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Person-task fit: Emotional consequences of performing divergent versus convergent thinking tasks depend on need for cognitive closure

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ABSTRACT

We investigated how people high (vs. low) in the Need for Cognitive Closure (NFC) experience working on divergent and convergent thinking tasks. Based on the notion of person-task fit, we hypothesized that individuals high in NFC (but not those low in NFC) would feel less competent when solving divergent (vs. convergent) thinking tasks, because, being open-ended, divergent thinking tasks do not offer closure. We also predicted that, consequently, high NFC individuals would experience less positive emotions and more negative emotions when performing a divergent (vs. convergent) thinking task. To test this idea, we measured NFC among participants ($N = 549$) from five European countries and asked these participants to complete a divergent (vs. convergent) thinking task and to appraise their own competence and emotions. Participants high in NFC (but not these low in NFC) felt less competent and experienced less positive and more negative emotions when solving a divergent (vs. convergent) thinking task. The association between task type and emotions was mediated by perceived competence but only for participants high in NFC.

1. Introduction

Why do some people like to come up with multiple possibilities, whereas others stick to the first solution that comes to their mind? A trait that differentiates between these contrasting preferences is *need for cognitive closure* (NFC). NFC reflects a stable dispositional preference for order and predictability, an urgent desire to reach decisions, affective discomfort with ambiguity, and "closed-mindedness" (Webster & Kruglanski, 1994). NFC manifests itself in motivational rigidity, which has been shown to have a wide range of consequences for psychological functioning, information processing, and decision making (Kruglanski, 2004; Roets, Kruglanski, Kossowska, Pierro, & Hong, 2015). For example, a lack of closure – when no definitive conclusion has been reached – is aversive to high NFC individuals and causes distress (Roets et al., 2015; Roets & Van Hiel, 2008).

In this paper, we extend the research on the consequences of NFC by applying the notion of Person-Environment fit (P-E fit; e.g., Kristof-Brown, Zimmerman, & Johnson, 2005). As argued by P-E fit theories, individuals working in an environment (e.g., an organization, a team, or a job) that suits their personalities and fulfills their needs will function and perform better than those who experience a misfit (Edwards & Shipp, 2007). Building on this idea, our paper focuses specifically on *person-task fit*, which has been rarely studied in the P-E fit literature (Finucane, Mertz, Slovic, & Schmidt, 2005) and, to the best of our knowledge, has not been examined in relation to NFC (but for related evidence on Personal Need for Structure see Rietzschel, Slijkhuis, & Van Yperen, 2014a, 2014b; Slijkhuis, Rietzschel, & Van Yperen, 2013). Thus, we examine whether NFC affects how people respond to different types of tasks.

In particular, we propose that tasks varying in the extent to which they provide closure will (vs. will not) fit the needs of people differing in NFC. In doing so, we specifically focus on convergent versus divergent thinking tasks (Guilford, 1950, 1967). In convergent thinking tasks a single correct solution is required, but in divergent thinking tasks the aim is to generate as many diverse responses as possible. Closure should be easily achieved by reaching the correct solution in convergent thinking tasks, implying a high person-task fit for people high in NFC. However, closure may be not achieved in the process of

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generating multiple possibilities in divergent thinking tasks, implying a person-task *misfit* for people high in NFC. We further propose that the degree of person-task fit will have momentary-level consequences for how people experience the situation in terms of their feelings of competence and their emotional responses to the task at hand.

To test these hypotheses, we conducted a multi-group study in five language samples, in which participants completed a divergent (vs. convergent) thinking task and evaluated their competence and emotions during the task. We aimed to extend the P-E fit framework by showing the effects of fit at the momentary level (i.e., fit between personality and the task at hand), and to provide a novel perspective on the consequences of NFC in terms of experienced competence and emotions when working on different types of tasks.

1.1. Need for cognitive closure and person-environment fit

NFC relates to individual needs regarding knowledge and influences the way people think; NFC is a desire for any definitive answer to a question, and fulfilling this desire is experienced as urgent by high NFC individuals (Kruglanski, 2004). People high in NFC engage in a rigid processing style to reduce uncertainty, which has a wide range of consequences (Kruglanski, 2004; Roets et al., 2015). For example, motivational rigidity at high levels of NFC relates to a limited number of hypotheses generated before forming a judgement and to increased judgmental confidence (Mayseless & Kruglanski, 1987). Furthermore, people high in NFC follow the task strategy employed by other solvers (Jaśko, Czernatowicz-Kukuczka, Kossowska, & Czarna, 2015) as well as adopt the strategy cued in the task instructions (Szumowska, Kossowska, & Roets, 2018). This does not necessarily imply that high NFC individuals work less hard on any task, because high NFC people are willing to exert more effort when closure can be achieved only through effortful strategies (Szumowska, Szwed, Kossowska, & Wright, 2017; see also Sankaran, Szumowska, & Kossowska, 2017). Importantly, high NFC individuals may experience negative emotions as long as no closure is reached: Absence of a definitive answer during task completion triggers distress and aversion especially among high NFC individuals (Roets & Van Hiel, 2008).

We propose that the combination of high dispositional NFC and a situational opportunity to reach closure represents a good person-environment fit (P-E fit; e.g., Kristof-Brown et al., 2005), whereas the combination of high NFC and a lack of opportunity to reach closure represents a misfit. In general, when P-E fit is high, the environment either aligns with or complements the individuals' needs or preferences. P-E fit has been mostly examined in relation to work outcomes, such as work attitudes (e.g., job satisfaction and organizational commitment) and turnover intentions (Verquer, Beehr, & Wagner, 2003), but also in relation to mental and physical health, and in relation to task performance (Edwards & Shipp, 2007). Meta-analyses have shown that P-E fit indeed relates to higher job satisfaction, organizational commitment, and task performance (Hoffman & Woehr, 2006; Kristof-Brown et al., 2005). For instance, for high NFC people P-E fit may be high in routine jobs with clear rules, whereas it may be low in jobs requiring spontaneity and quick adaptation to change (cf. Billing, Bhagat, & Babakus, 2013).

P-E fit has not been explored in relation to how people high (versus low) in NFC function in tasks that provide them with more or less opportunities to achieve closure (but for related evidence see Rietzschel et al., 2014a, 2014b; Slijkhuis et al., 2013). We suggest that these kinds of tasks – which provide or do not provide closure – are represented by convergent and divergent thinking tasks, respectively (Guilford, 1950, 1967). In *convergent thinking tasks*, people are required to find a single correct solution (e.g., a correct answer in a multiple choice test; the correct word in a crossword puzzle), whereas in *divergent thinking tasks*, people are asked to provide many different answers with no clear distinction in terms of correct versus incorrect solutions (e.g., novel uses of a bottle; cf. Colzato, Szapora, Lippelt, & Hommel, 2017). Convergent thinking tasks are by definition closed-ended, in that a single correct answer exists and task progress can usually be verified. Consequently, we propose that convergent thinking tasks grant high NFC individuals the opportunity to reach closure, which provides a good fit with the needs of those individuals. In contrast, divergent thinking tasks are by definition open-ended tasks, in which closure cannot readily be achieved, and in which task progress may be unclear. Therefore, in our view, this type of task entails a misfit for high NFC individuals. Our basic prediction is that the (mis)fit between convergent (vs. divergent) thinking tasks and NFC will affect feelings of competence, which will, in turn, affect emotional functioning.

1.2. Emotional consequences of person-task fit

We firstly propose that the fit or misfit between NFC and task type (convergent vs. divergent) will influence the extent to which individuals feel competent while completing the task. In fact, people high (vs. low) in NFC have been shown to perform worse on divergent thinking tasks both at the group (Chirumbolo, Livi, Mannetti, Pierro, & Kruglanski, 2004; Chirumbolo, Mannetti, Pierro, Areni, & Kruglanski, 2005) and individual level (Sankaran, Grzymala-Moszczynska, Strojny, Strojny, & Kossowska, 2017). This seems at least partly the result of a personality-task misfit. Since high NFC individuals want to reach closure, they pressure fellow group members into conforming to others, and this behavior is incompatible with the goal of generating many options (as opposed to one correct option; Chirumbolo et al., 2005). Similarly, high NFC individuals tend to feel threatened by creative tasks (Sankaran, Grzymala-Moszczynska, et al., 2017), which may result from a person-task misfit, and which ultimately undermines their performance. Thus, because of a person-task misfit, high NFC individuals tend to underperform in divergent thinking tasks, and will therefore experience lower levels of competence during these tasks as compared to low NFC individuals.

In contrast, high NFC individuals may feel relatively competent in convergent thinking tasks, because these tasks (but not divergent thinking tasks) may increase their judgmental confidence. As argued by Mayseless and Kruglanski (1987), when confronted with a problem, people high in NFC are not motivated to generate multiple alternative hypotheses or solutions, because this would threaten their existing knowledge structures. Rather, due to their motivational rigidity, they prefer to stick to the first available solution. If alternative solutions were generated, it would decrease confidence in the first solution, which would threaten closure. In support of this idea, Mayseless and Kruglanski (1987) found that participants high in NFC not only exhibited higher confidence in their initial response than those with low NFC, but also generated fewer alternative answers to the problem.

Increased judgmental confidence of people high in NFC should have consequences for how competent they feel during convergent and divergent thinking tasks. In convergent thinking tasks, high NFC people could (in principle) stop after the first satisfactory solution has been found. Because they are motivated to reach closure and justify such closure (Kruglanski, 2004), they are likely to be overconfident in that solution, and experience elevated levels of competence. However, divergent thinking tasks require the generation of multiple alternatives, and thus, subjective confidence in each solution should be lower. Together with uncertainty about reaching closure in open-ended tasks, this lower confidence should decrease experienced competence among high NFC people during divergent thinking tasks. As it is not important or urgent for people low in NFC to obtain closure, their feelings of competence should not vary depending on task type.

H1. High NFC people experience higher competence when completing convergent thinking tasks than when completing divergent thinking tasks; this effect is not found among low NFC individuals.

Secondly, based on two theories, we propose that perceived competence will have consequences for positive and negative emotions experienced during the task. Firstly, according to self-determination theory, satisfaction of the basic psychological needs for competence, relatedness, and autonomy contributes to positive emotions and well-being (Deci, Olafsen, & Ryan, 2017). For example, a meta-analysis (Van den Broeck, Ferris, Chang, & Rosen, 2016) has shown that satisfaction of the need for competence is a unique predictor of intrinsic motivation and well-being. Even more relevant work by Schmierbach, Chung, Wu, and Kim (2014) found momentary-level effects of competence on well-being: Engaging in a more difficult game decreased feelings of competence, which in turn diminished overall task enjoyment. Thus, self-determination theory suggests that feelings of competence will improve emotional functioning and will be positively associated with positive emotions and negatively with negative emotions. Secondly, cognitive appraisal theory of affect and emotions suggests that control appraisals strongly influence emotional experiences (Frijda, Kuipers, & ter Schure, 1989; Smith & Ellsworth, 1985). For example, feelings of reduced control (i.e., not being in control of the situation) are associated with reduced happiness and increased frustration (Landau, Kay, & Whitson, 2015; Smith & Ellsworth, 1985). Because experienced competence signals high control, we expected that experienced competence relates to more positive emotions and less negative emotions. Given that emotions are not only characterized by valence (positive – negative), but also by activation (activating – deactivating) (Russell, Weiss, & Mendelsohn, 1989; Vittersø, Oelmann, & Wang, 2009), we examined the effects on positive activating emotions (e.g., interest and engagement), positive deactivating emotions (e.g., contentment and pleasure), and negative activating emotions (e.g., frustration). Since Roets and Van Hiel (2008) found no effects on negative deactivating emotions (e.g., sadness and tiredness), we did not include those.

H2. Experienced competence is positively related to (activating and deactivating) positive emotions and negatively related to activating negative emotions.

Overall, research has shown that the opportunity to engage in divergent thinking tasks can be quite motivating and enjoyable. For example, Bujacz et al. (2016) found that solving divergent (vs. convergent) thinking tasks increased positive emotions through increased feelings of autonomy (see also Akbari Chermahini and Hommel, 2012). However, Hypotheses 1 and 2 suggest that this conclusion may not apply to everyone. Rather, they suggest that divergent thinking activities (as compared to convergent thinking) could *decrease* positive emotions and *increase* negative emotions among people high in NFC, and that this relation is mediated by experienced competence. Our final hypothesis, therefore, is:

H3. Divergent tasks lead to lower positive and higher negative emotions as mediated by experienced competence but only among individuals high in NFC.

2. Method

2.1. Participants and design

The study was conducted in Austria, Italy, Ireland, Poland, Sweden, and the UK. Ethical approval was granted from ethical committees in each country, and 863 adults participated in the online study across all countries. Participants were recruited through university websites and social networks, and informed consent was obtained from all participants. Of the sample, 289 participants withdrew from the study prior to task assignment. Data from 25 participants (3% of the total sample) were subsequently excluded from the analyses: 5 participants had missing values on predictor variables, and 20 participants spent less than 20 s or more than 20 min on a task. We assumed that those who spent too little time were insufficiently motivated, while those who spent too much time may have been distracted by other activities. In total, data from 549 participants were analyzed (divided by language groups into 159 English, 73 Swedish, 106 Italian, 121 Polish, and 90 German; 71% women; age range 18 to 69; $M = 28$ years, $SD = 9.6$). Participants were randomly and automatically assigned to a divergent thinking or convergent thinking task condition and they could subsequently choose one out of three (divergent or convergent, depending on condition) tasks that they wanted to solve.

Divergent thinking tasks used in his study were: (1) generating cartoon titles ($n = 128$; Sternberg, 2006), (2) listing different uses for a rubber band ($n = 85$; Guilford, 1967), and (3) improving the design of a table for people with impaired vision ($n = 54$; Kim, 2006). All tasks required providing multiple (rather than one) potential solutions and offered no opportunity to verify when sufficient progress had been made, i.e., had no limits and no indication on how many ideas were enough (e.g., "list as many ideas as you wish").

Convergent thinking tasks used in this study were: (1) spotting the differences between two cartoons ($n = 214$), (2) answering questions about a presented book excerpt ($n = 46$; Sacks, 2008), and (3) writing instructions on how to assemble a table based on given illustrations ($n = 22$). The convergent thinking tasks were pre-tested so that their difficulty was similar to those of the divergent thinking tasks (Bujacz et al., 2014, 2016). In all of these tasks, people were required to find the only correct solution (or limited set of solutions) and could verify their progress while solving the task, i.e., they could recognize that the goal had been met when they provided the answer.

2.2. Measures[1]

All items used in the study were translated from the English versions. We employed a 7-point response format where 1 = "not at all", 4 = "moderately", and 7 = "very much". See Table 1 for the correlations among all study variables.

Need for closure (NFC) was measured with fifteen items of the brief version of the Need for Closure Scale (Roets & Van Hiel, 2011; e.g., "I don't like situations that are uncertain"; $\alpha = 0.85$ across the various language groups).

Competence was measured using two items ("I had a chance to show how capable I am", "I felt that I'm good at what I'm doing") from the satisfaction of the need for competence scale (Longo, Gunz, Curtis, & Farsides, 2016; Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010; $r = 0.68$).

Emotions were measured using five items taken from the Basic Emotions State Test (BEST; Vittersø et al., 2009), one representing active negative emotions ("annoyed"), two representing active positive emotions ("interested", "engaged"), and two representing passive positive emotions ("content", "pleased"). Active and passive emotions were distinguished for exploratory reasons, because some research suggests that they relate to different motivational states (Higgins, 1997) or have a different relation with (creative) performance (Baas, De Dreu, & Nijstad, 2008).

2.3. Procedure

The study was conducted online. The data for this study were collected as part of a larger international project on creativity and well-being (Bujacz et al., 2014). Previously published papers used the same dataset (Bujacz et al., 2014, 2016), but the key variables (NFC and competence) used in the present research have not been reported before. Need for closure was measured first, alongside other personality questionnaires (see Bujacz et al., 2014 for a complete list of questionnaires). Next, participants were randomly assigned to the divergent

[1] Since our hypotheses concerned affective responses to performing convergent vs. divergent tasks, and due to the difficulty in reliably assessing performance among different language samples, we chose to not report any performance results.

Table 1
Descriptive statistics and correlations among study variables.

	1	2	3	4	5	6	7	8	9	*M*	*SD*
1. Task	–									0.49	0.50
2. NFC	−0.01	–								3.96	0.97
3. Competence	−0.13**	0.05	–							4.27	1.64
4. Passive positive emotions	−0.03	0.03	0.66**	–						4.08	1.51
5. Active positive emotions	−0.08	−0.01	0.62**	0.70**	–					4.73	1.46
6. Active negative emotions	−0.02	0.02	−0.26**	−0.33**	−0.29**	–				2.11	1.50
7. Gender	0.03	0.10*	−0.06	0.01	0.02	−0.08	–			0.71	0.46
8. Age	−0.02	0.05	0.12**	0.15**	0.11**	−0.09*	−0.06	–		28.1	9.60
9. Time on task	−0.37**	−0.13**	0.18**	0.15**	0.22**	−0.05	−0.13**	0.20**	–	4.48	3.62
10. Difficulty	0.28**	−0.10*	−0.07	−0.02	0.05	0.06	−0.15**	−0.01	0.24**	1.51	0.72

Note. Task is coded 1 = divergent, 0 = convergent. Variables 2 through 6 were standardized and group mean centered in the analysis; means and standard deviations of unstandardized variables are presented in the table. Gender is coded 1 = women, 0 = men. Time on task is presented in minutes. Difficulty is coded 1 = easy, 2 = medium, 3 = difficult.
* $p < .05$.
** $p < .01$.

or convergent thinking task condition. Afterwards, they chose one task (out of three) that appealed to them the most. Participants assigned to the convergent thinking task condition chose one out of three convergent thinking tasks; an analogical choice of three divergent thinking tasks was given in the divergent thinking task condition.

As mentioned, these tasks were pre-tested and confirmed to vary on difficulty level (see Bujacz et al., 2014, 2016). However, participants were not informed that the tasks varied in difficulty; they were only provided with a short description of each task. In this way, participants were able to make an informed choice and perform the task that matched their preferences. This procedure has the advantage that fit or misfit effects between task type and NFC are not due to specific tasks, to their level of attractiveness, or to their level of difficulty. The disadvantage is that different participants performed different tasks. To address this issue, we controlled for task difficulty in the analyses.[2]

Participants had unlimited time, but time on task was measured. On average, it took about 5 min to solve a task (see Table 1), and across groups, participants spent less time on divergent than on convergent thinking tasks ($\Delta = 2.68$ min; $p < .001$). Time on task was used as a control variable. Immediately after task completion, participants' experienced competence, positive emotions, and negative emotions were measured in reference to the task (i.e., "How did you feel while solving this task?").

2.4. Analytic strategy

The dataset included five subsamples collected in different languages. These samples were systematically compared to empirically test for the equivalence of results across samples, following the assumptions of multivariate meta-analysis (Jackson, Riley, & White, 2011). To account for mean score differences due to language and cultural factors, all variables were standardized and group mean centered. We tested our hypotheses using a moderated mediation model (Preacher, Rucker, & Hayes, 2007) estimated on manifest variables (i.e., mean scores across test items). The model controlled for the effects of gender, age, task difficulty, and time on task on both the mediator (competence) and the outcome variables (emotions). Indirect effect tests used bootstrapping with 10,000 samples (e.g., Preacher & Hayes, 2008).

All analyses were performed with Mplus version 8 (Muthén & Muthén, 1998–2017). For the evaluation of a model, the following fit indices were used with the respective cut-off values indicating good model fit: CFI above 0.95; RMSEA below 0.05; and SRMR below 0.10 (Williams, Vandenberg, & Edwards, 2009). For model comparison, the BIC difference was used with a value higher than 10 providing strong evidence against the model with the higher BIC value (Kass & Raftery, 1995).

[2] We also analyzed only the data of those participants who chose to perform the easy task. All results remained similar and conclusions identical. Effect sizes were equally strong or stronger.

3. Results

The moderated mediation model (see Fig. 1) with all effects constrained to equality across language groups (apart from control variables' effects) fitted the data very well ($\chi^2[76] = 95.54$; RMSEA = 0.048; CFI 0.978; SRMR = 0.046; BIC = 6005.32) and fitted significantly better than the same model with all structural paths allowed to vary freely across language groups (ΔBIC = 383.88). Thus, relations were comparable and the results were generalized across groups.

NFC was related to competence ($b = 0.17$, $p = .005$, $SE = 0.06$) but not to emotions ($b = -0.02$, $p = .773$, $SE = 0.05$ for passive positive emotions; $b = -0.02$, $p = .71$, $SE = 0.05$ for active positive emotions; $b = 0.02$, $p = .700$, $SE = 0.06$ for active negative emotions). In support of Hypothesis 1, the effect of task type (convergent task = 0, divergent task = 1) on competence was moderated by NFC ($b = -0.20$, $p = .015$, $SE = 0.08$). Task type predicted competence for people high in NFC ($b = -0.28$, $p = .037$, $SE = 0.13$) but not for people low in NFC ($b = 0.12$, $p = .33$, $SE = 0.13$; see Fig. 2).

Furthermore, experienced competence was positively related to both passive ($b = 0.65$, $p < .001$, $SE = 0.03$) and active ($b = 0.59$, $p < .001$, $SE = 0.03$) positive emotions, as well as negatively to active negative emotions ($b = -0.27$, $p < .001$, $SE = 0.04$). This supported Hypothesis 2. Consequently, we found significant indirect effects from task type through competence to positive and negative emotions but only for people high in NFC ($b = -0.18$, $p = .040$, $SE = 0.08$, 95% CI [−0.36; −0.01] for passive positive emotions; $b = -0.17$, $p = .041$, $SE = 0.09$, 95% CI [−0.33; −0.01] for active positive emotions; $b = 0.08$, $p = .047$, $SE = 0.04$, 95% CI [0.01; 0.16] for active negative emotions). For people low in NFC, these indirect effects were statistically non-significant ($b = 0.08$, $p = .33$, $SE = 0.08$, 95% CI [−0.08; 0.24] for passive positive emotions; $b = 0.07$, $p = .33$, $SE = 0.07$, 95% CI [−0.07; 0.22] for active positive emotions; $b = -0.03$, $p = .34$, $SE = 0.03$, 95% CI [−0.11; 0.03] for active negative emotions). Furthermore, the direct effect of task type on active and passive positive emotions was statistically non-significant at all levels of NFC. The direct effect of task type on active negative emotions was statistically significant only for people with mean level of NFC ($b = -0.24$, $p = .021$, $SE = 0.10$). Taken together, this suggests full mediation for positive emotions and partial mediation for active negative emotions. These results support Hypothesis 3.

An estimation of explained variance suggested a medium effect size

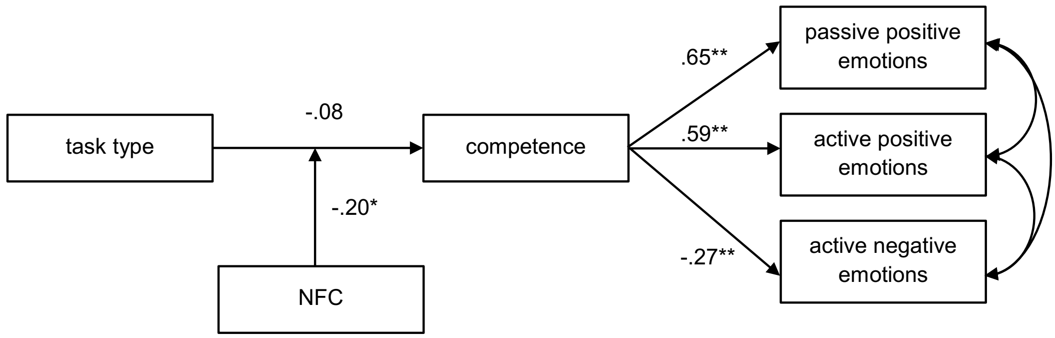

Fig. 1. Moderated mediation model invariant across language groups.
Note. Task type is coded 1 = divergent, 0 = convergent. All relations control for gender, age, task difficulty, and time on task. All but control variables' effects constrained to equality across groups. Need for closure (NFC), competence, and emotions are standardized and group-mean centered. * $p < .05$; ** $p < .01$.

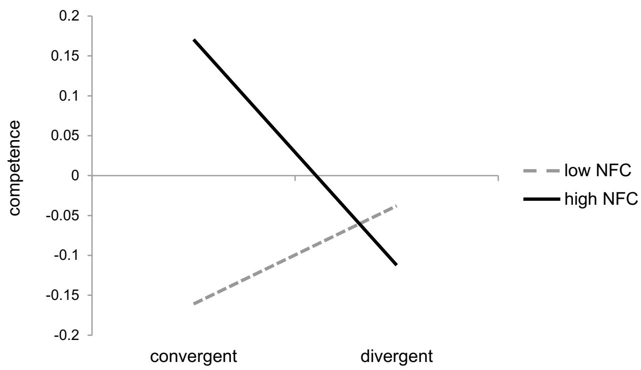

Fig. 2. Interaction of task type and NFC on competence.
Note. Low NFC is 1 *SD* below the mean and high NFC is 1 *SD* above the mean. Need for closure (NFC) and competence are standardized and group-mean centered.

for positive emotions (R^2 between 0.37 and 0.43 for active positive emotions and between 0.41 and 0.47 for passive positive emotions) and a small effect size for negative emotions (R^2 between 0.10 and 0.16 for active negative emotions) across language groups.

4. Discussion

Building on the person-environment fit literature, we proposed that the degree of fit between Need for Cognitive Closure (NFC) and the possibility of attaining closure in a given task influences feelings of competence and emotions during the task solution; we also suggested that experienced competence mediates the interactive effect of task type and NFC on emotions. More specifically, we predicted that high (but not low) NFC people would feel less competent and would experience less positive emotions and more negative emotions in tasks that deprive them of the opportunity to reach closure as compared to tasks that offer them such an opportunity.

In line with our expectations, we observed that high NFC people experienced less competence while performing a divergent than a convergent thinking task and that these feelings of competence in turn related to less positive emotions and more negative emotions. In contrast, task type had no effects on participants low in NFC. This result suggests that the open-ended nature of divergent thinking tasks can exert a significant influence at high levels of NFC. Such tasks lack the opportunity for closure, and thus they decrease subjective competence and worsen emotional functioning of people high in NFC. These effects may generalize to a wide range of convergent and divergent thinking tasks as well as different language samples, since three different types of divergent and convergent thinking tasks were used and hypotheses were tested on five language samples.

Our findings extend the literature on P-E fit. Although researchers have examined the effects of fit between personality and job (Kristof-Brown et al., 2005), organization (Hoffman & Woehr, 2006; Kristof-Brown et al., 2005), or environment in general (Sen, Acar, & Cetinkaya, 2014), rarely have they investigated fit between personality and a task at hand (but see Rietzschel et al., 2014a, 2014b; Slijkhuis et al., 2013). We found that the fit between personality (NFC) and type of activity (solving a convergent vs. divergent thinking task) increases feelings of competence, and indirectly improves emotional functioning at high levels of NFC. This finding corroborates the idea that environmental resources may help fulfill individual needs (needs-supplies fit). However, this idea has mostly been examined at the group, organizational and vocational level, while our findings show the effects at the level of specific tasks (cf. Edwards & Shipp, 2007).

Although we did not find that task type mattered for people low in NFC, this should, of course, not be taken to mean that P-E fit is not important for these people. For one thing, this group of participants probably comprises both those who simply do not have a high need for closure as well as those who would actually prefer *not* to have closure (i.e., a high need to avoid closure). The latter group may well respond differently to tasks that require actual decision-making, and would presumably prefer to generate more and more ideas and options.

Furthermore, the present findings shed light on the emotional consequences of NFC, and extend the findings of Roets and Van Hiel (2008). These authors used tasks that required participants to provide a single correct answer, but achieving this answer was severely hindered (because of short exposure times or unclear rules), leading to negative emotions among high NFC individuals. We have shown that high NFC people can experience both less negative emotions and more positive emotions when a single solution is available (convergent thinking tasks) as compared to when multiple alternative answers are required (divergent thinking tasks).

Our results suggest that the fit between personality and task type influences experienced competence, which in turn impacts positive and negative emotions. This perspective is supported by self-determination theory (Deci et al., 2017), which claims that satisfaction of the basic psychological need for competence has positive consequences for well-being. It is also supported by cognitive appraisal theory of emotions, in which the experience of control is positively linked to positive emotions, such as happiness, and negatively to negative emotions, such as frustration (Smith & Ellsworth, 1985). More generally, feeling competent may closely reflect a feeling of control over one's environment, and such control has long been associated with optimal functioning (Maier & Seligman, 2016). In addition, the theoretical assumption of competence causally influencing emotions has an important implication: Frequently solving tasks that fit (or not) one's level of NFC could have long-lasting effects on well-being. This intriguing possibility may be worth investigating in future research. For example, if high NFC employees work in a job or environment where their need for closure is routinely thwarted (e.g., if a coworker or supervisor repeatedly postpones decisions, or crucial information is not shared by the organization), their decrease in perceived competence could have serious long-term ramifications for their emotional well-being.

However, from another theoretical perspective, it is also possible that experienced emotions influence feelings of competence. According to feelings-as-information theory (Schwarz, 2011), affect serves as diagnostic information for the task at hand. Negative affect signals high task demands and novelty; it indicates that processing requires substantial effort. In contrast, positive affect signals fluent processing, and is connected to liking and familiarity. Since people high in the NFC experience distress when they cannot attain closure, negative affect accompanying distress may also spill over into other evaluations and serve as diagnostic information about lower competence. All in all, more research is needed to test whether and how competence and emotions causally influence each other, and how these relations play out over time in a real-world context.

Finally, our findings highlight the role of NFC in creativity research. Although it has been studied as a predictor of creative performance (e.g., Chirumbolo et al., 2004; Chirumbolo et al., 2005), it may also be an important moderator in studies that manipulate task type and use tasks with only one correct solution versus tasks with multiple potential solutions. An example of a task that has only one correct solution, and in which progress can be verified, is the Remote Associates Test (RAT; Mednick, 1962). The RAT requires participants to find one common associate for three words provided. Various studies examined reactions triggered by the RAT (Akbari Chermahini & Hommel, 2010, 2012; Fischer & Hommel, 2012). For example, according to the control-state approach to creativity (Hommel, 2012; Hommel, Akbari Chermahini, van den Wildenberg, & Colzato, unpublished manuscript) solving divergent and convergent thinking tasks triggers different control states, which either allow broad exploration and flexible switching between options (divergent thinking) or restrict processing towards the specific goal (convergent thinking). Our results suggest that high NFC may be an important boundary condition for such effects, because people high in NFC experience lower competence and more negative emotions in divergent thinking tasks as compared to convergent thinking tasks. Due to that, divergent thinking may trigger a different control state at high (vs. low) levels of NFC.

While our results show that the fit between NFC and the task at hand contributes to perceived competence and positive emotions, the fact remains that people cannot always avoid situations that do not fit their needs. Especially in the modern workplace, people are likely to be confronted with both open-ended, divergent, and more closed-ended, convergent tasks. While this did not matter much to our low NFC participants, it made a substantial difference for high NFC participants. This may have training implications: Perhaps there is something to be gained by giving people (e.g., employees) the opportunity to acquire more of a behavioral repertoire for precisely those tasks they would normally tend to avoid.

To conclude, this research demonstrated that the effects of task type on experienced competence and emotions depend on NFC. People high in NFC respond positively to tasks that offer the opportunity to achieve closure but negatively to tasks that do not (such as divergent tasks), whereas low NFC people's reactions are less sensitive to task type. These person-task fit effects may have important consequences for well-being at work, especially in times when demands for divergent thinking and creativity are ever increasing.

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