing to the business case (Levitt, 2002). In the present study we seek to increase our knowledge of why organizations fail to implement creative ideas. We first focus on the relationship between different, yet related innovation processes: creative-idea generation and implementation.

Despite the importance of transforming highly creative ideas into implemented solutions, knowledge of the specifics of this process and of the role of leaders remains limited. Even though some creativity researchers (e.g. West and Anderson, 2002) have theorized about the presence of nonlinear relationships between idea generation and implementation, reviews by Dionne (2008) and Rosing et al. (2011) found that the majority of creativity and innovation research continues to hypothesize and test linear associations. Such a focus “has obscured the prevalence and importance of nonmonotonic inverted U-shaped effects, whereby positive phenomena reach inflection points at which their effects turn negative” (Grant & Schwartz,

2012) and hence fails to account for the so-called “too-much-of-a-good-thing” effect in management (Pierce & Aguinis, 2013). This may be so *both* when the level of creativity and the frequency of generated ideas are in question (i.e. how creative are the generated ideas and how frequently they are generated), which is the focus of our paper. Based on a resource allocation framework (Becker, 1965; Hockey, 1997) that highlights the fact that resources are finite and, at times, organizations must make trade-off decisions regarding resource allocation, we intend to make two key contributions to the innovation and leadership literatures.

First, by proposing that the relationship between idea generation and idea implementation is curvilinear, we address the assumptions made by West and Anderson (2002) and Dionne (2008). We empirically test an inverse u-shaped relationship between creativity (idea generation) and innovation in the form of idea implementation, where moderate levels of creativity (both in terms of the quantity and level of creativity of ideas) should be most beneficial for idea implementation. This argument is based on the fact that individuals at work face trade-offs between idea generation and idea implementation. Accordingly the time, energy, and attention they devote to generating novel and potentially useful ideas may prevent them from implementing their ideas. Highly novel ideas are more difficult to implement than moderately novel ideas due to their out-of-the-box, risky nature (Baer, 2012). One needs more resources (time, energy, support, etc.) to implement them, as is also the case with frequently generating creative ideas, which in turn may lead to a detrimental effect for such ideas. This, in our view, is supportive of a more nuanced and complex investigation into the relationship between idea generation and idea implementation than what is available in the current literature. It enables us to contribute to the exploration of “the black box” of micro-individual-level innovation processes through the relationship of its beginning and end phases.

Our second contribution is related to examining potential managerial and specifically leadership remedies to the untapped potential of highly creative ideas. We do so by investigating the moderating role of perceived supervisor support (PSS), i.e., the degree to which supervisors value employees' contributions and care about their well-being (Kottke & Sharafinski, 1988; Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002). By recognizing usefulness and accepting novel ideas generated by highly creative individuals, immediate supervisors act as resources at the interpersonal level (cf. Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) and can provide other resources necessary for implementing these ideas.

In the existing literature, there is already evidence of moderating influences on the idea generation-idea implementation relationship. In specific, Somech and Drach-Zahavy (2013) examined this process at the group level and found that a team's innovation climate moderates the relationship between team creativity and innovation. Baer (2012) focused on the role of individual characteristics in the linear relationship between idea generation and implementation at the individual level. His results showed that although idea generation positively contributes to implementation, the effect is contingent upon individual boundary conditions (specifically, individuals' motivation to put ideas into practice and their ability to network). Whereas this research has contributed to increasing our knowledge of boundary conditions in the form of team innovation climate and individual motivation, we seek to extend this line of work by proposing that immediate leaders/line managers also influence the idea generation-idea implementation relationship. Hence, the second central tenet of our research is that high levels of PSS can contribute to organizational success by exploiting highly and frequently generated creative ideas. In practice, our research should help organizations understand and facilitate the use of the untapped potential of such ideas.

### The Trade-off between Idea Generation and Implementation

Literature on individual creativity and innovation has generally paid little attention to understanding when, why, and how excessive idea generation might have a detrimental effect on idea implementation. Even though some creativity researchers (e.g., West, 2002) have theorized about the presence of nonlinear relationships between creativity and innovation, reviews by Dionne (2008) and Rosing et al. (2011) found that the majority of creativity and innovation research continues to hypothesize and test linear associations. To explain the nature of the relationship between creative-idea generation and idea implementation, we draw on a resource allocation framework (Becker, 1965; Hockey, 1997). According to this framework, the amounts of time, energy, and resources are limited, not only within a particular work setting, but in life in general. Because creative-idea generation and implementation are distinct activities (Baer, 2012; Somech & Drach-Zahavy, 2013) related to different behavior, high focus on one of those activities may prevent one from carrying out the other successfully.

For example, idea implementation is inherently embedded within social contexts (cf. Somech & Drach-Zahavy, in press); employees should exchange, integrate, and disseminate their ideas in order to implement them. For those processes to be successful, additional knowledge and skills, not only creative behaviors, are needed (Mainemelis, 2010). The process of idea implementation, even at the individual level, is open to the social-political maneuvers among employees (Baer, 2012). It requires collaboration and “selling” ideas within the organization to other employees or groups (Axtell et al., 2000) in order to collect support and resources. To navigate these political processes, individuals require “salesmanship” skills. These skills can also be treated as resources (cf. Hall, 2006) needed to convince coworkers that an idea should be implemented and, hence, influence their decisions (Green, Welsh & Dehler, 2003; Van de Ven, 1986). Consequently, exerting excessive time,

energy, and attention into frequently generating highly novel ideas may prevent employees from having the available resources, such as time, energy, and salesmanship skills needed to convince others to implement them. As such, a turning point of the effectiveness of idea generation for idea implementation may occur.

Highly creative ideas are more difficult to implement than moderately creative ones due to their out-of-the-box, risky nature that inevitably draws opposition, and because they are generally more complicated to deliver. Because they produce uncertainty, highly creative ideas are likely to be met with more skepticism and hesitation (Janssen, Van de Vliert, & West, 2004; Baer, 2012). One needs more resources (time, energy, attention, support, and so on) for their implementation. However, it is an unfortunate fact of organizational life that resources are limited. This can, in turn, result in a detrimental effect of excessively novel ideas in terms of their implementation. A trade-off, and consequently less focus on implementation, might occur when employees are heavily occupied with idea generation (both in terms of the frequency and creativity of ideas), resulting in a “too-much-of-a-good-thing” effect (cf. Pierce & Aguinis, 2013). Thus, individuals exhibiting moderate levels of creativity will be more likely to devote sufficient time and energy to engage in the socio-political interpersonal processes needed to implement creative ideas. This would enable them to “sell” ideas to others and ultimately implement them, whereas employees generating highly creative ideas might simply not have the resources needed for their implementation. We therefore hypothesize:

*Hypothesis 1:* Creative-idea generation (both the extent of how creative the generated ideas are as well as the frequency of generated ideas) has an inverted U-shaped relationship with idea implementation.

### **The Moderating Role of Perceived Supervisor Support**

The process of innovation is a social and political process (Van de Ven, 1986) and therefore dependent upon social interactions and connections. Both phases of the micro-innovation process typically depend upon job resources. For idea generation, time was shown to be of critical importance (Sheremata, 2000; Richtnér & Åhlström, 2010), whereas the approval and support of others was indicated to be a salient source of influence for implementation (Axtell et al., 2000). While coworker support represents an important facet of employee support perception (Chiaburu & Harrison, 2008), an even more salient source of influence on the relationship between idea generation and idea implementation may be that of their immediate leaders - supervisor support. This is because supervisors are in better positions to make formal decisions with respect to resource allocation and setting priorities between tasks than coworkers (Rank, Nelson, Allen, & Xu, 2009) through the selected bases of influence that include support (Krause, 2004). This is why employees in organizations tend to develop general views concerning the extent to which their supervisors are perceived as supportive, or how they value their contributions and care about their well-being (PSS; Kottke & Sharafinski, 1988; Eisenberger et al., 2002). PSS encompasses both instrumental and socio-emotional support (Amabile, Schatzel, Moneta, & Kramer, 2004), such as helping employees when their workload increases and assisting employees with the fulfillment of their duties (Shanock & Eisenberger, 2006). It represents a way organizations can inexpensively work to build the job skills, abilities, and the interpersonal skills of organizational members (Paustian-Underdahl et al., 2013).

According to the Job Demands-Resources model (Demerouti et al., 2001) and empirical research (see Rhoades & Eisenberger, 2002 for a review), PSS is a resource at the interpersonal level, and can also represent an important factor for connecting employees to the resources and supporters they need, both in general and in particular for the implementation of creative ideas. Supervisors that employees perceive as more supportive provide employees

with access to political support (Parker Ellen III, Ferris, & Buckley, in press): the sponsorship necessary to navigate their creative ideas through resistance, tensions, and other obstacles to implementation. In addition, by recognizing the usefulness and accepting the novelty of ideas, supervisors who are perceived as more supportive also help shape the employees' work environment (Redmond, Mumford, & Teach, 1993) to be more supportive toward idea implementation. They can help to provide general social support used for problem solving in order to help with idea implementation (Daniels, Wimalasiri, Cheyne, & Story, 2011; Černe, Jaklič, & Škerlavaj, 2013).

Based on these arguments, we propose that PSS moderates the inverse U-shaped relationship between idea generation and idea implementation. The main premise of our moderating mechanism is that supervisors who are perceived to be supportive to such ideas facilitate employees' access to the resources necessary to implement these ideas. In specific, supervisors who define and articulate challenging missions and provide a better understanding of the structures required for implementation, making innovation targets more specific (cf. Messmann & Mulder, forthcoming), are more likely to foster the implementation of highly creative ideas (Mumford, Scott, Gaddis, & Strange, 2002). Interpersonal skills, such as communication skills, interpersonal behavior, and trustworthiness are a crucial part of PSS (Paustian-Underdahl et al., 2013). Supportive supervisors can act as sponsors of a particular highly creative idea, thereby offering both verbal and practical support in terms of providing resources needed for innovation (West & Anderson, 1996).

When highly creative ideas are threatening to others, the natural response by those others is opposition and limiting access to resources over which they have control. PSS should serve as a buffer against this threat by convincing the opposition that a creative idea is worth implementing. PSS provides access to resources, assistance, and encouragement in the face of

the difficulties (Rosing et al., 2011) inherent in implementing highly creative ideas. Supervisors perceived as more supportive should engage to a greater extent in helping employees “sell” creative ideas within the organization. They can help assist the employees in the process of getting their ideas implemented by providing adequate social support, i.e. discussing problems to solve problems (Daniels et al., 2011).

In contrast, when supervisors are perceived as being less supportive, task, social, and financial resources may be more constrained, forcing employees to make trade-offs between generating and implementing ideas. Poor or lacking resources prevent goal accomplishment, and individuals with low levels of PSS cannot dampen the potentially negative influence of high job demands in general (Bakker, Demerouti, de Boer, & Schaufeli, 2003) as well as in the implementation of highly creative ideas. For employees with lower levels of PSS then, we propose that the relationship between idea generation and idea implementation will be represented in an inverted U-shape form. Thus:

*Hypothesis 2:* Perceived supervisor support moderates the relationship between idea generation and implementation. Higher levels of PSS shift the inflection point further right and increase overall level of idea implementation. Low levels of PSS shift the inflection point further left (resulting in an inverted U-shaped curve portraying the relationship between creative idea generation and implementation) and decrease overall level of idea implementation.

## **Study 1: Methods**

### **Sample**

We collected data in two waves (September and October 2011) and at two hierarchical levels (from the final sample of 165 employees and their 24 direct supervisors) within a Slovenian manufacturing firm. The firm employs about 450 people and mainly produces steel

construction components. The company provides original and complete solutions, from concept to project completion, with a constant emphasis on innovation and sustainable development. Their solutions, which are most often completely unique and based on customers' needs, include façades and walls, roofs, eco solutions for reducing power usage, modular units, steel components of every kind, noise-attenuation systems, and fire-protection systems. Innovation is one of their most important corporate values, which is evident from their "slogans of the year." Past slogans have included "Show what you can," "Innovation for a balanced growth and development," and "Increasing competitiveness through innovative processes."

Most of the employees have an e-mail address and are divided into specific work groups with direct supervisors. Thus, we contacted 267 employees. All these employees are, by the estimation of the top managers, empowered to come up with creative ideas and carry out their implementation. Examples of ideas rated as highly creative (and ultimately implemented) included a robotic manipulator for the assembly of façade elements; a fluorescent nano-tube-based wall coating filled with zinc; self-supporting, insulating, fireproof modular panels; a modular façade system; iridescent paint (changing color as the angle of view changes); and the development of an anti-corrosion implant. Even the tools that support ideation arise from highly creative ideas. There is an innovation contest for the employees called "The Boldest Idea," in which coming up with the most creative ideas results in equally creative rewards, such as a chance to drive a Formula 1 car at Silverstone, a visit to a nuclear submarine, a tour of CERN's accelerator complex, and an astronaut-training session at NASA (floating in a zero-gravity zone). Examples of ideas rated as less creative (and then implemented) include upgrading the reward system, redesigning existing steel structures, branching out to other nearby markets, developing a fireproof façade, developing a new color

for the steel structure and a new glue that holds the structures together, and developing a new leadership-development program.

Individual innovations are derived from employees' creative ideas that are "sold" within the organization and consequently implemented. This implies some socio-political processes, as employees need to convince coworkers to vest trust in their ideas. The company is based on a team-based organizational structure, although the level of interaction among team members depends on the task, nature of work, and department. In most cases, team members need to communicate their ideas to other team members and team supervisor. After a round of feedback and discussion, the idea is either accepted or rejected. If the idea is accepted, an individual can implement it. Depending on the idea, employees can implement it themselves or ask for assistance and still be in charge of the micro-innovation process of implementing creative ideas. There are, of course, differences in terms of various departments and jobs, but this is the usual procedure in the firm.

The average group size was just below seven employees, and the number of direct reports per group supervisor who answered the survey ranged from 2 to 18. Taking into consideration only the 24 groups chosen that participated in the survey (the 267 employees we contacted via e-mail), this accounted for a 61.79% response rate for supervisors' direct reports (the within-group response rates ranged from 15% to 100%). About 66% of the participants were male and about 41% were younger than 26 years (mean = 38.87, SD = 7.09). A total of 53.9% of respondents reported less than seven years of work experience (mean = 6.49, SD = 5.91) and 46.7% reported under three years of working with this particular supervisor (dyad tenure: mean = 3.72, SD = 3.70).

## Measures

We used a translation back-translation procedure (Brislin, 1986) to translate the items (that we adopted from previous papers) from English into Slovenian and back into English.

**Creative-idea generation.** Identical behaviors may be considered creative in one organizational context and disruptive in another (Agars, Kaufman, & Locke, 2008). Researchers often use perceptual measures (e.g. Grant & Berry, 2011; Baer, 2012) because they enable the most relevant subjective assessments about domain-specific creativity from the actors involved in the social setting where the innovation process takes place. We used a scale developed by Zhou and George (2001). To avoid overlap with innovation implementation, in line with the call made by Montag et al. (2012), we only used eight items concerning the generation of novel and useful ideas—not implementation—and adapted them for employee self-reporting:  $\alpha = .90$ . A sample item includes: “How often do you suggest new ways to achieve goals or objectives?”

**Idea implementation.** We measured individual idea implementation with two items taken from de Jong and den Hartog (2010) that only concerned the implementation part of the innovation process, rather than idea generation, idea selection, or idea championing:  $\alpha = .88$ . The supervisors assessed idea implementation for each employee. A sample item includes: “How often does this employee systematically introduce innovative ideas into work practices?”

**Perceived supervisor support.** We used four items from Eisenberger et al. (1986):  $\alpha = .88$ . The shortened scale we used was previously validated in studies by Pazy and Ganzach (2009), and Kuvaas and Dysvik (2010). A sample item includes: “My supervisor strongly considers my goal and values.” The four items that we used focus more toward personal relationships than specific resources. Nevertheless, the Job Demands-Resources model (Demerouti et al., 2001) regards PSS as a resource at the interpersonal level. Assistance and resource allocation frequently stem from the embeddedness of employees with their colleagues and their supervisors (Ng, Lam, & Feldman, in press), which is why such a relationship-based view may be appropriate.

**Control variables.** We controlled for age (studies have indicated age affects creativity, but does so differently across various domains, cf. Jones & Weinberg, 2011) and gender (studies have pointed toward large differences in the creative achievement of men and women in many fields, cf. Baer & Kaufman, 2008), as well as for employee education (cf. Fasko, 2001) and work experience. Work experience in particular is a valuable control, because employees who have performed a particular task for a longer period of time may perceive its difficulty or creativeness differently (Amabile, 1998), and direct task experience leads to higher levels of creativity (Gino, Argote, Miron-Spektor, & Todorova, 2010). Whether or not employees had any managerial duties, another variable we controlled for, might also influence perceptions of creativity. We also controlled for dyad tenure (how long an employee had been working under the supervision of a particular direct supervisor), as the length of the supervisor–subordinate relationship can impact on the relational commitment with the supervisor and employee performance (Landry & Vandenberghe, 2012). These control variables were self-reported.

Not all jobs require the same amount of creative behavior and output. Numerous studies have argued in favor of the situational component of creativity (e.g. Amabile, 1988; Woodman, Sawyer, & Griffin, 1993; Amabile et al., 1996) and saw the creative requirement as a neglected predictor of employee creativity (Unsworth, Wall, & Carter, 2005). Some people are creative at work because they are expected to be (it is part of their job description, for instance). Thus, we controlled for objective-creative requirement, a variable that was evaluated by an HRM expert who was not told of the purpose of the study. She assessed the creativity required at different jobs the respondents had held, based on the job title, job description, and placement within the organizational structure (on a scale from one = “no creativity required at all,” to seven = “a lot of creativity required”). We also controlled for task interdependence, as measured by a five-item scale by Van Der Vegt, Emans, and De

Vliert (2000):  $\alpha = .72$ . The extent to which tasks are interdependent plays a role in the social-political processes of innovation (Van der Vegt & Janssen, 2003). The reason is that employees who are formally more intertwined with other coworkers have better access to resources for implementation and more opportunities to convince others to support their ideas.

To reduce the potential influence of common-method bias (CMB), we collected the data using two separate online questionnaires: one for employees and the other for supervisors, who evaluated employees' idea implementation. Such an approach is also beneficial in terms of content: employees have better insight into their creative thoughts and behavior —i.e. idea generation (Amabile & Mueller, 2008; Shalley, Gilson, & Blum, 2009)— whereas supervisors are more suited to recognizing and assessing idea implementation. As the data on predictor and moderation variables (idea generation and PSS) were both employee based, we used additional approaches in line with expert advice on how to reduce the potential influence of CMB (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We collected data in two waves, the second about three weeks after the first one. The items we used in our study were part of a large-scale questionnaire; therefore, it is unlikely that respondents were able to guess the purpose of the study and force their answers to be consistent. Some items in the questionnaire were also reverse-coded (see Appendix I).

### **Study 1: Results**

Table 1 provides the descriptive statistics for all variables analyzed in Study 1. We first observed the factor structure of the focal variables. The expected three-factor solution (idea generation, idea implementation, and PSS) displayed adequate fit with the data (Chi-square [74] = 162.8, CFI = .929, SRMR = .059, RMSEA = .086). The factor loadings ranged from .64 to .79 for idea-generation items, .78 to .94 for idea-implementation items, and .67 to .91 for PSS items.

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Insert Table 1 about here

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The employees in our sample were nested within supervisor-led groups. As each supervisor provided ratings of idea implementation for multiple employees, this violated the independence assumption. Therefore, we applied random coefficient modeling using HLM (hierarchical linear modeling) software package version 7.0 (Raudenbush & Bryk, 2002) with a maximum likelihood estimation to test our hypotheses. This approach allowed us to model the nonindependence in our dependent variable by partitioning its variance into a within-supervisor and between-supervisor component. We present these results in Table 2. We grand-mean centered the quadratic variables to reduce unnecessary multicollinearity between the linear terms and their quadratic counterparts (Aiken & West, 1991).

In the first step (Model 1), we examined the intercept-only model. In Step 2 (Model 2), we entered idea generation ( $\gamma = .11, ns$ ) and PSS ( $\gamma = .25, p < .01$ ), in addition to other control variables. Of the control variables, age and work experience were significantly negatively related to idea implementation, which indicates that on average, more experienced employees in our sample exhibited fewer ideas implemented. On the other hand, gender and creativity required by position were significantly related to idea implementation. On average, males exhibited more ideas implemented.

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Insert Table 2 about here

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In Step 3 (Model 3), we added the quadratic term of idea generation (i.e. idea generation squared) to the equation, which we found to be significant ( $\gamma = -.23, p < .01$ ). The negative quadratic term, in conjunction with a positive linear term, suggests a predominantly positive, concave downward curve (Aiken & West, 1991). In Figure 1, we present a plot of the linear and quadratic regression models that demonstrate the relationship between

employee idea generation and implementation. The plot shows that as idea generation increases, implementation also increases. However, once idea generation reaches an inflection point, innovation implementation peaks and then declines as idea generation increases further. The inverted U-shape of this curve is consistent with Hypothesis 1 and provides support for the diminishing-idea implementation of highly creative ideas.

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Insert Figure 1 about here

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To test Hypothesis 2, which predicted that the curvilinear relationship between idea generation and implementation is positive and linear when employees perceive high levels of supervisor support, we followed an approach used in previous studies (e.g. Tangirala & Ramanujam, 2008; Farh, Lee, & Farh, 2010). These pursued the graphing method outlined by Aiken and West (1991) for interpreting interactions in the presence of curvilinear relationships. We created an interaction term ( $\text{idea generation}^2 \times \text{PSS}$ ) and entered it into the regression equation in Step 4 (Model 4). The results showed that the interaction term was significant ( $\gamma = .11, p < .05$ ). The quadratic fit of employee-idea generation in predicting implementation (Figure 2) shows that for employees with low levels of PSS, the curve portraying the examined relationship was even more curvilinear, meaning they implemented their highly creative ideas with less success. By contrast, when employees had high levels of PSS, idea generation was positively related to idea implementation in an almost linear fashion, with a steeper slope and only slightly U-shaped curvilinearity.

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Insert Figure 2 about here

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To analyze this quadratic-by-linear interaction effect further, we tested simple slopes of the regression curves corresponding to all possible combinations of low (one standard deviation below the mean), medium (mean), and high (one standard deviation over the mean)

levels of creative idea generation with low and high levels of PSS (cf. Aiken & West, 1991).

In the case of high levels of PSS, the simple slope of the regression curve was positive, but did not significantly differ from zero at low, medium, and high levels of creative-idea generation. This supports the linear shape of the curve with a gentle positive slope. In the case of low PSS, the simple slope had a significantly positive value at low levels of creative-idea generation ( $\omega = 1.02$ ,  $t = 3.27$ ,  $p < .01$ ). On the other hand, the slope of the curve was positive, but did not significantly differ from zero at medium levels of creative-idea generation, and was negative but did not significantly differ from zero at high levels of creative-idea generation. This shows that high creative-idea generation still has diminishing returns for idea implementation at low levels of PSS. In contrast, when PSS is high, frequently generating creative ideas also gets implemented to the greatest possible extent.

## **Study 2: Methods**

To strengthen causal claims and rule out alternative explanations (such as that high levels of idea implementation would stimulate more frequent or more creative idea generation), we conducted an additional laboratory experiment. This time, we focused on the level of creativity (instead of quantity-frequency of creative-idea generation, as we did in our field Study 1) of creative ideas (i.e. their novelty and usefulness) and directly manipulated creative-idea generation. This allowed us to rule out the possibility that omitted knowledge, skill, motivation, and ability variables could influence idea implementation. By randomly assigning participants to experience three different levels of creative-idea generation, we could constructively replicate our tests of the curvilinear relationship between individual creative-idea generation and implementation (Hypothesis 1), and the moderation of PSS (Hypothesis 2) that affects this relationship. We also accounted for the call of Montag et al. (2012) and focused on creative ideas (in addition to employee creative behaviors examined via personal self-reports in the field Study 1), thereby contributing to further generalizations

of findings regarding the idea generation-implementation relationship. We thus concentrated both on creative behavior and ideas, providing a more holistic treatment of idea generation aimed at more accurate micro research on creativity and innovation.

## **Sample, Design, and Procedures**

We conducted an experiment with 123 second-year undergraduates in an HRM course at a Slovenian university. The age of the participants ranged from 19 to 27 years, and the mean age was 21.25 years ( $SD = 1.45$ ). The experiment used a three-by-two (low/moderate/high creativity by low/high PSS), between-subjects factorial design. It started by presenting an HRM scenario to the participants. The participants were assigned the role company HR managers for a large car retailer. In the scenario, one of the company's branch managers has just resigned and the company's HR department must come up with a printed newspaper job advertisement to find his or her replacement. The participants received a case in which the previous manager's tasks were written in detail. Prior to the course, they received instructions as to what they needed to focus on when designing a job ad (e.g., that it should not discriminate, should provide all the necessary information, should be appealing, and so on).

**Creativity manipulation.** We randomly assigned the participants to three classrooms prior to the course. The participants received and read the case materials and the instructions to first generate and write down (describe) ideas for a job advertisement (20 minutes) and then design it (e.g., write and draw it on a sheet of paper as it would appear in the newspaper: 30 minutes). Before the beginning of the first stage, we introduced our manipulations of low, moderate, and high creativity, each in one classroom. The manipulation consisted of the instructor asking participants to generate uncreative ideas in the first classroom, moderately

creative ideas in the second, and very creative ideas in the third classroom. We also provided the participants with written instructions coherent with a particular creativity inducement:

[Low creativity:] Your job is to generate ideas about how this particular job advertisement should look and what it should contain. Please do not exaggerate with creativity; it is important that the ideas you put down are based directly on the case description.

[Moderate creativity:] Your job is to generate moderately creative ideas about how this particular job advertisement should look like and what it should contain. Turn on your creative behavior, but don't go overboard.

[High creativity:] Your job is to generate highly creative ideas about how this particular job advertisement should look like and what it should contain. Your ideas should be as novel and out-of-the-box as possible.

**Perceived supervisor support manipulation.** In the second stage of the experimental task, the instructors directed the participants to carry out the ideas they put down in the first stage, and write and draw the actual job advertisements. During this second stage, the instructors told the participants to form teams of four or five. The participants were told to advise other group members on how to carry out implementation of the ideas “they felt were good enough to be implemented.” To manipulate PSS, we gave special instructions similar to the approach used by Smith-Jentsch, Salas, and Brannick (2001):

During this task, we want you to draw the job advertisement as you imagined it.

Write in your own style, how you want it, to produce a comprehensive and appealing job ad. We want you to play around with the ad, learning to do it your own way. Whenever you feel like you are not sure how to do the task or you need

any help, you can turn to your supervisor and ask him. He will be happy to provide assistance and guidelines for you to complete the task as good as possible.

Thus, the PSS manipulations emphasized constructive feedback, relationship quality, supervisor openness, clarifying objectives, actively providing instrumental help and socio-emotional support, positive reinforcement, and encouragement (James & James, 1989; Ashford, Rothbard, Piderit, & Dutton, 1998; Smith-Jentsch et al., 2001; Amabile et al., 2004).

The other half received instructions that induced low PSS:

In this experiment, we want you to draw the job advertisement as you imagined it.

The job ad must contain every other idea you wrote down during the first stage. If you have any problems, the supervisor may or may not help you; it depends on his time and effort. In any case, the supervisor knows what he is doing, so follow his/her instructions exactly, please.

This emphasized providing limited feedback, displaying lack of interest in participants' work and ideas, and not providing help or advice (Amabile et al., 2004; Shanock & Eisenberger, 2006). In addition to written instructions, the instructor acted as a supervisor according to the manipulation. For example, in conditions with low support, the supervisor failed to provide any constructive feedback and was largely ignorant of the participants' inquiries. In conditions with high support, the supervisor provided encouraging responses and positive reinforcements even when the participants were incorrect (e.g., "even if this time you didn't get it completely on target, don't let this stop you from trying again," or "Don't be afraid to speak up and ask for my help"), and the supervisor constantly exhibited positive feedback and help.

## Measures

All items used the same scale anchors as in the previous study (a seven-point Likert-type scale).

**Idea implementation.** We had two independent raters assess successful innovation implementation in terms of each participant's product (the job advertisement) on a scale anchored at one ("not at all innovative") and seven ("highly innovative"). One rater was a PhD student with more than 10 years of professional work experience in HRM and creativity, while the other was a scholar with experience in scientific publishing in fields of creativity and cross-cultural sociology. We defined idea implementation for the raters as "successful and innovative implementation of creative ideas." The two raters achieved good reliability ( $ICC = .96$ ) and agreement (average deviation = .22) well within conventional guidelines (LeBreton & Senter, 2008). For each participant's second stage of the task outcome, we averaged the two raters' ratings into a measure of the overall innovative idea implementation.

**Manipulation checks and control variables.** We had two other independent raters assess generation of creative ideas proposed by participants in the first stage of the task. One of the raters is a post-doc scholar with experience in knowledge management, creativity and innovation, while the other conducts research in the fields of creativity and innovation, and has about five years of work experience in innovation management. They also used a seven-point Likert-type scale to assess both novelty and usefulness of ideas. As the two raters achieved good reliability ( $ICC2 = .89$ ) and agreement (average deviation = .24), again within conventional guidelines (LeBreton & Senter, 2008), we averaged their ratings into a measure of the overall creative-idea generation in each individual's first stage of the task outcome.

## Study 2: Results

Means and standard deviations for each condition are shown in Table 3. A multivariate analysis of variance (MANOVA) showed the expected main effects of the

creative-idea generation manipulation on creative-idea generation ratings ( $F [2,122] = 73.382, p < .01$ ), as well as the expected main effects of the PSS manipulation on PSS ( $F [1,122] = 7.062, p < .01$ ). Turning to idea implementation as the dependent variable, Figure 3 portrays idea implementation means in various creativity conditions. In support of Hypothesis 1, contrast analyses showed that idea implementation means were significantly different ( $p < .01$ ) in all three creative-idea generation conditions. In support of Hypothesis 2, the MANOVA also revealed a significant interaction effect of the creative-idea generation and PSS manipulations on idea implementation ( $F [2,122] = 3.17, p < .05$ ; Figure 4).

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Insert Figure 3 about here

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Insert Table 5 about here

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Insert Figure 4 about here

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## **Discussion**

Creative-idea generation as a stand-alone concept, without implementation, has limited business value. It is a necessary, but far from sufficient, precondition for innovation, which requires implementing creative ideas. However, the link between creative-idea generation and implementation at the individual level, and the conditions affecting it, has received scant research attention (with the notable exception of Baer, 2012). In the present study we set out to extend this line of research and examined the creative-idea generation and implementation relationship in more detail. In addition, we intended to contribute to extending our knowledge into influencing conditions under which ideas get implemented, in the form of supervisor support.

Our results show that the innovation pattern seems to be more complex than previously assumed. In line with Dionne's (2008) speculation, it seems that an individual innovation pattern may be nonlinear and nonmonotonic, as portrayed by an inverse U-shaped curve, pointing toward the diminishing returns that very high levels of creative-idea generation have for idea implementation. We explained the shape of this relationship by applying a resource-allocation perspective (Becker, 1965; Hockey, 1997): employees face trade-offs between creativity and innovation, such that time, energy, and attention devoted to generating highly novel ideas prevent employees from implementing them.

Furthermore, drawing on the resource allocation framework and the Job Demands-Resources model, we found support for the moderating role in Study 1 and an effect in Study 2 of perceived supervisor support (PSS). In specific, we found that PSS buffers the curvilinear relationship between creative-idea generation and innovation implementation, making it positive and linear. Accordingly, high levels of PSS seem to function as a managerial remedy to influence resource allocation and unlock the potential of highly creative individuals with "excessively" novel ideas.

## Theoretical Contributions

Our paper first contributes both to creativity and innovation literatures. In the creativity literature, it underpins the notion that highly creative ideas do not always necessarily result in a tangible value. It also directs attention toward further micro research on the foundations of the innovation process at the individual and interpersonal levels. This endeavor can reveal many otherwise neglected-yet-important idea-implementation factors. Furthermore, we make an even more important contribution by bringing the previously separated fields of creativity and innovation (cf., Dionne, 2008) closer together.

Our research complements previous studies (e.g. Baer, 2012, who assumed a linear relationship between creative-idea generation within the contingency of individual boundary conditions) by examining the possibility that highly creative ideas (as well as frequently generating creative ideas – Study 1) can lead to lower innovative performance than moderately creative ideas. Hence, our first key contribution to the creativity and innovation literatures is in providing a novel conceptualization, accompanied by empirical evidence showing the curvilinear shape of the relationship between idea generation and implementation. By assuming a quadratic relationship, our research represents an important departure from traditional approaches that followed the “more is better” assumption and neglected the need to discuss balance between deficiency and excess (Pierce & Aguinis, 2013). Our two studies show that highly creative ideas (or frequently generating creative ideas) per se can result in fewer of them being implemented (worse innovative performance in terms of both the creative behavior – Study 1 and creative output – Study 2) than moderately creative ideas. There is an important and fascinating trade-off in which too much creative-idea generation can actually detract from implementation.

Our second contribution acknowledges the need for a leadership remedy to the non-utilization of highly creative ideas. We show that a high level of PSS has the potential to apply such highly (or even excessively) creative ideas to the benefit of organizations. Theory and research on organizational creativity has emphasized the importance of creating favorable work environments to stimulate individual creativity (e.g. Amabile, 1983; Woodman et al., 1993). Our two studies, using both field and experimental data, extend current understanding on the most effective ways to construct a work environment in terms of the leadership that stimulates innovation implementation from creative-idea generation at the individual level. Doing so, we introduced the logic of the resource allocation framework (Becker, 1965; Hockey, 1997) as a novel contingency for the relationship between individual creative-idea

generation and implementation. It allows us to use the same theoretical perspective to motivate the proposed curvilinear effects, as well as the moderating effect of PSS that overrides the potentially detrimental tradeoff between idea generation and implementation. We identified access to resources and the trade-off between idea generation and implementation as key theoretical mechanisms that explain the transformation of creative ideas into implemented innovations. We also accounted for the person-context interaction (Woodman et al., 1993) consistent with the resource allocation framework by examining individual behavior (creativity as a predictor) and contextual factors (PSS) simultaneously. We indicated how these factors affect both the slope and the shape of the curve of the relationship between individual creative-idea generation and innovation implementation.

### **Practical Implications**

Our paper shows that even though it is a common belief that organizations need creative employees to produce innovative output, very high levels of creativity (or frequently generating creative ideas) lead to diminishing returns in terms of innovation implementation. Employees perceive too novel ideas as risky and demanding of resources. This, in turn, leads to a lack of support and (cognitive and practical) resources that are prerequisites for implementing highly creative ideas. However, these seemingly over-optimistic ideas have high potential gains inherently attached. They can be high-risk, high-gain cases. Therefore, organizations must be cautious when dealing with highly creative individuals so as not to underutilize their business case. Employees with highly creative ideas need a suitable environment that enables their implementation. Supportive supervisors, i.e. leaders that are perceived to provide general support to the employees are a vital part of such an environment.

In fact, this is where the most unlocked potential is hidden. We show that to improve the implementation of highly novel and potentially useful ideas, team leaders/immediate supervisors should exhibit high levels of both instrumental and socio-emotional support. In

practice, supervisors should care about opinions and the well-being of their employees, and consider their goals and values when engaged in the individual-innovation process.

Organizations should thus strive to recruit or develop supportive supervisors, but be aware of the boundary conditions that could influence how effective this intervention might be. This way, supportive supervisors can help to provide both the intangible (psychological support) and tangible resources (e.g. training, idea championing, and access to resources) needed for effective idea implementation.

### **Limitations and Directions for Future Research**

Despite the aforementioned contributions, this paper is not without limitations. As mentioned in the introduction, idea generation and implementation can take place interchangeably (Anderson et al., 2004). In reality, there is a need to generate and implement ideas throughout the innovation process in a constantly changing manner (Rosing et al., 2011). Splitting them into two strictly separated phases or stages, therefore, might seem somewhat problematic, although creative-idea generation is widely accepted as the necessary antecedent of innovation implementation at the individual level (Amabile, 1988; Baer, 2012). In practice, it is also possible that the one who implements creative ideas is not the same person who suggests them (Ohly, Kaše, & Škerlavaj, 2010). Therefore, future research should adopt a qualitative or a longitudinal orientation and focus on treating innovation as a complex phenomenon by accounting for possible loop swings regarding creativity and implementation (Van de Ven & Sun, 2011). Nevertheless, by conducting an experimental study, we were able to strengthen our causal claims and avoid alternative explanations connected with reciprocal relationships.

There is a need for more work to integrate macro-level innovation research with micro-level creativity work (Agars et al., 2008). Even though we drew from both bodies of

literature, a further multilevel approach (cf. Mathieu & Chen, 2011) and more complex research designs would be useful. For now, this type of empirical research is somewhat limited, particularly in assessing bottom-up processes. Nevertheless, any type of cross-level assessments that would account for factors at different levels would help in investigating the isomorphism (cf. Kozlowski & Klein, 2000) and the interdependence between creativity and innovation at different levels of research and analysis.

Future research should also explore the differential effects of various personal or contextual variables on individual idea generation and implementation. Drawing on a resource allocation framework and focusing on perceived supervisor support, we only included a limited amount of factors influencing the idea generation-idea implementation relationship. Other factors, such as the type of leader-member exchange (cf. Kuvaas, Buch, Dysvik, & Haerem, 2012), task and team characteristics and processes (cf. Drach-Zahavy & Somech, 2001), as well as individual traits such as disposition toward risk or idea-championing behaviors (Howell & Boies, 2004), may play equally important roles, either as boundary conditions or intervening mechanisms. Even if supervisors sometimes act as triggers in creative-idea implementation, their behavior is shaped by the social context, and coworkers' support might be a particularly salient factor. Such support may be relevant for fostering a climate of support for innovation that is crucial for idea implementation (cf. Somech & Drach-Zahavy, 2013), which is why future research that includes both supervisory and colleague support is warranted. In particular, we see a strong potential in the vivid research area of prosocial motivation and other-oriented behavior (e.g., Grant, 2007; Gerbasi & Prentice, 2013) that could have a strong explanatory or moderating power related to the process of implementing creative ideas.

## Conclusions

Numerous authors have implied or stated that creativity and innovation are positively related (e.g., Amabile, 1988). However, the research streams investigating the respective phenomena have been too divided and, at times, even ignorant to the findings of other parties. The investigation of the relationship between creative-idea generation and implementation at the individual level, particularly by not presuming monotonic relations, has remained unresolved in previous research, and the role of leaders has predominantly not been considered.

Our findings, which are based upon the resource-allocation framework, still show a positive relationship, yet shift the view from linear approximations to more insightful curvilinear assessments of the idea generation-idea implementation link. Although more creative-idea generation leads to increased idea implementation, after a certain inflection point, too much creativity (in terms of both the frequency and creativity of ideas) results in diminishing innovation implementation outcomes. In addition, still drawing on resource allocation as our overarching theoretical framework, we showed how organizations can intervene contextually and make this relationship positive and linear (i.e. capitalizing on the most creative ideas) through the leadership remedy of perceived supervisor support.

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**TABLES AND FIGURES**

**Table 1**  
**Study 1: Means, Standard Deviations, and Correlations <sup>a, b</sup>**

|    | Variable                     | Mean | SD   | 1      | 2      | 3      | 4      | 5     | 6     | 7    | 8     | 9     | 10    | 11 |
|----|------------------------------|------|------|--------|--------|--------|--------|-------|-------|------|-------|-------|-------|----|
| 1  | Age                          | 2.19 | 1.15 | -      |        |        |        |       |       |      |       |       |       |    |
| 2  | Gender <sup>c</sup>          | 1.66 | .47  | -.04   | -      |        |        |       |       |      |       |       |       |    |
| 3  | Education                    | 3.61 | .88  | -.38** | .01    | -      |        |       |       |      |       |       |       |    |
| 4  | Work experience              | 6.49 | 5.90 | .42**  | -.19*  | -.31** | -      |       |       |      |       |       |       |    |
| 5  | Dyad tenure                  | 3.72 | 3.69 | .27**  | -.32** | -.14   | .61**  | -     |       |      |       |       |       |    |
| 6  | Task interdependence         | 5.59 | 1.35 | .03    | .08    | .04    | -.08   | -.10  | (.72) |      |       |       |       |    |
| 7  | Managerial duties            | 1.38 | .79  | -.00   | .02    | .21**  | .02    | -.03  | -.09  | -    |       |       |       |    |
| 8  | Idea generation              | 5.77 | .81  | -.11   | .12    | -.05   | -.08   | -.09  | .03   | -.00 | (.90) |       |       |    |
| 9  | Perceived supervisor support | 5.35 | 1.26 | .05    | .09    | .06    | -.01   | -.03  | .18*  | -.04 | .26** | (.88) |       |    |
| 10 | Idea implementation          | 4.49 | 1.27 | -.18   | .27**  | .01    | -.20** | -.17* | -.17* | -.02 | .34** | .35** | (.88) |    |
| 11 | Creative requirement         | 5.66 | 1.16 | -.22** | .01    | -.04   | -.03   | -.08  | -.08  | -.05 | .77** | .27** | .36** | -  |

<sup>a</sup> n = 165.

<sup>b</sup> Coefficient alphas are on the diagonal in parentheses.

<sup>c</sup> 1 = "female," 2 = "male."

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

**Table 2**  
**Study 1: HLM results for idea implementation as the dependent variable <sup>a, b</sup>**

|   | Model 1     | Model 2                 | Model 3                 | Model 4                 |
|---|-------------|-------------------------|-------------------------|-------------------------|
| Intercept   | 4.50**(.10) | 3.87** (.67)            | 5.86** (.87)            | 5.97** (1.29)           |
| Age   |             | -.13 <sup>†</sup> (.07) | -.14 <sup>†</sup> (.07) | -.16 <sup>†</sup> (.09) |
| Gender  |             | .56** (.18)             | .54 ** (.17)            | .55** (.19)             |
| Education   |             | -.13 (.11)              | -.15 (.10)              | -.14 (.11)              |
| Work experience   |             | -.03* (.01)             | -.03* (.01)             | -.02 (.02)              |
| Dyad tenure   |             | .01 (.03)               | .02 (.02)               | .03 (.03)               |
| Task interdependence  |             | .09 (.08)               | .12 (.08)               | .13* (.06)              |
| Creative requirement  |             | .22* (.09)              | .19* (.09)              | .08 (.12)               |
| Managerial duties   |             | .05 (.11)               | .08 (.10)               | .08 (.11)               |
| Perceived supervisor support                                |             | .25** (.08)             | .28** (.07)             | .30* (.12)              |
| Idea generation   |             | .11 (.11)               | .20 (.15)               | .21 (.20)               |
| Idea generation <sup>2</sup>                                |             |                         | <b>-.23**(.06)</b>      | <b>-.32**(.09)</b>      |
| <i>Interaction effects</i>                                  |             |                         |                         |                         |
| Idea generation × Perceived supervisor support              |             |                         |                         | .-03 (.02)              |
| Idea generation <sup>2</sup> × Perceived supervisor support |             |                         |                         | <b>.11* (.05)</b>       |
| Pseudo R <sup>2 d</sup>                                     |             | .25                     | .27                     | .33                     |
| Deviance  | 550.07      | 526.78                  | 520.71                  | 518.34                  |

<sup>a</sup> n = 165.

<sup>b</sup> Robust standard errors are presented next to fixed effects in parentheses.

<sup>c</sup> Values in bold are relevant to the tests of the hypotheses.

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<sup>d</sup> We report Snijders and Bosker's (1999) overall pseudo R<sup>2</sup> for each model. These estimates are based on proportional reduction of Level 1 and Level 2 errors owed to predictions in the model.

\*\* $p < .01$ , \* $p < .05$ , † $p < .10$

**Table 3**  
**Study 2: Means and Standard Deviations by Condition<sup>a, b</sup>**

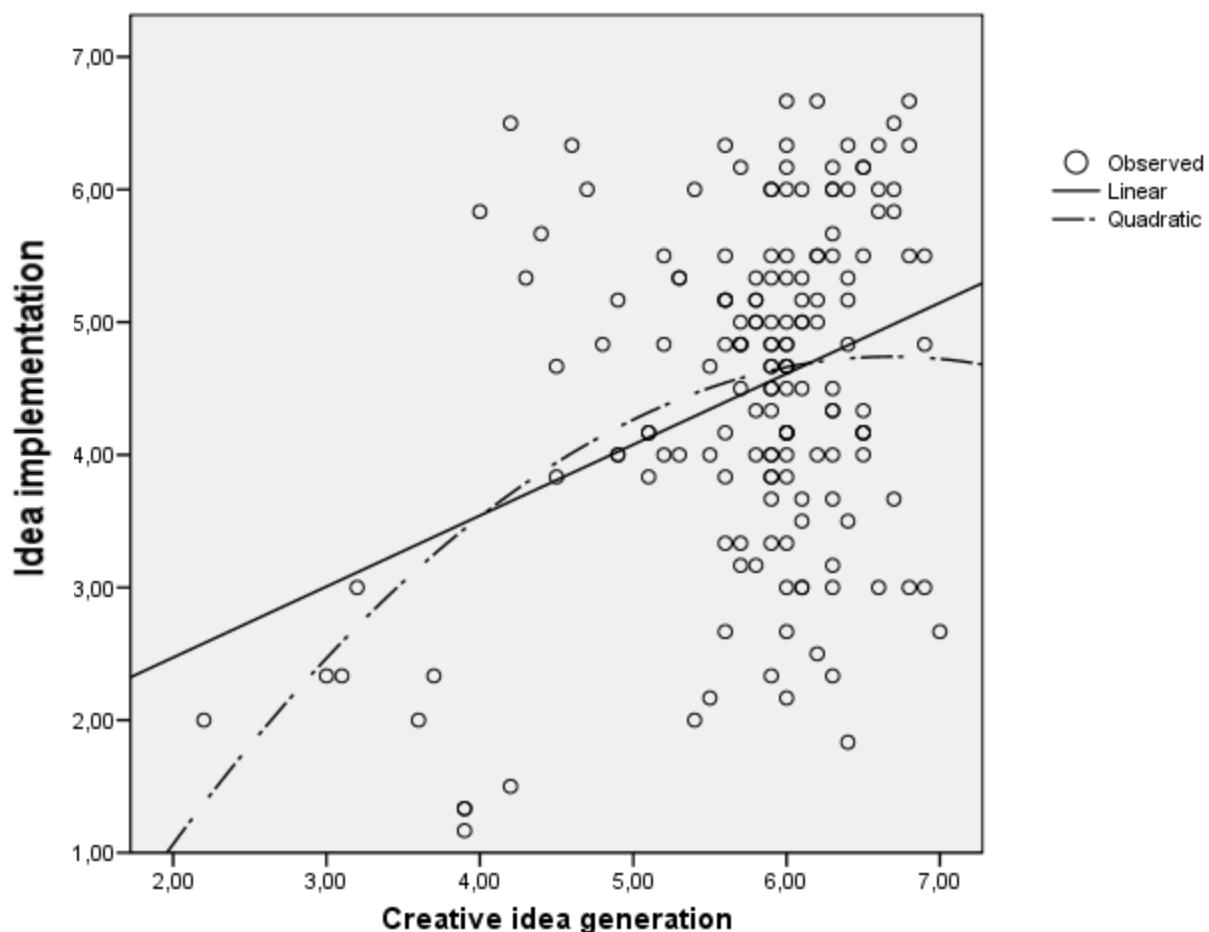
| Condition   | Idea implementation | Perceived supervisor support | Idea generation |
|---|---------------------|------------------------------|-----------------|
| Low idea generation,<br>low PSS ( <i>n</i> = 19)          | 1.70 (.98)          | 3.64 (2.16)                  | 2.33 (.78)      |
| Low idea generation,<br>high PSS ( <i>n</i> = 20)         | 3.05 (1.63)         | 5.66 (.87)                   | 3.14 (1.70)     |
| Moderate idea<br>generation, low PSS<br>( <i>n</i> = 19)  | 4.63 (1.47)         | 5.93 (.68)                   | 5.00 (1.31)     |
| Moderate idea<br>generation, high PSS<br>( <i>n</i> = 20) | 5.88 (1.04)         | 5.82 (.95)                   | 4.62 (.80)      |
| High idea generation,<br>low PSS ( <i>n</i> = 19)         | 3.31 (1.28)         | 5.81 (1.20)                  | 5.76 (.96)      |
| High idea generation,<br>high PSS ( <i>n</i> = 20)        | 5.83 (1.00)         | 5.99 (.99)                   | 5.78 (.99)      |

<sup>a</sup> Standard deviations are in parentheses.

<sup>b</sup> We manipulated PSS after the first stage of generating creative ideas.

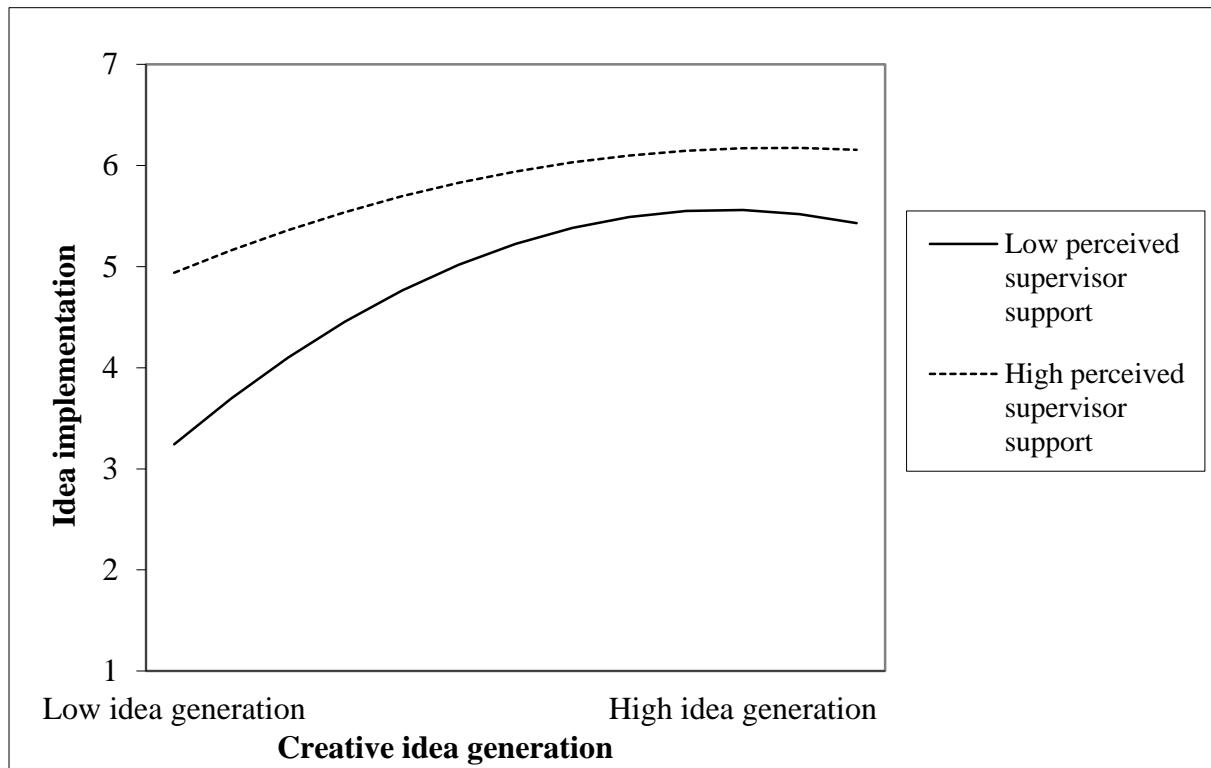
**Figure 1**

**Study 1: Curvilinear relationship between idea generation (frequency of generating creative ideas) and implementation**

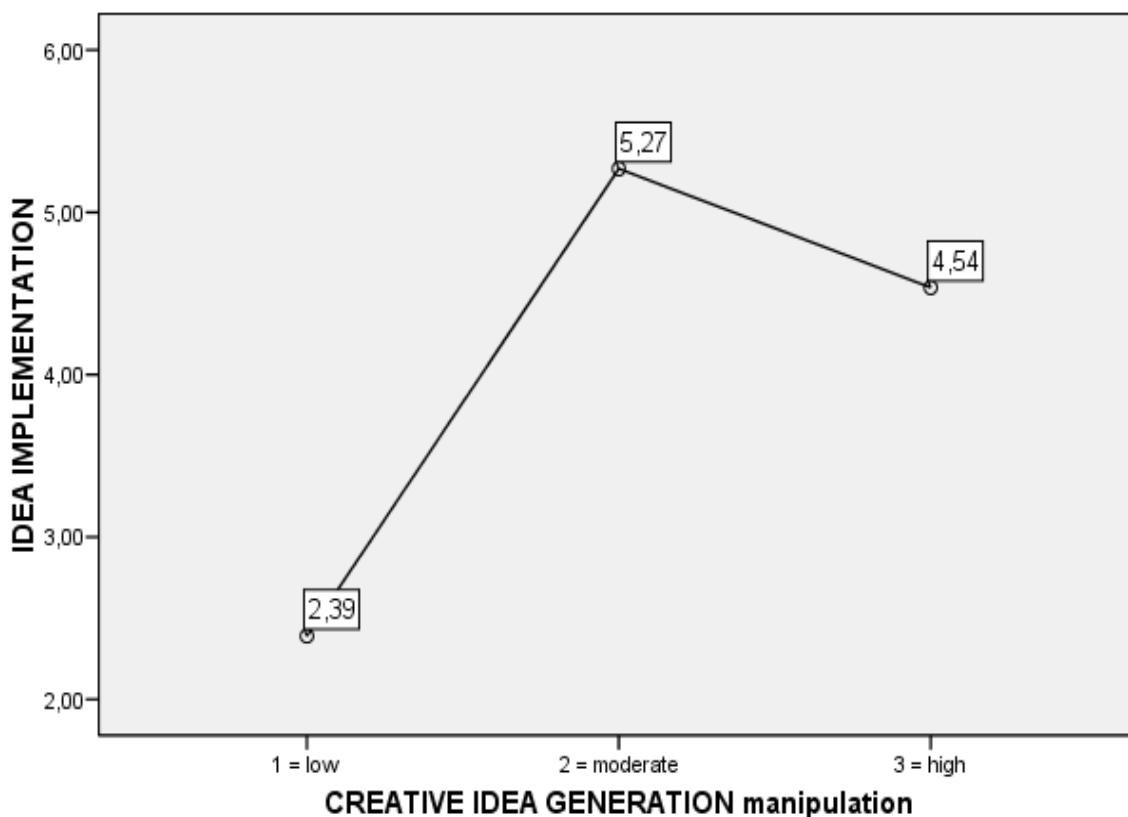


**Figure 2**

**Study 1: Relationship between creative-idea generation and implementation by level of perceived supervisor support**



**Figure 3**  
**Study 2: Idea implementation scores in differential idea generation (level of creativity of ideas) conditions**



**Figure 4**  
**Study 2: Relationship between idea generation and implementation by level of perceived supervisor support**

