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Cooperation goals, regulatory focus, and their combined effects on creativity

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ABSTRACT

This study examined the co-activation of cooperation versus competition goals with regulatory focus, and tested whether the combined effects on creativity are interactive or additive. An experiment with 192 adults showed two main effects, such that participants with a cooperation goal and a promotion focus (i.e., focus on ideals) demonstrated the highest levels of originality of ideas, whereas the combination of a competition goal and a prevention focus (i.e., focus on duties) led to the lowest originality. These findings indicate that the two motivational constructs have additive effects which lead to the highest originality if a promotion focus and a cooperation goal are co-activated, whereas a prevention focus and a competition goal may diminish originality. In conclusion, the concurrent activation of multiple motivational constructs should be considered when investigating the situational effects of cooperative/competitive settings on creativity.

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1. Introduction

Much research has investigated the consequences of cooperative and competitive settings on performance and creativity. While one line of research has found a positive effect of cooperation goals on achievement (see Johnson, Maruyama, Johnson, Skon, & Nelson, 1981; Roseth, Johnson, & Johnson, 2008), another line of research has looked at creativity, reporting both positive and negative effects of cooperation on creativity (see Amabile, 1996). Several studies found competition to be detrimental for creativity (e.g., Amabile, 1982; Deci, Betley, Kahle, Abrams, & Porac, 1981; McGlynn, Gibbs, & Roberts, 1982), but besides these negative effects, a few studies found competition to be beneficial for creativity (e.g., Amabile & Gryskiewicz, 1987; Cummings & Oldham, 1997; Raina, 1968). While research aimed to shed some light on possible reasons for these contradictory effects (e.g., Bechtoldt, Choi, & Nijstad, 2012; Goncalo & Duguid, 2012), these studies typically did not control for additional motivational factors, such as regulatory focus. In some situations, it is possible that regulatory focus and cooperation or competition are activated at the same time, and may change subsequent creativity. For example, in an educational setting where competition prevails, a further effect can be expected of the motivational regulatory focus that people experience simultaneously. By contrast, in situations where regulatory focus is not co-activated, cooperation or competition may induce fewer changes in creativity.

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The present study takes a closer look at the motivational processes that may boost creativity together with cooperation goals. In this context, cooperation goals refer to social settings where people strive for the success of the group, whereas competition goals represent striving for one's personal success and trying to be successful by outperforming others (De Dreu, Nijstad, & Van Knippenberg, 2008; Deutsch, 1949, 1962; Johnson, Johnson, & Maruyama, 1983; Simmons, Wehner, Tucker, & King, 1988). For creativity, it has been shown that the presence of others can be detrimental in situations where co-acting others are associated with evaluation expectancy (Amabile, 1979; Amabile, Goldfarb, & Brackfield, 1990). A possible explanation for this effect could be that evaluation expectancy leads people to hold back their creative ideas in social settings.

Although prior research has addressed the role of motivational effects for creative performance, these effects were usually studied in isolation. Therefore, the current study aimed to address the combined effects of two activated motivational orientations: cooperation/competition goals, and regulatory focus. Both concepts have previously been studied as individual predictors of creative behavior, but little is known about their effects if they are co-activated in an orthogonal design. Specifically, we were interested to draw conclusions about the question whether their combined effects are *interactive* or *additive* in enhancing originality.

1.1. Assessment of originality

Creativity has been conceptualized to consist of several different facets: fluency, originality, and cognitive flexibility (Guilford, 1967). Fluency is often assessed in divergent thinking tests that measure people's ability and productivity in generating nonredundant ideas (Amabile, 1996; Baas, De Dreu, & Nijstad, 2008). In addition, idea generation tasks can be employed to examine originality, another facet of creativity, which consists of the ability to come up with new, unusual ideas that go beyond common knowledge (Guilford, 1967). Originality is considered to be one of the most characteristic dimensions of creativity, and tends to be correlated with other facets, such as fluency and flexibility (Amabile, 1996; Baas et al., 2008; Sternberg & Lubart, 1999; Storme & Lubart, 2012). In the present study, we chose to further investigate originality, because this facet of creativity was not included in prior studies on cooperation (Carnevale & Probst, 1998), or regulatory focus and creativity (Amabile, 1982; Higgins, 1997). Moreover, separate studies have shown that originality relates to both, regulatory focus (Baas, de Dreu, & Nijstad, 2011), and cooperation/competition goals (Bechtoldt, De Dreu, Nijstad, & Choi, 2010).

Creativity is increasingly investigated as a goal-directed, and even strategic, activity. Thus, rather than approaching creativity as a personality characteristic, creativity is being studied as a function of the specific goals people pursue in a given situation, and the strategic choices people make during goal pursuit (e.g., Baas et al., 2011; Litchfield, 2008; Litchfield, Fan, & Brown, 2011; Shalley, 1991, 1995). Moreover, creative ideas can be enhanced in social settings (Amabile, 1996) that may provide instructions and situations which are beneficial for creativity.

1.2. Multiple goals

Goals represent desirable end states that give direction to peoples' behaviors. For example, conscious and nonconscious cooperation goals have been found to increase subsequent cooperative actions (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001). According to goal systems theory, motivation is the result of a dynamic system of multiple goals and means that lead to action (Kruglanski et al., 2002). Because goals and means are connected, goal activation results in action plans and the execution of corresponding behaviors that aim to complete the activated goal (Chun, Kruglanski, Sleeth-Keppler, & Friedman, 2011; Kopetz, Kruglanski, Arens, Etkin, & Johnson, 2012; Kruglanski et al., 2002).

However, research has shown that there are different types of goals: personal and social goals (Shah, 2003a,b). For instance, parents have personal goals for themselves, but also have educational goals for their children. Children are supposed to learn to act cooperatively and be a team player, but they are also expected to outperform others and be better than their competitors. The present study focused on these conflicting goals because their consequences on creativity are highly relevant for group settings in education and the workplace. These settings can even activate specific goals in individuals, such that work environments where competition prevails may activate competition goals in workers. For this reason, it is crucial to know which situations are beneficial for creativity. If companies aim to support their workers in being creative and innovative, it would be necessary to provide motivating environments that enhance creativity. This is an important strategy, because companies nowadays strive to raise the creativity of their workers in order to be innovative and successful (Anderson, De Dreu, & Nijstad, 2004).

1.3. Creativity and cooperation

Several studies provide evidence of a positive relationship between creativity and cooperation. In a classic paper, Carnevale and Probst (1998) showed that participants who expected a cooperative interaction performed more creatively (Study 1) and formed broader mental categories (Study 2) than participants who expected a conflict situation. These differences were due to changes in cognitive information processing, such that the participants in the cooperation condition grouped things together and integrated information to a higher degree than the participants in the conflict condition. Therefore, it was concluded that cooperation is associated with more holistic information processing, whereas conflict is related to local processing.

More recently, [Bittner and Heidemeier \(2013, Study 2\)](#) showed that participants expecting a competitive group setting performed less creatively than participants expecting a cooperative setting. In this experiment, the negative effect of a competitive setting on creative performance was partially mediated by participants' prevention focus. Therefore, the present research aimed to investigate in more detail the diminishing role of competition and a prevention focus for creativity.

A recent study on group creativity found that group members high in pro-social motivation (i.e., oriented toward collectivistic values) were more likely to build a group climate based on constructive controversy ([Bechtoldt et al., 2010](#)). This orientation increased fluency and originality of creative ideas, presumably because of increased sharing of ideas between collectivistic team members. To shed further light on these prior findings, the operationalization of cooperation/competition goals in the present study was quite similar to the definition of individualistic versus collectivistic values, i.e., striving toward good outcomes for oneself or the group ([Bechtoldt et al., 2012](#)). Collectivistic values were included in our operationalization of cooperation goals and, subsequently, were expected to lead to higher creativity than individualistic values.

Interestingly, studies conducted in different settings indicated that creative performance can sometimes benefit from a less cooperative orientation. For example, [Beersma and De Dreu \(2005\)](#) found that group members who negotiated with a pro-self (as opposed to pro-social) orientation performed more creatively on a subsequent task. Furthermore, [Goncalo and Staw \(2006\)](#) demonstrated that groups with an individualistic self-construal performed more creatively than groups with a collectivistic self-construal. A recent study suggests that these results can be best explained by self-construal, i.e., by people perceiving themselves primarily as individuals, rather than members of a group ([Bechtoldt et al., 2012](#)).

In sum, these studies point out that an individualistic self-construal with collectivistic values (i.e., pro-social motivation) can be hypothesized to lead to more creativity, whereas a collectivistic self-construal with individualistic values should lead to less creativity. Besides cooperation and competition, the present study investigated the role of co-activated motivational orientations. Research has begun to uncover the effects of different self-regulatory strategies on creative performance ([Chiu, 2014](#)). Most notable in this area is the work on regulatory focus theory ([Higgins, 1997](#)).

1.4. Regulatory focus and creativity

Regulatory focus consists of two dimensions that are commonly used to categorize people as either promotion or prevention oriented ([Higgins, 1997](#)). Individuals with a promotion focus strive to achieve an ideal self, using strategies to pursue gains and successes, whereas individuals with a prevention focus strive to achieve an ought self and, thus, use strategies to avoid losses and failures ([Higgins, 1997](#)). For instance, differences in regulatory focus have been shown to extend to individuals' choices in social situations ([Higgins, Roney, Crowe, & Hymes, 1994](#)). When choosing between alternative strategies for friendship, people with a promotion focus preferred strategies geared toward promoting positive outcomes, whereas people with a prevention focus aimed to prevent failure and losses and, therefore, preferred strategies geared toward preventing negative outcomes.

Although prevention and promotion focus are often operationalized as individual personality characteristics, they are also situation-dependent and can be temporarily induced, thereby influencing behavior at the state level ([Higgins, 1997](#)). This induction was employed in the present experiment, such that instructions to focus on ideals and developmental goals activated a situational promotion focus, whereas a focus on duties and responsibilities activated a situational prevention focus ([Higgins et al., 1994](#)). These different situations can presumably also be found in educational or work settings that may activate these motivational orientations in individuals as a state (cf. [Heidemeier & Bittner, 2012](#)).

With regard to creativity, a promotion focus has been associated with higher levels of creativity than a prevention focus ([Friedman & Forster, 2001](#)). These findings were explained by an underlying process that relates a promotion focus to a risky, explorative information processing style that fosters creative generation and creative insight to a greater extent than prevention cues and a risk-averse, perseverant processing style. A meta-analysis confirmed this relationship ([Baas et al., 2008](#)), and concluded that creativity is enhanced by positive moods that are promotion focused (e.g., happiness, joy), whereas creativity is diminished by negative, prevention focused moods (e.g., fear, sadness). This effect was strongest when creativity was measured as cognitive flexibility, which indicates that there might be differences depending on the facets of creativity that are assessed in a task ([Baas et al., 2008](#)).

2. Current research

An experiment was conducted where cooperation/competition goals and promotion/prevention foci were situationally manipulated and participants (individually) generated creative ideas. In contrast to studies on *group* creativity, we investigated individual creativity within a social situation, because this was expected to induce an individualistic self-construal that should be beneficial for creativity ([Bechtoldt et al., 2012](#)). Goals were manipulated by describing the present social setting as cooperative versus competitive, and a second task was used to activate the situational regulatory focus ([Higgins et al., 1994](#)). Subsequently, the participants performed individual idea generation tasks. This design was chosen because prior studies have shown that creativity in group settings may benefit from the integration of a collectivistic value orientation with individualistic self-construal ([Bechtoldt et al., 2012](#)).

The aim of this study was to examine the combined effects of regulatory focus and cooperation/competition goals on creativity. In previous research, goals related to cooperation/competition and regulatory focus were usually investigated separately and not together in one design. One paper that addressed the relation between these constructs is [Bittner and](#)

Heidemeier (2013). This study, however, did not manipulate the two constructs orthogonally, so nothing can as yet be concluded regarding the combined effects. The aim therefore was to clarify whether the effects on creativity change if two constructs are co-activated, and whether these effects are interactive or additive. This would offer important conclusions for interventions and campaigns that aim at increasing creativity in educational and work settings. Given that the organizational context can exert various, and sometimes conflicting influences on people's goals and performance (Heidemeier & Bittner, 2012), it is important to know how creative behavior is affected by the simultaneous activation of various motivations in competitive settings.

2.1. Hypotheses

We derived two competing hypotheses for the influence of the two co-activated constructs on creativity. On the one hand, it is possible that regulatory focus and cooperation/competition goals will show an interactive effect. This could, for example, be the result of a process of regulatory fit. Regulatory fit exists when the strategies people use (or are required to use) are aligned with their own strategic inclinations (Higgins, 2000). For example, a prevention-focused individual would experience regulatory fit when working under task conditions that require vigilance, which in turn would lead to a feeling of 'rightness' and, therefore, could lead to increased performance (e.g., Camacho, Higgins, & Luger, 2003; Spiegel, Grant-Pillow, & Higgins, 2004). Taking into account the results by Bittner and Heidemeier (2013), an expectation could be that a cooperation goal with a promotion focus may lead to the perception of regulatory fit, and that this fit may strengthen the effect on creativity. The combination of a competition goal with a prevention focus would then lead to less creativity, because the individual's inclination toward creative performance would be diminished by a lack of regulatory fit.

On the other hand, it is possible that regulatory focus and cooperation/competition goals exert independent effects, leading to an additive, rather than an interactive influence. The two constructs may activate separate and independent motivational processes that do not affect each other's relation with creativity. If these motivational goals are co-activated, they may trigger underlying processes that are of separate origin, but ultimately are additive in their final impact on creativity. This finding would provide us with knowledge about how creativity can be facilitated if two motivational concepts are activated at the same time. A result could be that the highest creativity would be displayed by people in the cooperation-promotion condition, because both, cooperation goals and a promotion focus may stimulate creative performance simultaneously.

For the separate effect of only cooperation or competition, we assumed that individuals with a cooperation goal would be more creative than individuals with a competition goal. This was expected, firstly, because our operationalization of cooperation goals in essence entailed Bechtoldt et al.'s (2012) definition of collectivistic values, which should increase creativity. Secondly, people in our experiment worked individually, which is likely to activate an individualistic self-construal that should lead to higher creativity compared to a collectivistic one.

For the separate effect of regulatory focus, we expected from previous research that a promotion focus would be beneficial for creativity, whereas a prevention focus would be detrimental (Baas et al., 2008). This effect was previously found for originality as the dependent variable, but not for fluency (Friedman & Forster, 2001). If our orthogonal design resulted in separate main effects, our findings would confirm previous effects of regulatory focus on originality, because they would occur even if combined with an induction of cooperation/competition goals.

3. Method

3.1. Participants and design

The participants were recruited from a panel for marketing-related online-studies. They were given €3 as compensation. The sample consisted of 192 adults in Germany, and 53.1% were female. They were 37.6 years old on average ($SD = 7.6$), and 30.2% had completed a university degree. On average, the respondents had 2.1 children; 57.3% had a full-time job, 21.4% worked part-time, and 21.4% did not have a job.

The study had a 2 (goals: cooperation versus competition) $\times$ 2 (regulatory focus: promotion versus prevention) factorial design; with $n_1 = 50$, $n_2 = 48$, $n_3 = 47$, $n_4 = 47$. The dependent variable was creativity, measured as performance on an idea generation task.

3.2. Procedure

Members of a German online-panel were contacted by phone and invited to participate in a study on creativity. Participants who reported to be interested to complete an online questionnaire about creativity were contacted a second time and randomly assigned to one of the four experimental conditions. All the questions were provided electronically and with standardized instructions. The first task was a brief affect questionnaire about how the participants felt at the moment (see Section 3.3). The aim was to control for the possible influence of affect on the dependent variable.

To activate cooperation or competition goals, the participants received a scenario describing goal pursuit in social settings (Bittner & Heidemeier, 2013). The cooperation group read a scenario that stressed the importance of being cooperative in life, being a team player, and taking the wishes of others into consideration. The competition goal group read that it is important to consider one's own wishes, to compete with others, and to enforce one's desires. To determine whether the participants

Table 1

Descriptives and zero-order correlations.

	M	SD	1	2	3	4	5	6
1. Regulatory focus ^a	n.a.	n.a.	–	.01	–.00	.15*	.00	.07
2. Competition/cooperation goals ^b	n.a.	n.a.		–	.04	.17*	–.02	–.06
3. Fluency	5.64	2.98			–	.29**	.04	–.12
4. Originality	3.23	1.27				–	–.07	–.07
5. Mood, pre-measurement	2.96	1.07					–	.40**
6. Mood, post-measurement	2.76	.99						–

Note: N = 192 participants.

* $p < .05$.** $p < .01$.^a Coded as prevention = 0, promotion = 1.^b Coded as competition = 0, cooperation = 1.

read the text carefully, they were asked to describe in a few words what the text was about. Depending on the condition, the participants wrote down phrases such as *children should behave cooperatively*, or *elbow others aside*. Participants with unrelated or nonsense answers (e.g., *fghg*) were excluded from all analyses.

In the next task, a situational promotion or prevention focus was induced in participants. Similar to previous studies (Higgins et al., 1994), participants in the promotion condition were asked to name their current ideals and developmental goals, whereas participants in the prevention condition were asked to write down their duties and responsibilities. After receiving these instructions, the participants performed the creativity task. This was a typical idea generation task that gave the respondents two minutes to generate as many ideas as possible about the use of a *yellow sticky note*.

Afterwards, the participants were asked again about their present affective states as a post-test, and were given three manipulation check questions about their commitment toward the cooperation goal. In addition, we asked participants during the debriefing what they thought the experiment was about, and whether they saw any relation between the different questionnaires. None of their answers gave rise to concerns regarding the experimental manipulations. This was expected because we used an adult sample without much experience in psychological research. In the end, the participants proceeded to complete additional questions about product advertising in marketing.

3.3. Measures

3.3.1. Affect

Pre- and post-test affect were measured with 16 items similar to Higgins, Shah, & Friedman (1997) on a seven-point scale (1 = *totally agree* to 7 = *totally disagree*). Four items were related to either dejection (e.g., *disappointed*) or agitation (e.g., *uncomfortable*), whereas two items were related to cheerfulness (e.g., *satisfied*) or quiescence (e.g., *relaxed*). We added two items related to cheerfulness (*glad*) and quiescence (*stable*) to enhance the reliability of the scale, which had a total $\alpha = .93$ for the pre-, and the post-test measure of affect.

3.3.2. Goal commitment

Goal commitment was measured by asking the participants to indicate on a seven-point scale (1 = *totally agree* to 7 = *totally disagree*) how important cooperation is for them, how much they strive toward cooperation, and how likely they consider reaching a cooperation goal (Kopetz et al., 2012; Kruglanski et al., 2002). The three items appeared in random order and had a reliability of $\alpha = .80$.

3.3.3. Creativity

Creativity was measured in two ways. Firstly, we assessed *fluency* by counting the number of ideas generated by each participant. Secondly, we instructed four independent judges to rate the originality (i.e., novelty, uniqueness; Caroff & Besançon, 2008) by rating each idea on a nine-point scale (1 = *not original at all* to 9 = *very original*). Counting and coding of the ideas was done in such a way that the coders were not aware of the experimental conditions that the participants were in. The judges were trained to rate the originality by considering the novelty and uniqueness of each answer. After the initial instructions, the judges formed independent ratings. In line with other creativity research (e.g., Rietzschel, Nijstad, & Stroebe, 2006), a final originality score was calculated for each participant by averaging the originality ratings of the four raters. The interrater reliability of the four raters was calculated with an intraclass correlation and was sufficient for the single measure, ICC = .69.

3.4. Results

3.4.1. Correlations and descriptives

Correlations and descriptives for the main variables in this study are presented in Table 1. Fluency and originality were positively correlated ($r = .29, p < .01$), which is in line with other findings (cf. Baas et al., 2008). Neither of our manipulations

Fig. 1. Effects of cooperation/competition goals together with regulatory focus on originality.

displayed a zero-order relation with fluency, but both were related to originality ($r_s \geq .15$, $p_s < .05$). Further, mood was unrelated to either our manipulations or the dependent variables ($r_s \leq .12$, $p_s > .05$).

3.4.2. Affect

To rule out the influence of affect on creativity (Hirt, Melton, McDonald, & Harackiewicz, 1996; Hirt, Levine, McDonald, Melton, & Martin, 1997), several analyses were conducted. ANOVAs confirmed that there was no significant difference between the experimental conditions in participants' pre- or post-affect ($F_s < 1$). Furthermore, a regression found no influence of affect on the dependent variables, which points out that affect did not facilitate the effect on creativity. Inserting mood as a covariate into the main ANOVA (3.4.5) did not yield an effect and also confirmed that affect did not drive the effects of the independent variables.

3.4.3. Goal commitment

An ANOVA confirmed that the regulatory focus manipulation did not affect goal commitment ($F < 1$). As expected, the manipulation check revealed that commitment to cooperation differed significantly between the cooperation and competition condition, $F(1,188) = 306.31$, $p < .001$. Participants in the cooperation condition reported more commitment to the cooperation goal ($M = 2.37$) than participants in the competition condition ($M = 4.91$). This illustrates that commitment to the cooperation goal was higher in the cooperation compared to the competition condition (Simmons et al., 1988).

3.4.4. Creative fluency

In line with our expectation from earlier results (Friedman & Forster, 2001), an ANOVA with the number of creative ideas as the dependent measure yielded no significant effects (all $F_s < 1$).

3.4.5. Idea originality

A 2 (goals: cooperation versus competition) $\times$ 2 (regulatory focus: promotion versus prevention) ANOVA was conducted with the originality score as the dependent variable. It showed a significant main effect of regulatory focus, $F(1,188) = 4.36$, $p = .038$, $d = .301$, with the promotion focus condition leading to more original ideas ($M = 3.42$, $SD = 1.21$) than the prevention focus condition ($M = 3.04$, $SD = 1.31$). In addition, the main effect of goals on originality was significant, $F(1,188) = 5.82$, $p = .017$, $d = .351$. The participants with a cooperation goal generated more original ideas ($M = 3.45$, $SD = 1.36$) than the participants with a competition goal ($M = 3.01$, $SD = 1.14$).

There was no significant interaction between regulatory focus and goals ($F < 1$), implying that these effects were independent and additive. As can be seen in Fig. 1, participants with a promotion focus and a cooperation goal generated significantly more original ideas ($M = 2.64$) than participants with a prevention focus and a competition goal ($M = 1.83$), $t(95) = 3.41$, $p = .001$.

4. Discussion

This study investigated the combined effects of regulatory focus and cooperation/competition goals on subsequent creativity. To advance prior studies that examined competition and came to positive (e.g., Amabile & Gryskiewicz, 1987; Cummings & Oldham, 1997; Raina, 1968), as well as negative effects on creativity (e.g., Amabile, 1982; Deci et al., 1981; McGlynn et al., 1982), the present research included regulatory focus as another motivational concept that can be co-activated

with cooperation in specific situations. We investigated whether these factors influence creativity interactively (consistent with a regulatory fit perspective), or additively (suggesting independent influences). In our experiment, two main effects on originality of ideas were found. People with an activated promotion focus and a cooperation goal were more original than people with a prevention focus and a competition goal. These results confirm the perspective stating additive influences of two independent constructs.

As a possible explanation, it is worth considering that the two effects in the present study may originate from a facilitation of the expression of original ideas. First, an explanation for the increase in originality could be that in settings where goals are cooperative instead of competitive, people do not hesitate to express very original ideas and, thus, are more likely to bring up extremely unusual ideas (Bechtoldt et al., 2010; Tjosvold, 1998). This would lead to more originality in cooperative settings because people might be less afraid to report very original ideas compared to competitive settings. Second, a promotion focus has been associated with increased creativity and is usually associated with more holistic information processing. People in a promotion focus have a more risky, explorative processing style that enables them to seek for novel alternatives (Higgins, 1997). Consequently, the co-activation of a promotion focus in cooperative situations has additional effects, leading to the highest originality.

A similar interpretation can be given for the diminishing effect of a prevention focus on originality in competitive settings. A prevention focus may lead people to hold back their original ideas because they are concerned about safety and the possibility of failure (Higgins, 1997). Competitive settings may induce people to mention ideas that are mainly based on repetitions instead of novelty and may, thus, prevent people from expressing very original ideas. This effect would be expected in competitive situations where people hold back their original ideas due to concerns about trust, and if uniqueness is not accepted (Goncalo & Staw, 2006).

Because the present results revealed two main effects and not an indication for an interaction, we can conclude that the two processes explained above are independent from each other and do not interfere with each other, if activated at the same time. For creative performance, it is of practical relevance that these effects seem to be additive, because the combination of a promotion focus with cooperation goals could be a suitable method to enhance creativity to a higher level than would be possible with the activation of only one of these constructs. Further studies should investigate in more detail how multiple factors can be combined to increase creativity.

In line with our expectations, we found an effect of our manipulations on originality, and not on fluency. These results indicate that there was no difference in the amount of effort participants put into the quantity of idea generation, because effort would have increased their fluency. Thus, rather than merely investing more effort into the idea generation task, participants in the experimental conditions seem to have generated ideas through different strategies, which led to changes in originality. Interestingly, Bechtoldt et al. (2012) found that collectivistic values did affect group fluency in addition to originality. They argued that these fluency effects were likely due to differences in invested effort, resulting, for example, from increased social loafing in the individualistic groups (cf. Karau & Williams, 1993). Indeed, this might explain why we do not find these fluency effects: In our study, participants worked individually and, therefore, social loafing could not occur and change their invested efforts. To draw further conclusions, the underlying processes that determine how motivational variables differentially affect measures of creative performance, would be an interesting avenue for future research (Baas et al., 2008).

4.1. Theoretical and practical implications

Creativity is a multifaceted construct and different assessments and operationalizations exist in the literature. Because Baas et al. (2008) showed in their meta-analysis that effects on creativity may differ depending on the assessment of creativity as fluency, originality, or flexibility, future research is needed on the difference between the various facets of creativity (De Dreu et al., 2008). The present study focused on the implications for originality, because the expression of highly original ideas was expected to be facilitated in a cooperative social setting. Furthermore, it seems that fluency is not affected in a social situation in which team members work individually.

We assessed individual creativity within a cooperative setting to complement previous studies that mainly investigated creative performance at the group level (Baas et al., 2008; Bechtoldt et al., 2010, 2012; Beersma & De Dreu, 2005; Goncalo & Staw, 2006). Our findings for creativity at the individual level support the conclusion that greater originality is achieved in settings that combine collectivistic values with an individualistic self-construal (Bechtoldt et al., 2012). Based on these previous results on the ineffective combination of collectivistic values with a collectivistic self-construal for group creativity, we would not expect greater originality for a cooperative setting in which originality is assessed at the group level. A group originality score would usually not allow group members to demonstrate their uniqueness if they are acting within a cooperative setting (Goncalo & Staw, 2006). Group tasks assessing group creativity in a cooperative context may even discourage individuals to develop novel, innovative ideas (e.g., against the group norm), and may prevent them from expressing very original ideas. These expectations, however, might change if intragroup competition is induced and the team members aim to outperform each other (Beersma & De Dreu, 2005).

Interestingly, studies have also specified situations in which a prevention focus may lead to similar levels of creativity as a promotion focus; for instance, in situations where people reflect on prevention goals that have not been fulfilled yet (Baas et al., 2011). Moreover, under specific conditions, a prevention focus may lead to more creativity than a promotion focus (Herman & Reiter-Palmon, 2011; Lam & Chiu, 2002). For example, in a situation where the likelihood of being successful on

a creative task was small, prevention focused individuals – trying to avoid the negative consequences of failing – were more persistent and, thus, generated more ideas (Lam & Chiu, 2002). In line with this reasoning, Roskes, De Dreu, and Nijstad (2012) found that an avoidance motivation was associated with higher creativity if creativity was functional for achieving the avoidance goal. Furthermore, De Dreu and Nijstad (2008) showed that participants in a conflict mindset performed more creatively (e.g., generated more tactics) in conflict-related categories. Clearly, the relation between regulatory focus and creativity may differ depending on the specific situation at hand, and, thus, future studies should aim to uncover more details about the underlying processes. To take into account situational differences of motivational orientations and personality characteristics, it would be important to examine the consequences of person-situation interactions in educational and work settings (Chan & Yuen, 2014; Goncalo & Duguid, 2012; Heidemeier & Bittner, 2012).

A limitation of our experimental design could be that results may differ depending on the sample that is tested. The present study extends the scope of prior research by employing an adult sample that differed in terms of age and education from other samples. Although prior experiments investigated participants of various nationalities, they typically examined student samples (e.g., Baas et al., 2011; Bechtoldt et al., 2012). Several scholars have voiced concerns over the near exclusive use of student samples, arguing that this limits the generalizability of findings (e.g., Sears, 1986). Our results may go some way toward alleviating this concern by examining the originality of ideas in an adult sample with a more diverse educational background.

4.2. Conclusions and outlook

The present findings demonstrate that cooperation goals and a promotion focus should be emphasized when aiming to increase originality. Our results support the idea that cooperation goals enhance originality even in situations where they are activated together with further motivational constructs, such as a promotion focus. By contrast, if competition prevails in organizational or educational settings, and a prevention focus is activated, the two constructs may lead to significantly lower levels of originality than settings that induce a cooperation goal and a promotion focus. Environmental influences in group settings oftentimes activate multiple goals and motivations that may have consequences for subsequent creativity. In future studies, it would be important to further specify the various situational cues that can be co-activated to boost people's goals and motivations.

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