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Facilitating Creative Idea Selection: The Combined Effects of Self-Affirmation, Promotion Focus and Positive Affect

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Generating creative ideas in a brainstorm session `is a crucial part of innovation. However, for actual implementation, the most creative ideas must be selected from a pool of ideas. To date, idea selection has remained relatively unexplored and validated instruments to measure idea selection performance are not systematically employed. This study aimed to improve creative idea selection performance in a field study. In this study, an idea pool of 18 ideas was used, and participants had to select the 5 most creative ideas from the idea pool. Right before participants performed the idea selection task, in the experimental condition, a promotion focus and positive affect was induced in combination with a self-affirmation task. Participants in the control condition performed corresponding filler tasks. The selection of the 5 most creative ideas from the idea pool of 18 ideas was performed individually. Participants in the experimental condition selected ideas that were more creative than did participants in the control condition. These findings provide first evidence that the selection of creative ideas can be enhanced through a combined induction of promotion-focus, positive mood and self-affirmation.

Creativity is the driving force behind technological, scientific, and cultural innovation. Given the importance of creativity and innovation at both the individual and societal levels, it is not surprising that researchers and practitioners alike invest considerable effort in understanding and enhancing creativity. Over the past decades, various techniques have been designed to maximize the generation of creative ideas, and organizations have spent large amounts of money on enhancing creative thinking. However, for actual implementation of creative ideas, the most creative ideas must be recognized and selected from a pool of ideas. The idea that the creative process entails both idea-generation (divergent) and idea-selection (convergent) processes has been recognized decades ago (Basadur, 1995; Guilford, 1967; Maier, 1967; Newell, Shaw, & Simon, 1962; Runco & Basadur, 1993; Runco & Vega, 1990; Simonton, 2003). Guilford (1967) was one of the first to include this idea in an overarching model called the structure-of-intellect model. Similarly, Basadur's ideation-evaluation model proposes ideation and evaluation as distinct phases of the same iterative creative process that progresses through stages of problem finding, problem solving, and solution implementation. The creative process can thus be divided into two distinct phases, a divergent and a convergent phase. In the divergent phase, ideas are generated, distal associations are formed and different solutions to a problem are listed (Ritter, van Baaren, & Dijksterhuis, 2012). In contrast,

This study was carried out as a Master's student project in collaboration with the Dutch Tax Ministry. The field experiment took place at the Future Center of the Dutch Tax Ministry, "De Werf". Future Center 'De Werf' belongs to the Dutch Tax and Customs Administration, which is part of the Ministry of Finance, and is located at Breda, The Netherlands. The idea of a Future Center, which had one of its first practical realizations at Skandia, originated in Sweden in the 1990s, and has since spread to many countries around the world. Future Centers can be found in both the public and private sector, and they operate under a variety of names and in a diversity of forms. The general aim of Future Centers is to actively stimulate innovation, creative problem solving, organizational learning, knowledge creation, and organizational change and renewal.

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the convergent phase of the creative process entails analyzing, recognizing and selecting the most creative ideas (Rietzschel, Nijstad, & Stroebe, 2010). Although this distinction has been recognized for decades, the majority of researchers and practitioners have focused on maximizing the generation of creative ideas (i.e., the divergent phase of the creative process) (Sutton & Hargadon, 1996). Less research has been directed at creative idea selection (i.e., the convergent phase) (Basadur, 1995; Herman & Reiter-Palmon, 2011; Hunter, Friedrich, Bedell, & Mumford, 2006; Runco & Basadur, 1993; Runco & Smith, 1992). Although it was believed for a long time that people are able to identify creative ideas, the available evidence consistently demonstrates that people perform at a suboptimal level (i.e., not better than chance) when selecting creative ideas (Rietzschel, Nijstad, & Stroebe, 2006, 2010).

What causes the ineffective selection of ideas? Although difficult to define, it has become widely accepted that creative ideas have to be (a) original (i.e., novel) and (b) useful (i.e., feasible; Mumford, 2003). Rietzschel and colleagues (2010) have shown that the primary cause of ineffective idea selection is the natural tendency to select the most useful ideas at the expense of original ideas. This tendency is at conflict with the goal of most creative brainstorming sessions, which are usually employed when there is no straightforward solution and original input is highly valued. Amabile (1996) gives a possible explanation for the tendency to neglect one of the core features of a creative idea, that is originality, to focus on the safest option. She posits that the more original an idea is, the higher the uncertainty, as it is unclear whether the idea can be implemented, will have negative consequences or has been reliably produced. In addition, other authors suggest that original ideas can lead to a risk of failure (Simonton, 1984), a perception of risk (Rubenson & Runco, 1995), social rejection (Nemeth, 1986) and doubts about whether the idea can be realized (Metcalfe, 1986). To summarize, original ideas are associated with risk, which leads people to prefer mainstream ideas at the cost of creative ones.

The body of research that focuses on improving the selection of creative ideas is limited; however, some studies have been conducted on the evaluation of creative ideas. Basadur (1995) defined evaluation as being the converging step where people judge the options that were generated during the diverging step of the creative process. Mumford, Lonergan, and Scott (2002) stated that during this process, the available options are evaluated for implementation, rejection, or revision. In a later article, they proposed that the ideas are "forecasted" into possible future situations (Lonergan, Scott, & Mumford, 2004). Hunter and colleagues (2006) concluded that in this process, ideas are evaluated against standards such as popularity, potential, impact, workability, risk, and cost. People seem to be able able to accurately evaluate the originality (novelty) of creative ideas (Basadur, Runco, & Vega, 2000; Runco & Basadur, 1993; Runco & Vega, 1990) and several experimental studies have been able to manipulate these evaluations. Herman and Reiter-Palmon (2011) found that inducing a promotion focus, in contrast to a prevention focus, led participants to give more accurate assessments of the originality of the creative ideas they had generated. Mueller, Wakslak, and Krishnan (2014) focused on improving the evaluation of creative ideas by manipulating participants' construal level mindset. Construal level theory posits that the extent to which people think concretely or abstractly varies between low-level and high-level construal mindsets, respectively (Trope & Liberman, 2010). In a series of experiments, Mueller and colleagues (2014) showed that participants with a high-level construal (i.e., abstract) mindset rate a creative idea higher on creativity than participants with a low-level construal (i.e., concrete) mindset.

In a real-world setting, however, merely evaluating creative ideas is not enough. Creative ideas have to be selected and implemented, a process that might evoke an increased perception of the aforementioned risks associated with original ideas (cf. the relatively inconsequential act of only evaluating ideas). In support of this notion, Blair and Mumford (2007) found that although people preferred ideas that were easy to understand, provided short-term benefits, and were consistent with prevailing social norms, original ideas were more likely to be preferred when the evaluation criteria were not especially stringent. Participants were instructed to choose from a list of 72 ideas, either all the ideas they found deserved funding, or to choose five ideas that deserved funding (e.g., to make a selection). Participants who had to make a selection chose fewer original ideas than participants who received less stringent instructions (Blair & Mumford, 2007). Rietzschel, Nijstad, and Stroebe (2014), who focused on both the generation and the selection of creative ideas, showed that a broad problem scope, in contrast to a narrow problem scope, led to the generation of ideas that were more creative. This manipulation, however, did not affect the creativity of the selected ideas. Furthermore, giving participants the explicit instruction to take originality into account led to the generation of more creative ideas and, importantly, to the selection of ideas that were more creative. Rietzschel and colleagues (2014) concluded that explicitly instructing participants to select original ideas reduced the initial reluctance of participants to choose original ideas due to the perceived risks associated with them. It is important to note that participants selected these ideas individually from those they generated themselves. In real-world situations, however, it is often the case that one has to select from ideas that have been generated by other people or generated in cooperation with others.

Throughout the body of literature on creative idea selection and evaluation, there are some inconsistencies in the methods applied to measure the selection and evaluation of creative ideas. Being called "the gold standard" of creativity

assessment (Carson, 2006), the Consensual Assessment Technique (Amabile, 1982) uses the combined assessments of experts in a specific field to arrive at accurate evaluations of creative products. In another study, however, Amabile (1983) used nonexperts to judge creative products and found that they achieved considerable consensus (high inter-rater reliability) on ratings of creativity. She, however, did not compare these ratings to that of experts in the field. In the study by Herman and Reiter-Palmon (2011), ideas were evaluated by three expert judges; ideas have been selected by two or fewer experts in other studies (e.g., Rietzschel et al., 2014; Perry, Smith, & Coff, 2011). In other studies, the creativity of the ideas is evaluated by untrained student populations (e.g., Mueller et al., 2014). Kaufman, Baer, Cole, and Sexton (2008) directly explored how experts in a field compared to novices on rating creative products, and they conclude that the use of nonexpert raters in creativity judgments should be considered an inaccurate method (Kaufman et al., 2008).

To summarize, the majority of studies on creativity focuses on the divergent phase of the creative process (i.e., idea generation). There are a number of studies that have focused on the convergent phase of the creative process, but most of them have studied the evaluation rather than the actual selection of creative ideas. Moreover, validated instruments and consistent methodologies and standards regarding how to measure idea evaluation and idea selection performance are not systematically applied. The aim of this study was to improve creative idea selection performance in a field study. To improve creative idea selection performance, three different but related psychological concepts were applied during a training session: *self-affirmation*, induction of a *promotion focus*, and induction of *positive mood*. The following section describes how these concepts are hypothesized to facilitate idea selection performance.

First, self-affirmation theory is based on the assumption that people have a fundamental need to maintain their self-integrity, which can be threatened by perceived failures to meet cultural or social norms (Steele, 1988). In a sense, original ideas and their associated risk for the individual and social group could be perceived as threatening an individual's self-integrity through the uncertainty they evoke. When self-integrity is threatened, people are inclined to devaluate or reject the threatening information or the source of this information (Steele, 1988). A self-affirmation consists of bolstering self-integrity through reminding people of their social and cultural adequacy (Steele, 1988). Importantly, self-affirmation is most effective when applied in a domain that is unrelated to the perceived threat (Legault, Al-Khindi, & Inzlicht, 2012). After being self-affirmed, people are more inclined to approach, rather than avoid, threats (Cohen et al., 2007). For example, previous research by Creswell, Dutcher, Klein, Harris, and Levine (2013) has shown that after being self-affirmed, chronically stressed individuals perform better on a Remote Association Task (Mednick, 1962), a frequently used creativity measure (Ansburg, 2000; Creswell et al., 2013; Mednick, 1962; Schooler & Melcher, 1995). It was hypothesized that self-affirmation increases the likelihood that participants approach, and, therefore, select (rather than avoid) the most creative ideas during idea selection.

Second, regulatory focus theory posits two separate and independent self-regulatory orientations: prevention and promotion focus. A promotion focus triggers a risky bias, by which attention to positive aspects of the situation is increased and attention to negative aspects is decreased (Crowe & Higgins, 1997). In addition, Herman and Reiter-Palmon (2011) have shown that a promotion focus leads to more accurate evaluations of original ideas and increases participants' ability to generate creative uses for common objects, such as a brick (Friedman & Förster, 2001). It was hypothesized that a promotion focus leads to increased attention to the positive aspects of creative ideas and to decreased attention to the negative aspects of creative ideas, and therefore to an increased selection of creative ideas.

Third, the effect of positive mood on creative performance has been studied extensively over the past decades (e.g., Baas, De Dreu, & Nijstad, 2008; Isen & Baron, 1991; Mumford, 2003). It has been shown that positive mood often leads to greater cognitive flexibility (Vosburg, 1998) and enhances creative problem solving (Ashby, Isen, & Turken, 1999). Moreover, positive mood leads to a less critical evaluation of the situation, as it implies that the situation is safe and secure (Schwarz, Bless, & Bohner, 1991). For our purposes, positive mood has been induced specifically to reduce critical evaluation of creative ideas. It was hypothesized that inducing a positive mood leads to greater acceptance of creative ideas through a less critical mindset, and, therefore, to a selection of more creative ideas. The combination of these effects—that is increased self-affirmation, promotion focus and positive mood—was hypothesized to facilitate the selection of creative ideas.

METHOD

Participants and Design

Eighty-seven employees of the Dutch Tax Ministry (72 men, 15 women; M = 49.8, SD = 9.4, ranging from 26 to 63) participated in this experiment. Participation was voluntary and without financial compensation, and occurred as part of a creative session at Future Centre De Werf. Participants were randomly assigned to one of two conditions: an experimental condition, which consisted of a self-affirmation task, induction of a promotion focus and the induction of positive mood (n = 44); or a control condition (n = 43). Whereas most psychological research has been conducted among students

in laboratory settings, this study used participants of varying ages and educational levels in a natural setting, hereby enhancing the generalizability of the findings.

Procedure

For the field-experiment, Future Centre De Werf provided two rooms of similar sizes. The experimental condition took place in Room 1. This room was used for the manipulation of positive mood by exposing participants to a 160 by 160 centimetre image of a smiling baby and by exposure to positive music (Coppelia from Leo Delibes; see Kenealy, 1988). Furthermore, Room 1 was used to induce a promotion focus. The promotion focus can be induced by priming participants with promotion-oriented words (Faddegon, Scheepers, & Ellemers, 2008; Liberman & Förster, 2009; Liberman, Trope, & Stephan, 2007) and sayings (Pennington & Roese, 2003; Stekelenburg, 2006). In this study, the words *active* and *growth* were presented on the walls (Faddegon et al., 2008; Liberman & Förster, 2009; Liberman et al., 2007). In addition, the following promotion-oriented sentences were used: "What do you want to achieve in the future?" and "Where there's a will, there's a way" (Pennington & Roese, 2003). Additionally, the room was painted blue, which has been shown to induce a promotion focus (Förster, 2012). In Room 2, which was used for the control condition, no music was played. In addition, the prevention-oriented words *safe* and *certainty* (Faddegon et al., 2008; Liberman & Förster, 2009; Liberman et al., 2007) were presented on the walls along with the sentences "What do you want to achieve today?" and "Prevention is better than cure" (Pennington & Roese, 2003) to induce a prevention focus.

Moreover, in the experimental condition participants performed a self-affirmation task to reaffirm participants' selves (Cohen et al., 2007). Self-affirmation can be accomplished by instructing participants to write about their personal core-values (see McQueen & Klein, 2006), a manipulation that has proven to be effective in creating openness to threat (Sherman & Cohen, 2002) and in reducing biased evaluations (Stone, Whitehead, Schmader, & Focella, 2011). Participants were given 5 min to rank 12 personal values hierarchically. Following this ranking, they were asked to describe why their most highly ranked personal value was important to them. Participants in the control condition performed the personal recall exercise (Cohen et al., 2007), a task that has been used previously as a control task in self-affirmation research (Cohen et al., 2007). Participants were given 5 min to list everything they had eaten or drank during the past 48 hr.

Thereafter, participants in both conditions received a printed list of a well-validated idea pool consisting of 18 ideas on how to improve the use of public trains (for more information concerning the development of the idea pool, see the section *Measurement tool*). Participants were instructed to carefully read the 18 ideas and to individually select the five most creative ideas. In addition, participants were instructed to hierarchically order the five selected ideas. This allowed the researchers to identify which idea participants selected as being the most creative. Participants were given 5 min to make a selection and to rank order the selected ideas. Participants' selection performance was measured by investigating the creativity ratings (as well as the reported originality and usefulness) of the five ideas selected as being the most creative in addition to that for the single idea selected as being the most creative.

Measurement Tool

A measurement tool was developed to objectively measure participants' ability to select creative ideas. Prior to the current experiment, 40 people (26 students, 3 teachers and 11 artists) were asked to individually generate and list ideas to *improve the use of public trains*. This resulted in 106 unique ideas. These ideas were further reduced to a list of 72 ideas by excluding ideas that were similar (i.e., the ideas 'enhancing comfort by upgrading chair quality' and 'enhancing comfort by increasing leg room' were collapsed into one idea, 'enhancing comfort'). These 72 unique ideas were rated by 10 creativity experts (e.g., a creativity professor, art-academy teachers, the founder of a future center), because the use of expert raters has been proven to be an effective method in determining creativity (Hennessey, Amabile, & Mueller, 2011; Runco & Smith, 1992). The experts were instructed to rate each idea on creativity using a Likert scale ranging from 1 (*not at all creative*) to 5 (*very much creative*). By averaging the scores of the 10 experts, each single idea received a *creativity score*. To explore participants' use of the criteria originality and usefulness in selecting creative ideas, the experts additionally rated each idea on originality and usefulness.

The interrater reliability was high: The overall intraclass correlation coefficient (ICC, two-way random, consistency analysis) was .88, and also the single interrater reliabilities were excellent (creativity ICC = .82; usefulness ICC = .91; originality ICC = .88). To reduce the list of 72 ideas to a balanced list of 18 ideas that varied in creativity, a 3 (originality: low, medium, high) by 3 (usefulness: low, medium, high) matrix was used, as a creative idea has to be (a) original and (b) useful (Mumford, 2003). The balanced list of 18 ideas (see appendix) retained a similar range of creativity (M = 2.72, SD = 0.84) compared to the list of 72 (M = 2.71, SD = 0.63).

RESULTS

Selection Performance—Average Creativity Score of the Top Five

An ANOVA was conducted to investigate whether there was an effect of condition on creative idea selection. Condition was used as a between-subjects factor and the average creativity score of the top five ideas selected was used as

the dependent variable. A main effect of condition was revealed. Participants in the experimental condition selected ideas that were more creative than those selected by participants in the control condition, $F(1,85) = 4.45$, $p = .038$, partial $\eta^2 = .050$.

To investigate whether there was an effect of condition on the originality and usefulness scores of the selected top five ideas, two ANOVAs were conducted. The first ANOVA on the originality ratings of the selected ideas approached significance. Participants in the experimental condition tended to select ideas that were more original than the ideas selected by participants in the control condition, $F(1,85) = 3.08$, $p = .083$, partial $\eta^2 = .035$. For the usefulness ratings of the selected ideas, no significant difference was found between the two conditions, $F(1,85) = .201$, $p = n.s.$

Selection Performance—Most Creative Idea

To investigate whether the experimental condition and the control condition differed on the creativity, originality and usefulness scores of the single most creative idea selected, three ANOVAs were conducted. No significant differences were found between the experimental condition and the control condition, *p's = n.s.*

DISCUSSION

Recognizing and selecting the most creative ideas from a pool of available options is crucial for successful innovation. So far, most research on creativity has primarily focused on increasing the number of available ideas by facilitating the generation of creative ideas. The focus of this study was to make better use of the available ideas by enhancing people's creative idea selection performance. Results indicated that participants in the experimental condition selected ideas that were more creative than those selected by participants in the control condition. Furthermore, participants in the experimental condition selected ideas that were marginally more original, but equally useful. However, these effects did not transfer to the selection of the single most creative idea. These findings provide the first evidence that the selection of creative ideas can be enhanced through a combined induction of promotion focus, positive mood and self-affirmation. It is proposed that this effect was realized by the induction of a less critical (Schwarz et al., 1991), more secure (Briñol, Petty, & Barden, 2007; Heine, 2005), and less biased mindset (Stone et al., 2011), which resulted in a greater approach toward creative ideas. However, because of the applied nature of this research, no firm conclusions can be drawn about the underlying mechanism.

Interestingly, these findings show an effect for the selection of the five most creative ideas, but not for the single most creative idea. That is, the creativity rating of the most creative idea did not differ between the experimental and the control condition. A possible explanation is that the analysis of five ideas has more statistical power than the analysis of one idea. Five measures compared to one may have a greater probability of observing an induced effect. Alternatively, in line with Amabile's (1996) suggestion that the most creative ideas are associated with uncertainty because they pose a risk of failure, another explanation could be that participants experienced heightened uncertainty when selecting the single most creative idea than when selecting the five most creative ideas. This may be related to a phenomenon observed by Mueller, Melwani, and Goncalo (2012), named the *tolerance for alternatives*. In the study by Mueller and colleagues (2012) when participants were instructed to write an essay promoting the position that every problem has only one correct solution (i.e., low tolerance for alternatives), they experienced more uncertainty than participants writing an essay to promote the position that every problem has multiple, equally correct solutions (i.e., high tolerance for alternatives). In the same regard, participants in this study might have experienced heightened uncertainty when selecting the most creative idea compared with selecting the five most creative ideas. A related explanation might be that the current manipulation did not reduce all feelings of uncertainty, which primarily expressed itself during selection of the single most creative idea (i.e., where the pressure to select is the highest). Future research may examine how selection performance can be enhanced in situations where a single creative idea has to be selected. A final alternative explanation might be that participants used a different amount of information during the two processes. That is, when selecting the top five, they used the entire list of 18 ideas for comparison, but when they were rank ordering the ideas hierarchically, they only used the five ideas they had already selected for comparison. The rational from psychometric theory that more information is better could explain why an effect was found for the selection of the five most creative ideas, but not for the single most creative idea. This would support earlier findings from Runco and Mraz (1992), which demonstrate that judgments benefit from larger idea pools.

Previous research has shown that originality and usefulness are inversely correlated (Diedrich, Benedek, Jauk, & Neubauer, 2015; Rietzschel, Nijstad, & Stroebe, 2007; Runco & Charles, 1993) and participants might perceive them to be incompatible (Rietzschel et al., 2010). Participants in the experimental condition appeared to select ideas that were slightly more original, but no differences were found between conditions regarding the usefulness of the selected ideas. In this study, creative idea selection seems to have been facilitated through enhanced use of originality as a criterion, while having no detrimental effect on participants' use of the criterion of usefulness. Overall, they selected more creative ideas. Future studies could

further explore the enhancement of creative idea selection through increasing the focus on the originality of the ideas.

Follow-up research could also seek to replicate and build on our outcomes using a different methodological approach. As this study was conducted in the field and the experimental manipulation consisted of three related but different concepts, the relationships between the three concepts and their individual influence on creative idea selection performance remains unclear. Future researchers may investigate the effectiveness of these three individual concepts on idea selection performance.

The second aim of the study was to employ a measurement tool for idea selection performance that is more objective in nature. Where previous research has used either untrained raters (Amabile, 1983; Mueller et al., 2014) or expert raters (Amabile, 1982; Herman & Reiter-Palmon, 2011; Kaufman et al., 2008), and differed in the number of raters (Rietzschel et al., 2014; Perry et al., 2011), our study used a predefined list of ideas that was evaluated by 10 expert raters on creativity, originality and usefulness. Based on the expert ratings and by using an *originality* × *usefulness* matrix, a balanced list of 18 highly creative, medium-creative, and low-creative ideas was developed. The measurement tool employed during this study could be used by other creativity researchers, or it may inspire them when developing their own idea selection measurement tool.

Whereas previous research on creativity has primarily focused on maximizing the generation of creative ideas, for actual implementation the most creative ideas must be selected from a pool of ideas. Through recent developments in the word-wide-web, crowd-sourcing and open innovation, it has become increasingly important to recognize and select the most creative ideas in the abundance of available ideas. These findings provide first evidence that the combined stimulation of positive mood, promotion focus and self-affirmation is a successful means to improve the selection of creative ideas, and thereby may open interesting avenues for future research and practical applications.

REFERENCES

Amabile, T. M. (1982). Social psychology of creativity: A consensual assessment technique. *Journal of Personality and Social Psychology*, *43*, 997–1013. doi:10.1037/0022-3514.43.5.997

Amabile, T. M. (1983). *The social psychology of creativity*. New York: Springer-Verlag.

Amabile, T. M. (1996). *Creativity in context: Update to the social psychology of creativity*. Boulder, CO: Westview Press.

Ansburg, P. I. (2000). Individual differences in problem solving via insight. *Current Psychology*, *19*, 143–146. doi:10.1007/s12144-000-1011-y

Ashby, F. G., Isen, A. M., & Turken, A. U. (1999). A neuropsychological theory of positive affect and it's influence on cognition. *Psychological Review*, *106*, 529–550. doi:10.1037/0033-295X.106.3.529

Baas, M., De Dreu, C. K., & Nijstad, B. A. (2008). A meta-analysis of 25 years of mood- creativity research: Hedonic tone, activation, or regulatory focus? *Psychological Bulletin*, *134*, 779–806. doi:10.1037/a0012815

Basadur, M. (1995). Optimal ideation-evaluation ratios. *Creativity Research Journal*, *8*, 63–75. doi:10.1207/s15326934crj0801_5

Basadur, M., Runco, M. A., & Vega, L. A. (2000). Understanding how creative thinking skills, attitudes and behaviors work together: A causal process model. *Journal of Creative Behavior*, *34*, 77–100. doi:10.1002/j.2162-6057.2000.tb01203.x

Blair, C. S., & Mumford, M. D. (2007). Errors in idea evaluation: Preference for the unoriginal? *Journal of Creative Behavior*, *41*, 197–222. doi:10.1002/jocb.2007.41.issue-3

Briñol, P., Petty, R. E., & Barden, J. (2007). Happiness versus sadness as a determinant of thought confidence in persuasion: A self-validation analysis. *Journal of Personality and Social Psychology*, *93*, 711–727. doi:10.1037/0022-3514.93.5.711

Carson, S. (2006, April 19). *Creativity and mental illness*. New Haven, CT: Invitational Panel Discussion Hosted by Yale's Mind Matters Consortium.

Cohen, G. L., Sherman, D. K., Bastardi, A., Hsu, L., McGoey, M., & Ross, L. (2007). Bridging the partisan divide: Self-affirmation reduces ideological closed mindedness and inflexibility in negotiation. *Journal of Personality and Social Psychology*, *93*, 415–430. doi:10.1037/0022-3514.93.3.415

Creswell, J. D., Dutcher, J. M., Klein, W. M., Harris, P. R., & Levine, J. M. (2013). Self-affirmation improves problem-solving under stress. *Plos One*, *8*, e62593. doi:10.1371/journal.pone.0062593

Crowe, E., & Higgins, E. T. (1997). Regulatory focus and strategic inclinations: Promotion and prevention in decision-making. *Organizational Behavior and Human Decision Processes*, *69*, 117–132. doi:10.1006/obhd.1996.2675

Diedrich, J., Benedek, M., Jauk, E., & Neubauer, A. C. (2015). Are creative ideas novel and useful? *Psychology of Aesthetics, Creativity, and the Arts*, *9*, 35. doi:10.1037/a0038688

Faddegon, K., Scheepers, D., & Ellemers, N. (2008). If we have the will, there will be a way: Regulatory focus as a group identity. *European Journal of Social Psychology*, *38*, 880–895. doi:10.1002/ejsp.v38:5

Förster, J. (2012). GLOMOsys: The how and why of global and local processing. *Current Directions in Psychological Science*, *21*, 15–19. doi:10.1177/0963721411429454

Friedman, R. S., & Förster, J. (2001). The effects of promotion and prevention cues on creativity. *Journal of Personality and Social Psychology*, *81*, 1001. doi:10.1037/0022-3514.81.6.1001

Guilford, J. P. (1967). *The nature of human intelligence*. New York: McGraw-Hill.

Heine, S. J. (2005). Constructing good selves in Japan and North America. In *Culture and social behavior: The tenth Ontario symposium* (pp. 115–143). Hillsdale, NJ: Erlbaum.

Hennessey, B. A., Amabile, T. M., & Mueller, J. S. (2011). Consensual assessment. In M. A. Runco, & S. R. Pritzker (Eds.), *Encyclopedia of Creativity* (Vol. 1, 2nd ed., pp. 253–260). San Diego: Academic Press.

Herman, A., & Reiter-Palmon, R. (2011). The effect of regulatory focus on idea generation and idea evaluation. *Psychology of Aesthetics, Creativity, and the Arts*, *5*, 13. doi:10.1037/a0018587

Hunter, S., Friedrich, T., Bedell, K., & Mumford, M. (2006). Creative thought in real-world innovation. *Serbian Journal of Management*, *1*, 29–39.

Isen, A. M., & Baron, R. A. (1991). Positive affect in organizations. In L. Cummings, & B. Staw (Eds.), *Research in Organizational Behavior* (pp. 1–52). Greenwich, CT: JAI.

Kaufman, J. C., Baer, J., Cole, J. C., & Sexton, J. D. (2008). A comparison of expert and nonexpert raters using the consensual assessment technique. *Creativity Research Journal*, *20*, 171–178. doi:10.1080/10400410802059929

Kenealy, P. M. (1988). Validation of a music mood induction procedure: Some preliminary findings. *Cognition and Emotion*, *2*, 41–48. doi:10.1080/02699938808415228

Legault, L., Al-Khindi, T., & Inzlicht, M. (2012). Preserving integrity in the face of performance threat: Selfaffirmation enhances neurophysiological responsiveness to errors. *Psychological Science*, *23*, 1455–1460. doi:10.1177/0956797612448483

Liberman, N., & Förster, J. (2009). Distancing from experienced self: How global versus-local perception affects estimation of psychological distance. *Journal of Personality and Social Psychology*, *97*, 203–216. doi:10.1037/a0015671

Liberman, N., Trope, Y., & Stephan, E. (2007). Psychological distance. *Social Psychology: Handbook of Basic Principles*, *2*, 353–383.

Lonergan, D. C., Scott, G. M., & Mumford, M. D. (2004). Evaluative aspects of creative thought: Effects of appraisal and revision standards. *Creativity Research Journal*, *16*, 231–246. doi:10.1080/10400419.2004.9651455

Maier, N. R. F. (1967). Assets and liabilities in group problem solving: The need for an integrative function. *Psychological Review*, *74*, 239–249. doi:10.1037/h0024737

McQueen, M., & Klein, W. M. P. (2006). Experimental manipulations of self-affirmation: A systematic review. *Self and Identity*, *5*, 289–354. doi:10.1080/15298860600805325

Mednick, S. (1962). The associative basis of the creative process. *Psychological Review*, *69*, 220. doi:10.1037/h0048850

Metcalfe, J. (1986). Premonitions of insight predict impending error. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *12*, 623–634.

Mueller, J. S., Melwani, S., & Goncalo, J. A. (2012). The bias against creativity: Why people desire but reject creative ideas. *Psychological Science*, *23*, 13–17. doi:10.1177/0956797611421018

Mueller, J. S., Wakslak, C. J., & Krishnan, V. (2014). Construing creativity: The how and why of recognizing creative ideas. *Journal of Experimental Social Psychology*, *51*, 81–87. doi:10.1016/j.jesp.2013.11.007

Mumford, M. D. (2003). Where have we been, where are we going? Taking stock in creativity research. *Creativity Research Journal*, *15*, 107–120. doi:10.1080/10400419.2003.9651403

Mumford, M. D., Lonergan, D. C., & Scott, G. M. (2002). Evaluating creative ideas: Processes, standards, and context. *Critical Inquiry*, *22*, 21–30.

Nemeth, C. (1986). Differential contributions of majority and minority influence. *Psychological Review*, *93*, 23–32. doi:10.1037/0033-295X.93.1.23

Newell, A., Shaw, J. C., & Simon, H. A. (1962). The process of creative thinking. In H. E. Gruber, G. Terrell, & M. Wertheimer (Eds.), *Contemporary approaches to creative thinking* (pp. 63–119). New York: Atherton Press.

Pennington, G. L., & Roese, N. J. (2003). Regulatory focus and temporal distance. *Journal of Experimental Social Psychology*, *39*, 563–576. doi:10.1016/S0022-1031(03)00058-1

Perry-Smith, J., & Coff, R. W. (2011). Navigating a darwinian process of entrepreneurial creativity: How optimal group mood differs for generating and selecting creative business ideas. *Strategic Entrepreneurship Journal*, *5*, 247–268. doi:10.1002/sej.116

Rietzschel, E. F., Nijstad, B. A., & Stroebe, W. (2006). Productivity is not enough: A comparison of interactive and nominal brainstorming groups on idea generation and selection. *Journal of Experimental Social Psychology*, *42*, 244–251. doi:10.1016/j.jesp.2005.04.005

Rietzschel, E. F., Nijstad, B. A., & Stroebe, W. (2007). Relative accessibility of domain knowledge and creativity: The effects of knowledge activation on the quantity and originality of generated ideas. *Journal of Experimental Social Psychology*, *43*, 933–946. doi:10.1016/j.jesp.2006.10.014

Rietzschel, E. F., Nijstad, B. A., & Stroebe, W. (2010). The selection of creative ideas after individual idea generation: Choosing between creativity and impact. *British Journal of Psychology*, *101*, 47–68. doi:10.1348/000712609X414204

Rietzschel, E. F., Nijstad, B. A., & Stroebe, W. (2014). Effects of problem scope and creativity instructions on idea generation and selection. *Creativity Research Journal*, *26*, 185–191. doi:10.1080/10400419.2014.901084

Ritter, S. M., van Baaren, R. B., & Dijksterhuis, A. (2012). Creativity: The role of unconscious processes in idea generation and idea selection. *Thinking Skills and Creativity*, *7*, 21–27. doi:10.1016/j.tsc.2011.12.002

Rubenson, D. L., & Runco, M. A. (1995). The psycho-economic view of creative work in groups and organizations. *Creativity and Innovation Management*, *4*, 232–241. doi:10.1111/caim.1995.4.issue-4

Runco, M. A., & Basadur, M. S. (1993). Assessing ideational and evaluative skills and creative styles and attitudes. *Creativity and Innovation Management*, *2*, 166–173. doi:10.1111/caim.1993.2.issue-3

Runco, M. A., & Charles, R. E. (1993). Judgments of originality and appropriateness as predictors of creativity. *Personality and Individual Differences*, *15*, 537–546. doi:10.1016/0191-8869(93)90337-3

Runco, M. A., & Mraz, W. (1992). Scoring divergent thinking tests using total ideational output and a creativity index. *Educational and Psychological Measurement*, *52*, 213–221. doi:10.1177/001316449205200126

Runco, M. A., & Smith, W. R. (1992). Interpersonal and intrapersonal evaluations of creative ideas. *Personality and Individual Differences*, *13*, 295–302. doi:10.1016/0191-8869(92)90105-X

Runco, M. A., & Vega, L. (1990). Evaluating the creativity of children's ideas. *Journal of Social Behavior and Personality*, *5*, 439–452.

Schooler, W., & Melcher, J. (1995). The ineffability of insight. In S. M. Smith, B. T. Ward, & R. A. Finke (Eds.), *The creative cognition approach* (pp. 249–268). Cambridge, MA: MIT Press.

Schwarz, N., Bless, H., & Bohner, G. (1991). Mood and persuasion: Affective states influence the processing of persuasive communications. *Advances in Experimental Social Psychology*, *24*, 161–197.

Sherman, D. K., & Cohen, G. (2002). Accepting threatening information: Self-affirmation and the reduction of defensive biases. *Current Directions in Psychological Science*, *11*, 119–123. doi:10.1111/1467-8721.00182

Simonton, D. K. (1984). *Genius, creativity, and leadership: Histriometric inquiries*. Boston, MA: Harvard University Press.

Simonton, D. K. (2003). Creativity as variation and selection: Some critical constraints. In M. A. Runco (Ed.), *Critical creative processes* (pp. 3–18). Cresskill, NJ: Hampton Press.

Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. *Advances in Experimental Social Psychology*, *21*, 261–302.

Stekelenburg, J. (2006). *Promoting or preventing social change. Instrumentality, identity, ideology and group-based anger as motives of protest participation* (Doctoral dissertation). Retrieved from Vrije Universiteit Amsterdam.

Stone, J., Whitehead, J., Schmader, T., & Focella, E. (2011). Thanks for asking: Self-affirming questions reduce backlash when stigmatized targets confront prejudice. *Journal of Experimental Social Psychology*, *47*, 589–598. doi:10.1016/j.jesp.2010.12.016

Sutton, R. I., & Hargadon, A. (1996). Brainstorming groups in context: Effectiveness in a product design firm. *Administrative Science Quarterly*, *41*, 643–650. doi:10.2307/2393872

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*, 440. doi:10.1037/a0018963

Vosburg, S. K. (1998). The effects of positive and negative mood on divergent-thinking performance. *Creativity Research Journal*, *11*, 165–172. doi:10.1207/s15326934crj1102_6

APPENDIX

List of 18 ideas

1. Making train travel cheaper or for free.
2. Increasing the number of trains and train stations.
3. Free food and drinks in the train.
4. Having trains drive until peoples' front doors.
5. Increasing legroom and number of seats.
6. Improving transfer time and decreasing delay.
7. Free travelling when all seats are taken.
8. Addition of train compartments for bike storage.
9. Changing the train tracks into a rollercoaster.
10. A domestic cat in every train.
11. Deploying extra night trains.
12. Free WIFI in the train.
13. A bookshelf in every train.
14. Speed-dating sessions in the train.
15. 'I-train app' to buy tickets, check in and receive personal travel info.
16. Adding a points saving system to the public transport card.
17. Audio-guide, which explains things about the surroundings.
18. Breakfast service in the train.

Idea (originality low/average/high) × 3 (usefulness low/average/high) Matrix

	Low Usefulness	*Average Usefulness*	*High Usefulness*
High originality	*Changing the train tracks into a rollercoaster.* *A domestic cat in every train.*	*A bookshelf in every train.* *Speed-dating sessions in the train.*	*Audio-guide, which explains things about the surroundings.* *Breakfast service in the train.*
Average originality	*Free food and drinks in the train.* *Having trains drive until peoples' front doors.*	*Free travelling when all seats are taken.* *Addition of train compartments for bike storage.*	*'I-train app' to buy tickets, check in and receive personal travel info.* *Adding a points saving system to the public transport card.*
Low orginality	*Making train travel cheaper or for free.* *Increasing the number of trains and train stations.*	*Increasing legroom and number of seats.* *Improving transfer time and decreasing delay.*	*Deploying extra night trains.* *Free WIFI in the train.*