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# Creativity: Intrapersonal and Interpersonal Selection of Creative Ideas

## ABSTRACT

Creative idea selection—the selection of the most creative idea(s) from available ideas—is an important yet understudied topic. Creative idea selection can be performed by the idea generator (i.e., *intrapersonal* selection) or by another person (i.e., *interpersonal* selection). In the current research, we examined whether these two types of selection lead to different levels of performance. Participants generated six creative ideas to solve a societal problem. Thereafter, two selection tasks—intrapersonal selection and interpersonal selection—were performed. During intrapersonal selection, the idea generator selected the most creative idea from his/her own ideas; during interpersonal selection, another person made the selection from the same ideas. We found no effect of intrapersonal and interpersonal selection on creative idea selection performance: People selected ideas of identical creativity, irrespective of whether that idea was from themselves or from others. Moreover, we replicated the earlier finding that people perform suboptimally at creative idea selection, failing to select ideas that were more creative than an average idea, for both intrapersonal and interpersonal selection.

*Keywords:* creativity, idea selection, intrapersonal selection, interpersonal selection, selection performance.

## INTRODUCTION

As the world becomes increasingly competitive, creative ideas have become more highly sought after. Individuals, companies, and organizations often find themselves in serious need of creative ideas—ideas that are both original and useful (e.g., Runco & Jaeger, 2012)—to succeed. As such, they encourage prolific idea generation in hopes of selecting the most creative ones to be implemented. Until now, practitioners have developed various techniques (e.g., brainstorming; Osborn, 1953) to facilitate the generation of creative ideas and researchers have extensively studied creative idea generation and its enhancement (for reviews, see e.g., Baas, De Dreu, & Nijstad, 2008; Shalley & Gilson, 2004; Shalley, Zhou, & Oldham, 2004). However, before implementing creative ideas into practice, these ideas must first be recognized and selected from all the ideas produced. Although creative idea selection has been recognized as essential in the creative process (e.g., Basadur, Runco, & Vega, 2000; Finke, Ward, & Smith, 1992; Lubart, 2001; Runco & Vega, 1990; Simonton, 2003), it has received much less attention as compared to idea generation in the literature and in practice (for exceptions, see e.g., De Buisonjé, Ritter, de Bruin, ter Horst, & Meeldijk, 2017; Faure, 2004; Putman & Paulus, 2009; Rietzschel, Nijstad, & Stroebe, 2006, 2010, 2014; Ritter, van Baaren, & Dijksterhuis, 2012; Zhu, Ritter, Müller, & Dijksterhuis, 2017). In this paper, we aim to expand this research field by investigating how two ways of selection—intrapersonal and interpersonal selection—may influence creative idea selection performance.

The idea selection process can either be performed by the individual(s) or group(s) who generated the ideas, or by individual(s) or group(s) not involved in the generation process. In the existing literature, idea selection by the person or the group who has generated the ideas is called *intrapersonal* idea selection, whereas the selection from ideas generated by someone else is called *interpersonal* idea selection (e.g., Runco & Smith, 1992; Runco & Vega, 1990). Intrapersonal idea selection often happens in situations where one is the sole decision-maker. For example, a head chef could generate ideas on how to plan a new menu for a VIP, and then select the best idea from the available ideas. In contrast, interpersonal selection usually happens in group-work settings—specific individuals are responsible for generating ideas, and others select ideas

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that have the potential to be pursued further. For example, a marketing executive generates potential marketing strategies, and the marketing manager selects which ideas to be developed further. Do intrapersonal and interpersonal selections of the most creative ideas lead to different levels of performance? This is an important question to address: Suppose, if intrapersonal selection outperforms interpersonal selection, then intrapersonal selection should be the preferred strategy for creative idea selection, or vice versa. Thus far, only a few studies have investigated interpersonal and intrapersonal idea selection. However, in most of these studies, the two ways of selection were not compared with each other but studied separately (for exceptions, see Berg, 2016; Faure, 2004; Watts, Steele, Medeiros, & Mumford, 2017). As such, researchers and practitioners still do not know whether intra- or interpersonal selection is better.

Research on *interpersonal* idea selection has consistently observed that people perform suboptimally at selecting from other's ideas— the creativity of the selected ideas is not better than chance. In other words, people tend to select ideas that are not more creative than the average creativity of the available ideas, and this happens in both individual (Rietzschel et al., 2010, 2014) and group interpersonal idea selection (Faure, 2004). Moreover, evidence suggests that people do not perform well at evaluating others' ideas. They tend to undervalue the originality of novel ideas (Licuanan, Dailey, & Mumford, 2007), judge creative ideas as common (i.e., not novel but appropriate) or inappropriate (i.e., novel but not appropriate, Benedek et al., 2016), and disregard original ideas but prefer mainstream ideas (Blair & Mumford, 2007). Recently, researchers have studied how the performance of interpersonal creative idea selection can be improved, and several means have been shown to be effective, such as inducing self-affirmation, promotion focus, and positive affect before idea selection (De Buisonjé et al., 2017), using intuition rather than extensive deliberation during idea selection (Zhu et al., 2017), and using paired comparison strategy for creative idea selection (Zhu, Ritter, & Dijksterhuis, unpublished data).

Research on *intrapersonal* idea selection has observed inconsistent findings on whether people can perform optimally at making selections from their own ideas. Some researchers (Putman & Paulus, 2009; Rietzschel et al., 2006; Study 1 in Rietzschel et al., 2010) found that people select ideas that are not more creative than the average creativity of the ideas generated, whereas Silvia (2008) found that generally people can discern their most original ideas—their choices of the most creative ideas covary strongly with judges' ratings of the ideas. Furthermore, a positive relation between idea generation and idea selection has been observed—people who generate more creative ideas perform better at selecting their most creative ideas (Silvia, 2008). Moreover, a number of studies aimed to stimulate intrapersonal idea selection performance. For example, unconscious thought (Ritter, van Baaren, & Dijksterhuis, 2012) and reactivating a creative task during sleep by means of a conditioned odor (Ritter, Strick, Bos, Van Baaren, & Dijksterhuis, 2012) have a positive effect on intrapersonal idea selection performance. Other manipulations, however, have no beneficial effects on idea selection performance. These manipulations include asking people to generate and select ideas as nominal groups (in which members perform tasks individually) or interactive groups (in which members perform tasks interactively; Faure, 2004), providing criteria (i.e., a good idea is both original and feasible) or not providing criteria for the definition of a good idea (Rietzschel et al., 2010).

Anecdotal evidence has shown that both intrapersonal and interpersonal idea selection can be difficult under certain circumstances. It seems that sometimes people do fail to recognize the value of their own ideas, but some of these ideas eventually turn out to be highly valuable. For example, Xerox and Apple had diametrically opposite opinions about the utility of a graphical user interface (GUI) technology (Xerox, n.d.). In 1973, Xerox released the first personal computer, the Alto, with the GUI as its main interface. Without realizing the commercial potential of Alto GUI, Xerox sold the Alto to Apple, and Apple incorporated GUI into their personal computer Lisa, which eventually revolutionized human–computer interactions. In fact, Steve Jobs said, Xerox "just had no idea what they had" (Xerox, n.d.). Besides the fact that people sometimes fail to recognize the worth of their own ideas, there have been many cases where other people fail to recognize ideas that others generate. For example, the KFC recipe was rejected by restaurant owners more than 1,000 times until it was accepted; JK Rowling's initial drafts of *Harry Potter* met with rejections by publishers but is now one of the all-time best-selling fiction books; Sylvester Stallone's Rocky was rejected numerous times by producers but eventually became one of the most successful movies of its time.

Although both interpersonal and intrapersonal evaluation take place frequently in real-life settings, only two studies (Grohman, Wodniecka, & Kłusak, 2006; Runco & Smith, 1992) have been conducted to compare them directly. Even so, because different outcome measures of evaluation accuracy were used in these two studies, it is not possible to draw firm conclusions whether inter- or intrapersonal strategy is better. Nevertheless, it was shown that the effects of intrapersonal and interpersonal evaluation are criterion-

dependent: Intrapersonal evaluation seems better when evaluating some criteria, whereas interpersonal evaluation is better when evaluating some other criteria. In Runco and Smith's (1992) study, participants first generated ideas and then rated their own ideas and others' ideas on creativity. Idea evaluation performance was measured by two variables: uniqueness (i.e., the proportion of creative ideas correctly identified) and popularity (i.e., the proportion of popular ideas correctly identified). They found that intrapersonal and interpersonal evaluative scores were positively correlated. However, people were more accurate at rating their own ideas' uniqueness than popularity, but were more accurate at rating others' ideas' popularity than uniqueness. In the study by Grohman et al., 2006, participants first generated solutions to real-life problems; thereafter, they rated their own solutions and then other's solutions on originality and uniqueness (i.e., the estimated percentage of peers with the same solution). They found that people were more accurate in intrapersonal evaluation than in interpersonal evaluation for both evaluation accuracy indices. Overall, participants tended to underestimate the uniqueness of their peers' ideas as well as their own ideas, but this underestimation was larger for their peers' ideas than for their own ideas. They also tended to overestimate the originality of their peers' ideas as well as their own ideas; however, they overestimated their own ideas to a larger extent.

Previous research has not found the effects of intrapersonal and interpersonal selection on both group and individual selection performances. Faure (2004) compared interpersonal and intrapersonal idea selection in *group* settings, and she measured idea selection performance with the creativity of the selected ideas. In her research, participants generated ideas as nominal groups or interactive groups. Thereafter, half of the groups selected the three best ideas from ideas of their own group, whereas the other half made the selection from ideas of another group. Idea selection performance was established by assessing the number of original ideas selected (an idea was counted as original if it was rarely generated), the average effectiveness (how well can an idea solve the problem), and the average feasibility (how easily can an idea be implemented). The effect of intrapersonal and interpersonal selection was not found on the originality or the feasibility, but on the effectiveness of the selected ideas. Compared with groups selecting from others' ideas, groups selecting from their own ideas choose more effective ideas. Besides, individuals selecting from another group are more satisfied with the selected ideas as well as the group they work with, compared with individuals selecting from their own group.

Thus far, only two studies have compared *individuals'* intrapersonal and interpersonal idea selection. Watts et al. (2017) investigated the effect of idea source (i.e., ideas generated by oneself or by others) on idea selection. In their study, participants first generated nine ideas for an advertising campaign or reviewed nine pre-generated peer ideas. Thereafter, they selected ideas from the initial list of ideas and also generated new ideas for the final campaign. Idea selection performance was established by assessing the number of initial ideas retained for final campaigns. The researchers found that idea source did not affect idea selection performance: People retained identical numbers of ideas from their own ideas and from others' ideas. In another study, Berg (2016) investigated how different occupational roles may influence creative forecasting accuracy—how accurately people can predict the success of novel ideas. In this study, online videos of circus acts were collected. Participants were either the creators of these videos or managers in the circus arts industry. They forecasted the success of the videos, which was measured by how much the audience liked and supported these ideas. Creative forecasting accuracy was indicated by how participants' predictions were different from the audience's ratings. It was found that when forecasting their own ideas, creators were not more accurate than managers. These two studies, however, did not use the rated creativity of the selected idea(s) as a dependent variable; therefore, for individuals' selection of ideas, it is still unknown whether intrapersonal and interpersonal selection lead to the selection of ideas with different levels of creativity.

In the current research, we are interested in how intrapersonal and interpersonal selection affect the performance of individuals' selection of ideas. Our study shares two main similarities with Faure's (2004) study. One, our methodology is similar to that of Faure (2004). Briefly, we first asked participants to generate ideas, then had them select from their own ideas (intrapersonal selection) or from other people's ideas (interpersonal selection). Finally, we examined whether these two types of selections differed in the creativity of the selected ideas evaluated by independent raters. Two, our operationalization of performance also measured the rated creativity of the idea selected. In other words, we used the same dependent variables in Faure's study to measure idea selection performance. However, there are two crucial differences between ours and Faure's study. First, we are interested in how *individuals* select ideas, whereas Faure was concerned with how *groups* selected ideas. Second, we instructed participants to select the *most creative* idea whereas she instructed them to select the *best* ideas. Because the best ideas are not necessarily the most creative ones, asking people to select the best ideas may not

result in the selection of the most creative ideas (Rietzschel et al., 2010). By explicitly instructing participants to select the most creative idea, we hope our results can draw a clearer conclusion on whether the two types of selection lead to different levels of performance of creative idea selection.

We propose that both intrapersonal and interpersonal idea selection have their pros and cons. In intrapersonal selection, idea creators have a strong sense of idea ownership and they tend to identify themselves with their ideas (Pierce, Kostova, & Dirks, 2001); this is akin to the endowment effect (Reb & Connolly, 2007). An enhanced psychological ownership of ideas may motivate people to defend their ideas (Baer & Brown, 2012), which may cause biased and inaccurate evaluations of ideas (e.g., overestimating mainstream ideas' creativity), thereby impairing the selection of the most creative idea. In comparison, interpersonal idea selection is more objective because selectors are supposedly merely observers, detached from the process of having created the idea. Being more objective may help idea selectors evaluate ideas more accurately and make better selections, especially since selectors may never have thought about the solutions before. On the other hand, because interpersonal idea selectors are not involved in the idea generation process themselves, they may not have complete information about the ideas (e.g., their effectiveness). This can cause them to misunderstand and undervalue other people's idea, thereby leading selectors to form less accurate evaluations of the idea.

In sum, each selection method has its pros and cons when compared against the other. Therefore, it was not defensible for us to favor any particular hypothesis a priori. Instead, we adopted a more exploratory rather than confirmatory approach.

## METHOD
### PARTICIPANTS AND DESIGN

Ninety-four people gave informed consent to participate in this study. The participants were recruited via the online Radboud's Participation System, SONA. They were rewarded with either course credit or money (€10).

A 2 × 2 mixed design was used where the between-subjects factor is *problem type* (i.e., societal problems: the *neighborhood* problem vs. the *exercise* problem) and the within-subjects factor is *selection type* (i.e., intrapersonal selection vs. interpersonal selection). Three participants failed to generate enough ideas or understandable ideas as instructed, hence they were excluded from the final analyses. The final sample comprises 91 (70 female and 21 male) participants aged between 18 and 36 years ($M = 22.37$, $SD = 3.26$). Among the included participants, three participants failed to select from their own ideas as instructed and another five participants failed to select from their partners' ideas. However, for these participants, their performances on the other selection task were still included in the final analyses.

### PROCEDURE

Participants were paired at the entrance of the lab and they were simultaneously led to two individual cubicles. They were first presented with two societal problem scenarios. Thereafter, the paired participants were randomly assigned to different problems and they performed the idea generation task. Then, the experimenters checked and improved the intelligibility (e.g., correcting misspelled words and improving the grammar) of the generated ideas. In the meantime, participants completed several questionnaires.[1] Thereafter, each participant performed two idea selection tasks—intrapersonal and interpersonal selection. The order of the two idea selection tasks was counterbalanced. After the selection process, participants answered a post-experimental questionnaire as well as some demographic questions. Finally, they were rewarded, thanked, and debriefed.

### MATERIALS
#### Idea generation task

Two problem scenarios were used in the idea generation task. They are presented below:

Neighborhood

> These days, there are fewer social interactions among residents in neighborhoods. For instance, people are unlikely to know who lives three doors away from them. In addition, there are fewer interactions between people while they are shopping for groceries; this further reduces neighborhood

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[1] The questionnaires and relevant variables, analyses, and results can be found in the Appendix S1.

interactions, as this is where small talk is often exchanged. Nowadays, people seem to be more individualistic, which could lead to social isolation and serious problems for some (e.g., depression, stress, and loneliness).

Exercise

Stressful and time-consuming activities (e.g., busy jobs) can lead to unhealthy eating patterns. Moreover, many everyday activities (e.g., sitting behind a computer or desk for hours during work or school) prevent people from being physically active. In addition, people often also spend their free time watching television. Therefore, people might lack sufficient exercise to maintain a healthy lifestyle. This unhealthy lifestyle does not only cause people to become overweight but also causes other health-related issues.

The paired participants were asked to generate six creative ideas[2] to solve the assigned problems within 5 minutes. Participants were told that a creative idea should be both original and useful. They were also told to provide a brief explanation for each of their ideas during the idea generation task.

### Idea selection tasks

After the idea generation task, each participant performed two idea selection tasks. In each task, the participant was asked to select the most creative idea from the idea pool presented. In the intrapersonal selection task, the participant was presented with his/her own ideas generated to solve one of the two societal problems. In the interpersonal selection task, the participant was presented with the ideas generated by his/her partner to solve the other societal problem.

## DEPENDENT VARIABLES

First, for each societal problem, the ideas generated by all participants were consolidated. Duplicated ideas (i.e., ideas that were similar to one another) were removed, whereas non-redundant ideas were kept as before. Thereafter, two trained raters[3] rated all ideas on creativity and on its three sub-dimensions—originality, effectiveness, and feasibility—in four sequential sessions. Specifically, the ideas were rated on creativity in the first session, originality in the second session, effectiveness in the third session, and feasibility in the last session. The ratings were given on 10-point Likert scales (e.g., 1 = *not at all creative*, 10 = *very much creative*). Intra-class correlations (ICCs), using a two-way random model and consistency method, were performed to assess the agreement between the raters (McGraw & Wong, 1996). Good ICCs were found for creativity and its three sub-dimensions. Specifically, the ICCs were .82, .87, .81, and .81 for creativity, originality, effectiveness, and feasibility, respectively.

Idea selection performance was measured by five different variables: (a) *creativity of the selected idea*; (b) *originality of the selected idea*; (c) *effectiveness of the selected idea*; (d) *feasibility of the selected idea*; and (e) *selection effectiveness*. All the variables were based on the ratings of the two trained raters. The *selection effectiveness*, that is, whether participants selected better than chance level, was measured by comparing the rated creativity, originality, effectiveness, and feasibility of the selected idea with the mean rated creativity, originality, effectiveness, and feasibility of the six generated ideas.

## RESULTS
### IDEA GENERATION PERFORMANCE
#### Creativity of generated ideas

An independent samples *t*-test was conducted on the creativity of the generated ideas, with problem type as independent variable. The analysis showed a significant effect of problem type. Participants generated

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[2] In a divergent thinking task, people are normally encouraged to generate as many ideas as possible. In our pre-test, almost all participants were able to generate six ideas within 5 minutes. Therefore, in this study, we restricted participants to generate six creative ideas so as to ensure that all participants selected from the same number of ideas in the following idea selection task.

[3] Before the rating started, the authors explained to the raters the concept of creativity (i.e., a creative idea has to be original, effective, and feasible; Nakui, Paulus, & Van der Zee, 2011), the concepts of originality, effectiveness, and feasibility, and the scoring system. Thereafter, the raters were given a practice session: They first read through the ideas for a good overview, and then they rated the creativity of a practice set of ideas, and finally, their ratings were examined.

significantly more creative ideas for the neighborhood problem than for the exercise problem, as shown in Table 1.

### Originality, effectiveness, and feasibility of generated ideas

Independent samples *t*-tests (see Table 1) were conducted on the originality, the effectiveness, and the feasibility of the generated ideas. The analysis on originality showed that people generated significantly more original ideas for the neighborhood problem than for the exercise problem. The analyses on effectiveness and feasibility showed no effects of problem type. For the two different problems, people generated ideas undifferentiated in effectiveness and feasibility.

## IDEA SELECTION PERFORMANCE
### Creativity of selected idea

A 2 (Problem Type: neighborhood vs. exercise) × 2 (Selection Type: intrapersonal vs. interpersonal) mixed model ANOVA was conducted on the creativity of the selected idea. The analysis showed no significant effect of selection type, no significant problem type × selection type interaction, but a significant effect of problem type. The results of the analysis are presented in Table 2. Participants selected more creative ideas for the neighborhood problem than for the exercise problem, as shown in Table 3.

### Originality, effectiveness, and feasibility of selected idea

Three 2 × 2 mixed model ANOVAs were also conducted on the originality, the effectiveness, and the feasibility of the selected idea. The results of the analyses are presented in Table 2 and the descriptive statistics are presented in Table 3. As Table 2 shows, none of the main effects of problem type, main effects of selection type, and problem type × selection type interaction were significant on any of the three dependent variables, except the main effect of problem type on originality. This main effect revealed that participants selected more original ideas for the neighborhood problem than for the exercise problem.

### Selection effectiveness

Selection effectiveness, namely, whether participants were able to select better than chance level was examined with 2 (Problem Type: neighborhood vs. exercise) × 2 (Idea: selected idea vs. all ideas) mixed model ANOVAs for both intrapersonal and interpersonal selection. The results of the analyses are presented in Tables 4 and 5. Here, for each dependent variables (creativity, originality, effectiveness, and feasibility), we report the main effect of the between-subjects factor problem type, the main effect of within-subjects factor idea, and the problem type × idea interaction for each selection task separately.

Intrapersonal task selection

For the dependent variable creativity, the only significant effect was the main effect of problem type. For originality, the analysis revealed a marginally significant main effect of idea, a significant effect of problem type × idea interaction, and a significant main effect of problem type. Simple effects analysis showed that for the neighborhood problem, intrapersonal selection made people select more original ideas, $F(1, 85) = 7.58$, $p = .007$, than an average idea; however, this effect of intrapersonal selection was not observed for the exercise problem, $F(1, 85) = 0.04$, $p = .84$. The main effect of idea on feasibility was the only other significant effect: When people selected from their own ideas, they selected ideas that were more feasible and slightly more original, but not more creative or more effective, than an average idea.

TABLE 1. Descriptive Statistics for Creativity, Originality, Effectiveness, and Feasibility of the Generated Ideas

| Variable | Problem type | | $t(85)$ | $p$ | Cohen's $d$ |
| --- | --- | --- | --- | --- | --- |
| | Neighborhood ($n = 43$) | Exercise ($n = 44$) | | | |
| Creativity | 6.05 (0.38) | 5.87 (0.34) | 2.30 | .024 | 0.50 |
| Originality | 5.53 (0.89) | 4.88 (0.64) | 3.91 | <.001 | 0.84 |
| Effectiveness | 6.66 (0.37) | 6.67 (0.44) | 0.18 | .86 | 0.02 |
| Feasibility | 6.29 (0.66) | 6.11 (0.58) | 1.35 | .18 | 0.29 |

*Note. n* = 87. The table reports means, with standard deviations in parentheses.

TABLE 2. Results of 2 × 2 Mixed Model ANOVAs on Creativity, Originality, Effectiveness, and Feasibility of the Selected Idea

| Variable | Selection type | | | Problem type | | | Selection type × problem type | | |
|---|---|---|---|---|---|---|---|---|---|
| | $F(1, 85)$ | $p$ | $\eta_p^2$ | $F(1, 85)$ | $p$ | $\eta_p^2$ | $F(1, 85)$ | $p$ | $\eta_p^2$ |
| Creativity | 0.014 | .91 | <.001 | 4.06 | .047 | .046 | 0.77 | .38 | .009 |
| Originality | 0.72 | .40 | .008 | 11.54 | .001 | .119 | 2.34 | .13 | .027 |
| Effectiveness | 0.99 | .32 | .012 | 2.22 | .14 | .025 | 0.34 | .56 | .004 |
| Feasibility | 1.53 | .22 | .018 | 0.80 | .37 | .009 | 0.20 | .65 | .002 |

*Note.* $n = 87$.

TABLE 3. Descriptive Statistics for Creativity, Originality, Effectiveness, and Feasibility of the Selected Idea

| Variable | Neighborhood ($n = 43$) | | Exercise ($n = 44$) | |
|---|---|---|---|---|
| | Intrapersonal selection | Interpersonal selection | Intrapersonal selection | Interpersonal selection |
| Creativity | 6.17 (0.71) | 6.07 (0.84) | 5.77 (0.88) | 5.85 (1.01) |
| Originality | 6.24 (1.92) | 5.69 (1.78) | 4.83 (1.81) | 4.99 (1.76) |
| Effectiveness | 6.52 (0.89) | 6.70 (0.81) | 6.82 (0.78) | 6.86 (1.05) |
| Feasibility | 5.83 (1.63) | 6.09 (1.35) | 5.64 (1.55) | 5.76 (1.65) |

*Note.* $n = 87$. The table reports means, with standard deviations in parentheses.

TABLE 4. Results of 2 × 2 mixed model ANOVAs on Selection Effectiveness of Intrapersonal Selection

| Variable | Idea | | | Problem type | | | Idea × problem type | | |
|---|---|---|---|---|---|---|---|---|---|
| | $F(1, 85)$ | $p$ | $\eta_p^2$ | $F(1, 85)$ | $p$ | $\eta_p^2$ | $F(1, 85)$ | $p$ | $\eta_p^2$ |
| Creativity | 0.038 | .85 | <.001 | 6.61 | .012 | .072 | 2.54 | .12 | .029 |
| Originality | 3.29 | .073 | .037 | 17.65 | <.001 | .17 | 4.43 | .038 | .050 |
| Effectiveness | 0.011 | .92 | <.001 | 1.76 | .19 | .020 | 3.25 | .075 | .037 |
| Feasibility | 11.53 | .001 | .12 | 0.71 | .40 | .008 | 0.001 | .97 | <.001 |

*Note.* $n = 87$.

TABLE 5. Results of 2 × 2 Mixed Model ANOVAs on Selection Effectiveness of Interpersonal Selection

| Variable | Idea | | | Problem type | | | Idea × problem type | | |
|---|---|---|---|---|---|---|---|---|---|
| | $F(1, 85)$ | $p$ | $\eta_p^2$ | $F(1, 85)$ | $p$ | $\eta_p^2$ | $F(1, 85)$ | $p$ | $\eta_p^2$ |
| Creativity | <0.001 | .99 | <.001 | 2.49 | .12 | .028 | 0.055 | .82 | .001 |
| Originality | 0.56 | .46 | .007 | 8.18 | .005 | .088 | 0.020 | .89 | <.001 |
| Effectiveness | 1.81 | .18 | .021 | 0.50 | .48 | .006 | 0.74 | .39 | .009 |
| Feasibility | 3.66 | .059 | .041 | 1.59 | .21 | .018 | 0.29 | .59 | .003 |

*Note.* $n = 87$.

Interpersonal task selection

The analysis on creativity showed no significant effects. For originality, a significant main effect of problem type was found. In addition, a marginally significant main effect of idea was found on feasibility. This suggested that when selecting from other's ideas, people selected ideas that were slightly more feasible than an average idea; however, the selected ideas were not more creative, original, or effective, than an average idea.

## DISCUSSION

This study investigated whether intrapersonal and interpersonal selection influences the performance of creative idea selection. Across our analyses, there were no differences in selection strategies in various dependent measures. That is, regardless of whether participants were selecting from their own or others' ideas, they selected ideas that were similar in creativity, originality, effectiveness, and feasibility. Moreover, participants across the two selection conditions failed to select ideas that were more creative, original, and effective, than the average idea. Interestingly, people tended to select ideas that were less feasible than the average idea.

Our research, together with previous research (Berg, 2016; Faure, 2004; Watts et al., 2017), suggest that intrapersonal and interpersonal selection may not affect idea selection performance. Across these research, researchers explored both group and individual idea selection and used diverse measures of idea selection performance, but they did not observe the effects of intrapersonal and interpersonal selection. Faure (2004) found that groups performing two ways of selection—selecting the most creative ideas from their own ideas versus from another group's ideas—selected ideas that were different in effectiveness but identical in originality and feasibility. For individual idea selection, Berg (2016) found that creators' and managers' roles did not affect their accuracy in forecasting the success of novel ideas. Watts et al. (2017) found that selecting from ideas generated by own or by peers did not influence the number of ideas selected for refinement. Similarly, we found that individuals selected ideas of identical creativity, regardless of whether they were selecting from their own or others' ideas. Therefore, although selecting from one's own ideas vs. selecting from other people's ideas seem quite different, no evidence supports that they lead to different levels of creative idea selection performance.

Moreover, in line with earlier findings (Putman & Paulus, 2009; Rietzschel et al., 2006, 2010, 2014; Ritter, Strick, Bos, Van Baaren, & Dijksterhuis, 2012; Ritter, van Baaren, & Dijksterhuis, 2012), we found that people are poor at selecting the most creative idea—they fail to select an idea that is more creative than an average idea, regardless of whether they are selecting from a pool of their own ideas or others'. Thus, it seems that people desire creativity but tend to reject creative ideas and select mainstream ideas, an irony echoed by Mueller, Melwani, and Goncalo (2011). So far, the creativity bias has been little studied (Rietzschel et al., 2010; Zhu et al., 2017). Hence, little is known about its underlying mechanisms. Given the importance of creative idea selection, there could be more research on creative idea selection and its enhancement in the future.

The current research has several limitations. First, we used a within-subjects design to compare the idea selection performance of idea generators' with those who did not generate ideas for selection. On hindsight, a within-subjects design might have contaminated the interpersonal idea selection—all participants took part in idea generation before interpersonal selection. This idea generation process may have enabled all participants to take a perspective of an idea generator during idea selection (Zhou, Majka, & Epley, 2017). Future research could consider a design where selection task is a between-subject factor instead.

Second, to simplify the experimental design, we did not include some factors that are often involved in realistic situations of creative idea selection. This limits the generalizability of our findings. For example, our participants were university students, whereas in many real-life settings, interpersonal idea selection takes places when people who generate ideas and those who make decisions have distinct roles (e.g., engineers vs. managers) or different levels of expertise (e.g., junior researchers vs. senior researchers). These factors are likely to influence the relationship between selection type and creative idea selection. Future research should take these factors into consideration. Notwithstanding these potentially important moderators, the fact that we sampled university students also had its clear advantages: We were able to show that among people who have approximately the same identity, rank, and social status, selection strategy does not matter to the selection of creative ideas. This finding itself is valuable because in certain situations, people do work with others who are similar to themselves. For example, in brainstorming sessions, animators are more likely to brainstorm with fellow animators, rather than with producers. Finally, we speculate several factors that may

mediate the effect of intrapersonal and interpersonal selection on idea selection performance, such as the sense of idea ownership and idea familiarity; however, these factors were not measured in the current experiment. Therefore, future research may consider measuring these factors to better understand why selection type fails to affect idea selection performance.

Our research has practical implications. People may prefer intrapersonal selection over interpersonal selection, or vice versa. Some people may believe intrapersonal selection is better, as an idea generator knows more about the history of his/her own ideas than an observer; others may favor interpersonal selection because an observer can be more objective in idea evaluation and selection. However, neither way of selection is backed up by scientific data. Our findings, together with previous findings (Berg, 2016; Watts et al., 2017) challenge people's ingrained preference for intrapersonal or interpersonal selection.

To improve idea selection performance, rather than focusing on intrapersonal versus interpersonal selection, one can adopt certain strategies or approaches that have been shown beneficial to selecting creative ideas. Thus far, researchers have found several means to facilitate interpersonal creative idea selection. For example, Zhu et al. (2017) found that following intuition or gut feelings leads to the selection of more creative ideas compared with extensive deliberation. Rietzschel et al. (2014) found that people, when asked to base their selections on ideas' originality, can select more creative ideas, than when asked to base on personal experiences.

To conclude, we found that intrapersonal and interpersonal selection did not affect the performance of creative idea selection. People failed to select the most creative idea from their own idea pool, as well as from other people's idea pool. Given that individual idea selection (either intrapersonal or interpersonal) happens frequently in various settings, we urge further research to study the relationship between selection type and creative idea selection, as well as the enhancement of idea selection performance.

## REFERENCES

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. https://doi.org/10.1037/a0012815.

Baer, M., & Brown, G. (2012). Blind in one eye: How psychological ownership of ideas affects the types of suggestions people adopt. *Organizational Behavior and Human Decision Processes*, *118*, 60–71. https://doi.org/10.1016/j.obhdp.2012.01.003.

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. https://doi.org/10.1002/j.2162-6057.2000.tb01203.x.

Benedek, M., Nordtvedt, N., Jauk, E., Koschmieder, C., Pretsch, J., Krammer, G., & Neubauer, A.C. (2016). Assessment of creativity evaluation skills: A psychometric investigation in prospective teachers. *Thinking Skills and Creativity*, *21*, 75–84. https://doi.org/10.1016/j.tsc.2016.05.007.

Berg, J.M. (2016). Balancing on the creative highwire: Forecasting the success of novel ideas in organizations. *Administrative Science Quarterly*, *61*, 433–468. https://doi.org/10.1177/0001839216642211.

Blair, C.S., & Mumford, M.D. (2007). Errors in idea evaluation: Preference for the unoriginal? *Journal of Creative Behavior*, *41*, 197–222. https://doi.org/10.1002/j.2162-6057.2007.tb01288.x.

De Buisonjé, D.R., Ritter, S.M., de Bruin, S., ter Horst, J.M.-L., & Meeldijk, A. (2017). Facilitating creative idea selection: The combined effects of self-affirmation, promotion focus and positive affect. *Creativity Research Journal*, *29*, 174–181. https://doi.org/10.1080/10400419.2017.1303308.

Faure, C. (2004). Beyond brainstorming: Effects of different group procedures on selection of ideas and satisfaction with the process. *Journal of Creative Behavior*, *38*, 13–34. https://doi.org/10.1002/j.2162-6057.2004.tb01229.x.

Finke, R.A., Ward, T.B., & Smith, S.M. (1992). *Creative cognition: Theory, research, and applications*. Cambridge, MA: The MIT Press.

Grohman, M., Wodniecka, Z., & Kłusak, M. (2006). Divergent thinking and evaluation skills: Do they always go together? *The Journal of Creative Behavior*, *40*, 125–145. https://doi.org/10.1002/j.2162-6057.2006.tb01269.x.

Licuanan, B.F., Dailey, L.R., & Mumford, M.D. (2007). Idea evaluation: Error in evaluating highly original ideas. *Journal of Creative Behavior*, *41*, 1–27. https://doi.org/10.1002/j.2162-6057.2007.tb01279.x.

Lubart, T.I. (2001). Models of the creative process: Past, present and future. *Creativity Research Journal*, *13*, 295–308. https://doi.org/10.1207/S15326934CRJ1334_07.

McGraw, K.O., & Wong, S.P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological Methods*, *1*, 30. https://doi.org/10.1037/1082-989X.1.1.30.

Mueller, J.S., Melwani, S., & Goncalo, J.A. (2011). The bias against creativity: Why people desire but reject creative ideas. *Psychological Science*, *23*, 13–17. https://doi.org/10.1177/0956797611421018.

Nakui, T., Paulus, P.B., & Van der Zee, K.I. (2011). The Role of Attitudes in Reactions Toward Diversity in Workgroups 1. *Journal of Applied Social Psychology*, *41*, 2327–2351. https://doi.org/10.1111/j.1559-1816.2011.00818.x.

Osborn, A.F. (1953). *Applied imagination, principles and procedures of creative thinking*. New York: Charles Scribnner's Sons.

Pierce, J.L., Kostova, T., & Dirks, K.T. (2001). Toward a theory of psychological ownership in organizations. *Academy of Management Review*, *26*, 298–310. https://doi.org/10.5465/AMR.2001.4378028.

Putman, V.L., & Paulus, P.B. (2009). Brainstorming, brainstorming rules and decision making. *Journal of Creative Behavior*, *43*, 29–40. https://doi.org/10.2162-6057.2009.tb01304.x.

Reb, J., & Connolly, T. (2007). Possession, feelings of ownership, and the endowment effect. *Judgment and Decision Making*, *2*, 107.

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. https://doi.org/10.1016/j.jesp.2005.04.005.

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. https://doi.org/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. https://doi.org/10.1080/10400419.2014.901084.

Ritter, S.M., Strick, M., Bos, M.W., Van Baaren, R.B., & Dijksterhuis, A.P. (2012). Good morning creativity: Task reactivation during sleep enhances beneficial effect of sleep on creative performance. *Journal of Sleep Research*, *21*, 643–647. https://doi.org/10.1111/j.1365-2869.2012.01006.x.

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. https://doi.org/10.1016/j.tsc.2011.12.002.

Runco, M.A., & Jaeger, G.J. (2012). The Standard definition of creativity. *Creativity Research Journal*, *24*, 92–96. https://doi.org/10.1080/10400419.2012.650092.

Runco, M.A., & Smith, W.R. (1992). Interpersonal and intrapersonal evaluations of creative ideas. *Personality and Individual Differences*, *13*, 295–302. https://doi.org/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.

Shalley, C.E., & Gilson, L.L. (2004). What leaders need to know: A review of social and contextual factors that can foster or hinder creativity. *Leadership Quarterly*, *15*, 33–53. https://doi.org/10.1016/j.leaqua.2003.12.004.

Shalley, C.E., Zhou, J., & Oldham, G.R. (2004). The effects of personal and contextual characteristics on creativity: Where should we go from here? *Journal of Management*, *30*, 933–958. https://doi.org/10.1016/j.jm.2004.06.007.

Silvia, P.J. (2008). Discernment and creativity: How well can people identify their most creative ideas? *Psychology of Aesthetics, Creativity, and the Arts*, *2*, 139–146. https://doi.org/10.1037/1931-3896.2.3.139.

Simonton, D.K. (2003). Scientific creativity as constrained stochastic behavior: The integration of product, person, and process perspectives. *Psychological Bulletin*, *129*, 475–494. https://doi.org/10.1037/0033-2909.129.4.475.

Watts, L.L., Steele, L.M., Medeiros, K.E., & Mumford, M.D. (2017). Minding the gap between generation and implementation: Effects of idea source, goals, and climate on selecting and refining creative ideas. *Psychology of Aesthetics, Creativity, and the Arts*, Advance online publication. https://doi.org/10.1037/aca0000157

Xerox. (n.d.). *In Wikipedia*. Available from https://en.wikipedia.org/w/index.php?title=Xerox&oldid=828289870 [last accessed 12 March, 2018].

Zhou, H., Majka, E.A., & Epley, N. (2017). Inferring perspective versus getting perspective: Underestimating the value of being in another person's shoes. *Psychological science*, *28*, 482–493. https://doi.org/10.1177/0956797616687124.

Zhu, Y., Ritter, S.M., Müller, B.C.N., & Dijksterhuis, A. (2017). Creativity: Intuitive processing outperforms deliberative processing in creative idea selection. *Journal of Experimental Social Psychology*, *73*, 180–188. https://doi.org/10.1016/j.jesp.2017.06.009.

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## AUTHOR NOTE

## SUPPORTING INFORMATION

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**Appendix S1.** In the appendix, we presented two main bodies of information. One, how selection performance relates to people's personality and intuition and uncertainty traits. The other is the effect of intrapersonal and interpersonal selection on selection difficulty, confidence, and satisfaction.