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Construal Level and Social Exclusion: Concrete Thinking Impedes Recovery From Social Exclusion

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Abstract

Social exclusion is a painful experience. Recent research has shown, however, that coping with exclusion can be facilitated by favorable conditions. In the current research, we investigated whether construal level affects recovery from social exclusion. We hypothesized that an abstract vs. concrete mindset would moderate coping with exclusion. Indeed, lower compared to higher concrete thinking (Study 1) and abstract compared to concrete thinking (Study 2) bolstered the basic need of belonging when excluded. Priming of abstract thinking, moreover, increased participants' sense of belonging both in response to exclusion and inclusion relative to no priming (Study 3). Our results are the first to establish a relationship between construal level and social exclusion, thereby suggesting an alleviating "abstraction discount" effect for the consequences of social exclusion. (124 words)

Keywords: social exclusion; construal level; basic needs; belonging; recovery

Construal level and social exclusion:

Concrete thinking impedes recovery from social exclusion

Let's do this thought experiment (see Williams, 2001): You are playing a Frisbee game with some others. Suddenly, the others stop throwing the disc to you. You start thinking intensely about this situation. The reasons, the circumstances and your feelings are in focal point and you concretely imagine what the other players might think about you. Now, visualize this incident of exclusion in another mindset: Instead of thinking of the situation in a direct and concrete way, analyze this experience in an abstract, more distant mode. You primarily understand it as a lack of interaction. Which situation might be more threatening?

Alleviating the experience of social exclusion

Social exclusion in general is a painful experience and deeply threatens a person's fundamental needs (see Williams, 2007). Almost regardless of the exclusion's characteristics (e.g., exclusion being active or passive, short and subtle or long-lasting, the source of exclusion being a human or computer), people experience less fulfilment of their fundamental needs of belonging, self-esteem, control, and meaningful existence (Eisenberger, Lieberman, & Williams, 2003; Wirth, Sacco, Hugenberg, & Williams, 2010; Zadro, Williams, & Richardson, 2004). The excluded person's characteristics, however, have been shown to moderate the extent of negative psychological consequences: For example, depending on religious affiliation, culturally determined self-construal, or level of narcissism, people are affected more or less strongly by experiences of social exclusion (Aydin, Fischer, & Frey, 2010; Pfundmair et al., 2014a; Twenge & Campell, 2003).

Recent research has investigated how coping with social exclusion can be alleviated by different cognitive mindsets: Recalling an exclusion experience from a field compared to an observer perspective (Lau, Moulds, & Richardson, 2009), as well as engaging in distraction compared to rumination has been found to facilitate recovery from exclusion (Wesselmann, Ren, Swim, & Williams, 2013). Also, the mindset of believing that social attributes can be

developed alleviates coping with social exclusion (Yeager & Dweck, 2012). Moreover, it has been shown that being rejected produces prevention-focused mindsets whereas being ignored facilitates promotion-focused mindsets (Molden, Lucas, Gardner, Dean, & Knowles. 2009). Thus, recent studies revealed first evidence that also the way we think influences the experience of exclusion and vice versa.

Construal level theory

Addressing a different cognitive mindset, we applied construal level theory (CLT; Trope & Liberman, 2010) which in line with action identification theory (Vallacher & Wegner, 1987) posits that people can construe information in either more concrete and contextualized terms (low-level), or in more abstract and generalized (high-level) terms. The respective mindset depends both on an individual tendency to construe the environment either more abstract or concrete (Vallacher & Wegner, 1987) and on situational aspects (Trope & Liberman, 2010). The main idea of CLT is that our construals of events are subject to the perceived psychological distance, i.e. "the subjective experience that something is close or far away from self, here and now" (Trope & Liberman, 2010, p. 440). Since there is empirical evidence that the link between psychological distance and construal level is bi-directional (e.g., Liberman, Trope, McCrea, & Sherman, 2007; Trope, Liberman, & Wakslak, 2007; Kyung, Menon, & Trope, 2010), we expect abstract thinking to lead to a global perception of the environment (more psychological distance) as opposed to concrete thinking (less psychological distance). On the other hand, perceiving something as distant should lead to more abstract representations of a target as opposed to perceiving a target closer. Thus, increased mindset abstraction can be equated with increased psychological distance perception. Why is this interesting with regard to the experience of social exclusion?

According to conflict model theories, temporal distance (one dimension of psychological distance) leads to the discount of an outcome's value (e.g., time-dependent change in preference). Whereas the majority of literature on CLT research focuses on the

future, only very little work investigates construal level influences on past events; however, research has shown that CLT predictions are also applicable for past events (Kyung et al. 2010). The values of negative outcomes are even affected by steeper time discounting than the values of positive outcomes (Trope & Liberman, 2000). This means that increased perceived distance to an event leads to less emphasis on the outcome's valence. We suppose that a discount is not only given due to perceived distance but also depends on the kind of mindset (i.e., degree of abstraction) people have adopted when thinking about an event. Thus, we assume an *abstraction discount* effect for the impact of social exclusion. There is some empirical support for the assumption of an *abstraction discount* effect which we present in the following.

Related research on construal level and social exclusion

A large body of research has demonstrated that differences in thinking influence psychological processes (for a review, see Trope & Liberman, 2010). It has been shown that participants with abstract mindset were less affected by evaluative feedback than participants with concrete mindset (e.g., less state self-esteem derivation after negative feedback; Vess, Arndt, & Schlegel, 2011). Moreover, people with abstract mindset were less interested in looking at unpleasant truths than those with a concrete one: Abstract construals weakened the discomfort of not knowing whether one had been short-changed or not (Shani, Igou, & Zeelenberg, 2009). These findings received support by Kyung et al. (2010) who revealed that the type of mindset influences how past events are reconstructed. Specifically, they showed that participants who recalled events with a concrete mindset perceived them as closer and the information as more accessible than participants with an abstract mindset. Findings of CLT research therefore indicate that an abstract mindset might work as a buffer against negative psychological effects in comparison to a concrete mindset. Supporting this idea, it has specifically been shown that religiosity, which leads to more abstract thinking (Zimmer & Bless, 2012), is a coping source of social exclusion (Aydin et al., 2010; Burris, Batson,

Altstaedten, & Stephens, 1994; Wesselmann & Williams, 2010). Moreover, an emphasis on the present rather than the future (Twenge, Catanese, & Baumeister, 2003) and decrements in self-regulation (Baumeister, DeWall, Ciarocco, & Twenge, 2005) have been found to be related to the set of consequences of social exclusion—processes which are also associated with a more concrete style of thinking (Fujita & Roberts, 2010; Fujita, Trope, Liberman, & Levin-Sagi, 2006). Combining findings of social exclusion and CLT research thus points out that concrete thinking might be more strongly related to negative consequences of social exclusion than abstract thinking.

Present studies

We specifically assumed that a concrete mindset would impede coping with social exclusion compared to an abstract mindset. We investigated this hypothesis in different ways: We measured (Studies 1 and 2) and primed (Study 3) construal level, i.e. concrete and abstract thinking, and manipulated exclusionary status via essay (Study 1) and Cyberball tasks[1] (Studies 2 and 3). In each study, we compared the typically observed responses to social exclusion: changes in the self-reported ratings for the fundamental needs of belonging, self-esteem, control, and meaningful existence (reviewed by Williams & Zadro, 2005).

Study 1

Study 1 was a first test to determine whether concrete and abstract thinking styles were related to responses to exclusion in a diametrical way: We hypothesized that more concrete and less abstract thinking would impede recovery from social exclusion, whereas less concrete and more abstract thinking would hasten the recovery. To investigate this assumption, we manipulated exclusionary status by asking participants to visualize either a past experience of social exclusion or social inclusion. To assess participants' reactions to exclusion vs. inclusion and their general thinking style, they evaluated themselves via questionnaire.

Method

Participants

Participants were 35 students from a German university (32 female, 2 male, and 1 who did not specify gender) who received research credit for volunteering. They ranged in age from 18 to 56 years (M = 25.41, SD = 7.64).

Procedure and materials

After indicating their consent and reading a cover story involving an investigation of personality and social occurrences, participants conducted an essay task. We randomly assigned them to one of two conditions: social exclusion vs. social inclusion. In each, they should intensively relive and write about a previous experience from their lives in which they had felt excluded or included by one or more people. Prior studies could show that visualizing a past instance of exclusion evokes responses comparable to those found using interpersonal methods for creating exclusion (Maner, DeWall, Baumeister, & Schaller, 2007; Pickett, Gardner, & Knowles, 2004). After this task, participants filled out a questionnaire including a manipulation check, and items on need fulfilment and thinking style. Upon completion, participants were checked for suspicion and debriefed.

Manipulation check. Assessing the effectiveness of the exclusionary manipulation, participants answered one item ("To what extent did you feel excluded at that time?").

Need fulfilment. Consistent with Williams's (2009) temporal need threat model, we assessed the threatened needs within 11 items (based on Zadro et al., 2004)[2], higher values indicating greater need fulfilment. Example items are: belonging (e.g., "I felt poorly accepted by the others." [recoded]; α = .79), self-esteem (e.g., "I felt that the others failed to perceive me as a worthy and likeable person." [recoded]; α = .87), control (e.g., "I felt that I was able to live my life as I wanted."; α = .74), and meaningful existence (e.g., "I felt non-existent during the experience." [recoded]; r = .83).

Thinking style. At the end, participants responded to a measure of thinking style. They self-evaluated their similarity both to an absolutely concretely and to an absolutely abstractly

thinking person. This was done by selecting similarity levels within two sets of seven Venn diagram-like pairs of circles that varied on their level of overlap (diverging circles as very dissimilar to superposed circles as very similar; adapted from the IOS, Aron, Aron, & Smollan, 1992). These scales resulted in one value for abstract thinking and one value for concrete thinking.

Thinking style during the recall. To investigate the participants' mindsets also during the manipulation of the exclusionary status, three coders who were not aware of the study's goal rated the essays according to abstract and concrete qualities. The coders received the instruction that a highly concrete essay should be characterized by unstructured, incoherent, and contextualized attributes and a highly abstract essay by structured, coherent, and decontextualized attributes (Trope & Liberman, 2003; see Appendix for examples). Interrater reliabilities were acceptable for both concrete, $\alpha = .89$, and abstract qualities, $\alpha = .92$.

All items were rated on 7-point Likert scales.

Results

Preconditions. Participants writing about an instance of exclusion reported that they felt significantly more excluded ($M = 6.07$, $SD = 1.16$) than those writing about an instance of inclusion ($M = 2.13$, $SD = 1.71$), $t(29) = -7.46$, $p < .001$, $d = -2.68$, 95% CI = [-3.65, -1.68].

Included ($M = 4.39$, $SD = 1.50$) and excluded participants ($M = 4.88$, $SD = 0.99$) did not differ in their concrete thinking style, $t(33) = -1.14$, $p = .262$; also, included ($M = 3.33$, $SD = 1.09$) and excluded participants ($M = 3.53$, $SD = 1.28$) did not differ in their abstract thinking style, $t(33) = -0.49$, $p = .628$.

Effect of thinking style. To test the moderating effect of a concrete thinking style on basic need fulfilment in response to exclusion, we conducted moderated regression analyses. We entered exclusionary status (dummy coded as -1 = exclusion and +1 = inclusion), concrete thinking style (centered by standardization), and its interaction term. With belonging need as dependent variable, the regression analysis showed both a significant main effect of

exclusionary status, $t(34) = 6.72$, $p < .001$, $\beta = .73$, 95% CI = [0.51, 0.96], and a marginal interaction effect, $t(34) = 1.95$ $p = .060$, $\beta = .23$, 95% CI = [-0.01, 0.47], see Figure 1 and for descriptive statistics Table 1. To further probe this interaction, we conducted simple slope analyses. In the exclusion condition, participants with higher concrete thinking style reported significantly lower levels of belonging than participants with lower concrete thinking style, $t(34) = -2.00$, $p = .054$, $\beta = -.40$, 95% CI = [-0.81, 0.01]. In the inclusion condition, both groups of participants did not differ, $t(34) = 0.49$, $p = .627$.

Further regression analyses on self-esteem, control, and meaningful existence only revealed significant main effects of exclusionary status (self-esteem: $t(34) = 9.97$, $p < .001$, $\beta = .88$, 95% CI = [0.70, 1.07]; control: $t(34) = 5.75$, $p < .001$, $\beta = .71$, 95% CI = [0.46, 0.97]; meaningful existence: $t(34) = 6.65$, $p < .001$, $\beta = .73$, 95% CI = [0.51, 0.96]), demonstrating lower need fulfilment in the exclusion compared to the inclusion condition. No significant interactions emerged (self-esteem: $t(34) = 0.61$, $p = .546$; control: $t(34) = 1.27$, $p = .214$; meaningful existence: $t(34) = 1.70$, $p = .100$).

We moreover tested the moderating effect of an abstract thinking style on basic need fulfilment in response to exclusion and conducted again several moderated regression analyses. The analyses only showed significant main effects of exclusionary status (belonging: $t(34) = 7.51$, $p < .001$, $\beta = .80$, 95% CI = [0.58, 1.01]; self-esteem: $t(34) = 9.75$, $p < .001$, $\beta = .86$, 95% CI = [0.68, 1.04]; control: $t(34) = 6.17$, $p < .001$, $\beta = .74$, 95% CI = [0.49, 0.98]; meaningful existence: $t(34) = 7.25$, $p < .001$, $\beta = .79$, 95% CI = [0.57, 1.01]). However, no significant interactions emerged (belonging: $t(34) = -0.84$, $p = .408$; self-esteem: $t(34) = -1.03$, $p = .311$; control: $t(34) = -1.22$, $p = .232$; meaningful existence: $t(34) = -0.81$, $p = .424$).

Thinking style during the recall. The essays did not differ in concrete qualities between the inclusion ($M = 3.50$, $SD = 1.89$) and exclusion condition ($M = 4.51$, $SD = 1.62$), $t(33) = -1.69$, $p = .101$; also, they did not differ in abstract qualities between the inclusion (M

= 4.67, *SD* = 2.00) and exclusion condition (*M* = 3.75, *SD* = 1.98), $t(33) = 1.37$, $p = .181$. Trait mindset did not correlate with the mindset filtered from the essay task, both with regard to concrete, $r(35) = .12$, $p = .476$, and abstract thinking, $r(35) = -.18$, $p = .295$. Also, concrete and abstract qualities did not serve as moderators between exclusion and basic need fulfilment: Moderated regression analyses only revealed significant main effects of exclusionary status, both for concrete qualities (belonging: $t(34) = 6.44$, $p < .001$, $\beta = .74$, 95% CI = [0.51, 0.97]; self-esteem: $t(34) = 9.15$, $p < .001$, $\beta = .84$, 95% CI = [0.66, 1.03]; control: $t(34) = 5.42$, $p < .001$, $\beta = .69$, 95% CI = [0.43, 0.95]; meaningful existence: $t(34) = 6.44$, $p < .001$, $\beta = .74$, 95% CI = [0.50, 0.97]) and for abstract qualities (belonging: $t(34) = 6.62$, $p < .001$, $\beta = .75$, 95% CI = [0.52, 0.98]; self-esteem: $t(34) = 9.37$, $p < .001$, $\beta = .85$, 95% CI = [0.66, 1.03]; control: $t(34) = 5.56$, $p < .001$, $\beta = .69$, 95% CI = [0.44, 0.95]; meaningful existence: $t(34) = 6.59$, $p < .001$, $\beta = .75$, 95% CI = [0.52, 0.98]). No significant interactions emerged, both for concrete qualities (belonging: $t(34) = -0.26$, $p = .794$; self-esteem: $t(34) = -0.40$, $p = .695$; control: $t(34) = 0.47$, $p = .639$; meaningful existence: $t(34) = 0.82$, $p = .421$) and for abstract qualities (belonging: $t(34) = 0.56$, $p = .581$; self-esteem: $t(34) = 0.63$, $p = .536$; control: $t(34) = -0.27$, $p = .786$; meaningful existence: $t(34) = -0.39$, $p = .701$).

Discussion

Our first study revealed that lower compared to higher concrete thinking bolstered the need of belonging when excluded. This effect, however, was based on marginal significance levels probably resulting from the study's low power. The result points out to that less concrete thinking is favorable in the face of exclusion. Surprisingly, this could only be observed for the sense of belonging but not for self-esteem, control, and meaningful existence—an unexpected result as the four basic needs often do not differentiate (e.g., Gonsalkorale & Williams, 2007). Abstract thinking, on the other hand, did not moderate recovery from exclusion. This suggests that a lower concrete (in comparison to a higher

abstract) mindset might be the more crucial concept with regard to coping efforts after social exclusion. Interestingly, the exclusion manipulation itself did not affect thinking style. The mindset presented during the essay task was moreover independent from the self-evaluated trait mindset and did not mirror the observed interaction. This could indicate that the adapted IOS measure might not be an accurate measure of thinking style. However, it could also point to different processes between the written word and the general cognitive mindset.

To date it is not clear whether concrete and abstract thinking are two separate dimensions or opposite poles of a single dimension. Burgoon, Henderson and Markman (2013) provide a review of different tools to measure levels of abstract thinking. According to most of the presented measure tools, Burgoon and colleagues (2013) interpret abstraction as operating on a continuum (i.e., lower levels of abstraction mean higher levels of concreteness). In order to investigate construal level mindsets as opposite ends of one dimension and to use a more involving manipulation of social exclusion, we conducted a second study to examine the hypothesized pattern.

Study 2

Study 1 showed that less concrete thinking was related to higher levels of belonging under social exclusion. In Study 2, we aimed to test our hypothesis applying an alternative thinking style scale that treated abstract and concrete thinking as opposite poles of a single dimension. Manipulating exclusionary status by the classical paradigm Cyberball, a virtual ball-tossing game, we moreover hoped to create a more involving situation. We hypothesized that thinking style would moderate the experience of belonging, self-esteem, control, and meaningful existence after exclusion: Abstract thinking should alleviate coping with social exclusion, whereas concrete thinking should impede it.

Method

Participants

Forty-nine students from a German university (42 female and 7 male) voluntarily participated in this study for research credit, ranging in age from 18 to 59 years (M = 26.04, SD = 1.14).

Procedure and materials

After indicating their consent and reading a cover story involving an investigation of personality and mental visualization abilities, participants filled out a questionnaire containing a scale of thinking style. To manipulate exclusionary status, they subsequently played Cyberball (Williams & Jarvis, 2006). Hereby, they received the instruction that Cyberball is about exercising mental visualization skills and that they would play with two other participants on a web platform that were in fact computer simulations. Within 40 throws, the participants received the ball twice at the beginning and then no more again (exclusion) or roughly one third of the time (inclusion). After finishing the game, they filled out the rest of the questionnaire including a manipulation check and items on need fulfilment. Then, participants were checked for suspicion and debriefed.

Thinking style. At the beginning, participants filled out four items on thinking style ("In general, I think more concretely than abstractly.", "Other people perceive my thinking style to be more concrete than abstract.", "I like a concrete plan better than an abstract goal.", "I like to think about things more concretely than abstractly."; α = .80), higher values indicating a more concrete, lower values a more abstract mindset.

Manipulation check. Participants rated the number of throws they received and how excluded they felt (Zadro et al., 2004).

Need fulfilment. Assessing need fulfilment, participants responded to 12 items on their satisfaction of belonging (α = .76), self-esteem (α = .73), control (α = .70), and meaningful existence (α = .59) during the game (Zadro et al., 2004).

Items were rated on 5-point (style of thinking) and 7-point (manipulation check, need fulfilment) Likert scales.

Results

Preconditions. Participants in the exclusion condition reported that they received less throws (M = 5.96, SD = 5.19) than participants in the inclusion condition (M = 31.58, SD = 11.41), $t(47) = 9.90$, $p < .001$, d = 2.83, 95% CI = [2.02, 3.63], and that they felt significantly more excluded (M = 6.04, SD = 1.67) than participants in the inclusion condition (M = 2.38, SD = 1.44), $t(47) = -8.24$, $p < .001$, d = -2.36, 95% CI = [-3.09, -1.62].

Participants in the inclusion condition (M = 3.17, SD = 0.86) and participants in the exclusion condition (M = 3.35, SD = 0.79) did not differ in their thinking style, $t(47) = -0.74$, $p = .466$.

Effect of thinking style. To test the moderating effect of thinking style on basic need fulfilment in response to exclusion, we conducted several moderated regression analyses. We entered exclusionary status (dummy coded as -1 = exclusion and +1 = inclusion), thinking style (centered by standardization), and its interaction term. With belonging as dependent variable, the regression analysis revealed both a significant main effect of exclusionary status, $t(48) = 10.78$, $p < .001$, $\beta = .83$, 95% CI = [0.67, 0.99], and a significant interaction, $t(48) = 2.61$, $p = .012$, $\beta = .20$, 95% CI = [0.05, 0.36], see Figure 2 and Table 1 for descriptive statistics. To further probe this interaction, we conducted simple slope analyses: In the exclusion condition, participants with a more concrete thinking style reported significantly lower levels of belonging than participants with a more abstract thinking style, $t(48) = -2.16$, $p = .036$, $\beta = -.25$, 95% CI = [-0.49, -0.02]. In the inclusion condition, both groups of participants did not differ, $t(48) = 1.50$, $p = .142$.

Further regression analyses on self-esteem, control, and meaningful existence only revealed significant main effects of exclusionary status (self-esteem: $t(48) = 4.30$, $p < .001$, $\beta = .52$, 95% CI = [0.28, 0.77]; control: $t(48) = 7.74$, $p < .001$, $\beta = .75$, 95% CI = [0.56, 0.95]; meaningful existence: $t(48) = 8.86$, $p < .001$, $\beta = .79$, 95% CI = [0.61, 0.98]) demonstrating lower need fulfilment under exclusion compared to inclusion. However, no significant

interactions emerged (self-esteem: $t(48) = 0.23$, $p = .822$; control: $t(48) = 0.45$, $p = .658$; meaningful existence: $t(48) = -0.14$, $p = .893$).

Discussion

Thinking style moderated the experience of social exclusion: An abstract mindset was associated with less negative outcomes of social exclusion in comparison to a concrete mindset. Again, we could only observe this pattern on the sense of belonging but not on those of self-esteem, control, or meaningful existence. Building on the results of Study 1, we replicated our hypothesized effect within a more direct manipulation of social exclusion and a different conceptualization of construal level.

However, the question whether thinking concretely or abstractly has to be considered as one or two dimensions remains unclear and is getting extended when taking into account the trait vs. state perspective on mindset differences. Vallacher and Wegner (1989) have shown that people differ in levels of personal agency. That means that there is an individual variation of thinking: Concrete thinkers operate "on the world primarily at the level of details" whereas abstract thinkers preconceive "actions in terms of distal consequences" (Vallacher & Wegner, 1989, p. 661). However, the authors do not call personal agency to be a trait in the most common sense of the term, especially because it might be domain-specific. Furthermore, research has shown that concrete and abstract thinking (e.g., levels of abstraction) can be manipulated via priming methods (Burgoon et al., 2013). Thus, people might have a personal tendency to either concrete or abstract thinking (trait-like) but are also able to situationally switch between their mind-set states. To establish causality within the found pattern, we conducted a third study in which participants' mindsets were manipulated via priming.

Study 3

Studies 1 and 2 focused on the interplay between the participants' individual tendency to construe the environment more abstract or more concrete and its effects on coping with social exclusion. The goal of our final study was to investigate within the framework of a

causal design whether priming thinking style could also affect basic need fulfilment after exclusion. Exclusionary status was again manipulated by Cyberball; then, participants conducted an abstract, concrete, or no priming task and subsequently completed the questionnaire. We predicted that excluded participants who received abstract priming would show a higher sense of belonging, self-esteem, control, and meaningful existence than excluded participants faced with concrete or no priming.

Method

Participants

One hundred and fifty-eight students from a German university participated in this online study and received research credit for volunteering. As we could not control for background conditions, we excluded participants who needed 1 *SD* ± of the average duration (*M* = 18.93 min, *SD* = 8.01) to complete the experiment in order to ensure sufficient impact of our manipulations. The final sample consisted of 129 participants (89 female, 40 male, age: *M* = 25.61, *SD* = 8.45).

Procedure and materials

After indicating their consent and reading a cover story involving an investigation of categorization and mental visualization abilities, participants started by playing Cyberball; the task's settings were identical to those of Study 2. After finishing the game, they received a priming using either an abstract or a concrete categorization task (adapted from Fujita et al., 2006) which is a common task to manipulate participants' construal level (see Burgoon et al., 2013); a third group served as control group and did not perform the categorization task. For concrete and abstract thinking style priming, participants either named a subordinate (*concrete*; e.g., rose) or a superordinate category (*abstract*; e.g., plant) for 30 different items (e.g., flower). Whereas participants in the concrete condition completed several "An example of … is what?" items, participants in the abstract completed several "… is an example of what?" items. At the end, they filled out a questionnaire containing a manipulation check on

exclusionary status and items on need fulfilment. Upon completion, participants were checked for suspicion and debriefed.

Manipulation check. As in Study 2, participants rated the number of throws they received and how excluded they felt (Zadro et al., 2004).

Need fulfilment. Again, participants responded to 12 items on fulfilment of belonging (α = .61), self-esteem (α = .70), control (α = .73), and meaningful existence (α = .64) during the game (Zadro et al., 2004) which were identical to the items of Study 2.

All items were rated on 7-point Likert scales.

Results

Preconditions. Excluded participants reported significantly fewer received throws (M = 7.74, SD = 8.17) than included participants (M = 34.90, SD = 12.12), $t(119) = 14.52$, $p < .001$, d = 2.64, 95% CI = [2.15, 3.13]. They also indicated significantly more feelings of exclusion (M = 6.00, SD = 1.23) than included participants (M = 2.59, SD = 1.49), $t(127) = -14.22$, $p < .001$, d = -2.51, 95% CI = [-2.97, -2.04].

Effect of priming. As all four basic needs were highly intercorrelated, rs between .69 and .79, ps < .001, we calculated a 2 (exclusionary status: inclusion, exclusion) x 3 (priming: abstract, concrete, no priming) MANOVA on need fulfilment. The MANOVA revealed a significant multivariate main effect of exclusionary status, Wilks's Λ = .43, $F(4,120) = 40.02$, $p < .001$, η^2 = .57, 95% CI = [.44, .64], and a significant main effect of priming, Wilks's Λ = .87, $F(8,240) = 2.14$, p = .033, η^2 = .07, 95% CI = [.00, .10]. No significant interaction emerged, Wilks's Λ = 1.00, $F(8,240) = 0.16$, p = 1.00.

Given the significances of the overall test, we performed univariate tests. Significant univariate main effects of exclusionary status were obtained for all for basic needs: Participants in the exclusion condition indicated significantly lower levels of belonging, $F(1,123) = 121.86$, $p < .001$, η^2 = .50, 95% CI = [.37, .59], self-esteem, $F(1,123) = 37.39$, $p < .001$, η^2 = .23, 95% CI = [.11, .35], control, $F(1,123) = 122.00$, $p < .001$, η^2 = .50, 95% CI =

[.37, .59], and meaningful existence, $F(1,123) = 69.35$, $p < .001$, $\eta^2 = .36$, 95% CI = [.23, .47], than participants in the inclusion condition. For descriptive statistics, see Table 1.

For belonging (but not for the other needs), there was also a significant main effect of priming, $F(2,123) = 3.90$, $p = .023$, $\eta^2 = .06$, 95% CI = [.00, .15]: Post hoc comparisons using Tukey HSD tests revealed that participants performing an abstract priming reported similar levels of belonging ($M = 4.07$, $SD = 1.69$) than participants who performed a concrete priming ($M = 3.61$, $SD = 1.49$), $p = .143$, but significantly higher levels of belonging than participants who performed no priming ($M = 3.28$, $SD = 1.37$), $p = .003$; participants with concrete and no priming did not differ, $p = .336$, see Figure 3.

Discussion

Study 3 revealed that priming the thinking style affected coping processes: Abstract priming facilitated the participants' recovery from exclusion and inclusion relative to no priming. In a descriptive tendency, it could also be observed that concrete compared to abstract priming impeded recovery from social exclusion and inclusion. As in the previous studies, this effect could only be observed on the sense of belonging but not on these of self-esteem, control, or meaningful existence. Different to our previous findings, however, the alleviating effect of thinking style (considered as situational) not only referred to the exclusion but also the inclusion condition. Although this finding does not illuminate an exclusion-specific process, it again demonstrates the relationship between construal level and belonging needs and might furthermore give support for the idea that abstract thinking is linked with positive associations in a given situation (Gasper & Clore, 2002; Shani et al., 2009). Not finding an interaction might be due to a manipulation of thinking style being less effective than a specific thinking style being part of one's personality. As we did not include manipulation checks of thinking style, we cannot conclude that the priming was strong enough to counteract the effects of exclusion. Moreover, we cannot rule out that individual

differences in thinking style might have impacted the exclusionary experience already during the game.

General discussion

Three important aspects emerge from this research: Firstly, the present studies have given insight into cognition-based differences in coping with social exclusion. In three studies, it could be shown that abstract compared to concrete thinking facilitated the recovery from social exclusion. William's (2007; 2009) temporal model of ostracism's effects distinguishes between reflexive (immediate) and reflective (delayed) effects. As Studies 1 and 3 investigated basic needs retrospectively and after another task, the observed effects can clearly be assigned to the reflective stage of social exclusion and thus interpreted as more or less successful recovering from the exclusionary event. Study 2 asked for the basic needs after the manipulation, yet, research has revealed that people can begin recovering within two or three minutes of completing Cyberball (Ren, Wesselmann, & Williams, 2013; Wesselmann et al., 2013; Wirth & Williams, 2009). Therefore, the moderating effect of thinking style in Study 2 might also apply to the reflective stage and thus recovering from social exclusion.

Secondly, this effect could only be accounted for the sense of belonging but not for the other responses we investigated. Some theorists suggest that rejection exclusively affects the basic need of belonging and that the other needs are trivial in comparison (e.g., Leary, 2005). However, a recent meta-analysis has shown that rejection lowers at least belonging, self-esteem, and control (Gerber & Wheeler, 2009) consistent with the needs account (Williams, 2001). According to this account, the typically observed responses to social exclusion include the decreased fulfilment of the four fundamental needs: belonging, self-esteem, control, and meaningful existence (e.g., Zadro et al., 2004). However, changing a specific parameter in the process of social exclusion often affects only the overlapping aspects (e.g., the "social" hormone oxytocin only affects social responses [Pfundmair, Aydin, Frey, & Echterhoff, 2014b]; excluded participants in need of control react more aggressively as an act of control

[Williams, Case, Warburton, & Richardson, in press]). Whereas the decrease of belonging is the cognitive integration of the actually threatened belonging situation during social exclusion (Baumeister & Leary, 1995), decreased levels of self-esteem, control, and meaningful existence accompany this response rather diffusely (descriptions in: Williams, Cheung, & Choi, 2000; Williams & Zadro, 2005). Thus, the belonging reaction might be classified as cognitive and the other needs—being immediate reactions to self-relevant information—as emotional (Schwarz, 1990; although there might be a synergistic relation between both; Eagly, Mladinic, & Otto, 1994). Accordingly, belonging might have been primarily affected as its classification "cognitive" overlaps with the investigated concept. Supporting the hypothesis of cognitive aspects being paramount, Vess at el. (2011) reported no differences between abstract and concrete thinking in affect (except one condition in Study 2). Also, findings of Kyung et al. (2010) showed no influence of the type of mindset on emotionality (Studies 1 and 2) when recalling an event. Furthermore, the main variable influenced by construal level of Shani et al. (2009) appeared to be related to deliberative processes[3]. It could therefore be suggested that our cognition-based difference primarily affected cognition-based responses.

Thirdly, our findings contribute to CLT literature assuming an *abstraction discount* (according to temporal discount) in finding that an abstract as opposed to a concrete mindset led to higher values, i.e. higher levels of belonging. Referring to *time discounting hypotheses*, our results showed that mindset abstraction influences evaluative judgments the way temporal distance does. Thus, our research gives further empirical evidence to the assumption of the bi-directional character of CLT between psychological distance and construal level. Furthermore, the present findings revealed that increased abstraction leads to less emphasis on negative aspects, matching those of Shani et al. (2009) who showed that an abstract mindset decreased interest in unpleasant past events. Following the idea of cognitive and affective aspects in basic need fulfilment, one could moreover refer to both time-discounting theories,

valence-dependent time-discounting (VD) and *affect-dependent time discounting* (AD): In particular, VD predicts that "temporal distance decreases the weight of negative aspects and increases the weight of positive aspects" (Trope & Liberman, 2000, p. 878). AD suggests that the "discounting depends on whether value is affective or cognitive [... and that temporal] distance presumably increases the weight of cognitive value relative to the weight of affective value" (p. 878). Our findings are both in line with VD predicting that less emphasis is given to negative aspects when distance increases and with AD assuming that increased distance has more impact on cognitive than affective aspects.

Limitations and future directions

There are some limitations that should be mentioned. First of all, the use of an online sample in Study 3 and the overrepresentation of women in each study should be noted as methodological limitations. To understand the impact this overrepresentation might have had on our results, we re-conducted our analyses. Investigating only women in Studies 1 and 2, and men and women separately in Study 3, the interaction effects revealed to be similar to those described earlier. Therefore, we assume that the unequal numbers of men and women did not impact our main findings.

Second, the mechanisms responsible for the abstraction discount were not investigated. Although CLT research appears very popular in recent years, only little is known about the cognitive processes behind the construal level effects. Future research that investigates more comprehensively underlying mechanisms would move us towards a better understanding of the found pattern.

Furthermore, different to our findings, the four basic needs often do not differentiate (e.g., Gonsalkorale & Williams, 2007) and are frequently even averaged into an overall scale (e.g., Wirth & Williams, 2009). Although we speculated about the reasons why only the single basic need belonging has been alleviated under abstraction discount, it would be

beneficial to explore its causes empirically. Taking into account the non-significant interaction of Study 3, the possibility of a type I error in our results should also be considered.

Measuring the participants' dispositional mindsets in Studies 1 and 2, we asked for abstract and concrete thinking in an explicit way. It should be mentioned that to the best of our knowledge there is no research on the question whether participants have conscious access to their thinking style. We assume that participants are aware of their general kind of thinking (affinity for details or not) as participants were not puzzled about the terms abstract and concrete thinking style in the debriefing talks after the studies. Nonetheless, we think this is an important topic which should receive more attention in future research.

Finally, few studies have investigated how different cognitive mindsets can facilitate recovery from social exclusion (e.g., Lau et al., 2009; Wesselmann et al., 2013; Yeager & Dweck, 2012). However, a key issue awaiting closer examination is to gain a systematic and overall picture of the general underlying cognitive concept behind all these findings that makes people less vulnerable in the face of social exclusion.

Conclusion

Abstract thinking as a possible way of coping with social exclusion might have the potential to contribute to the everyday handling of social threats but also to consultative and therapeutic approaches: The training and activating of one's own abstract mindset could help people to see social experiences from a more favorable perspective. For example, activating an abstract mindset after an experience of social exclusion might help people in bullying situations (e.g., office, school) to cope better with this self-worth threatening influence. Thus, trainings developed to teach people how to activate an abstract mindset might be helpful, for instance, to reduce the probability to get into a vicious circle of getting bullied.

In sum, our results add another piece to the puzzle of dispositional differences in the area of social exclusion. The studies presented here provide a new framework showing that

construal level is playing a significant role in exclusion's delayed consequences: Social pain depends on how abstract one can see the world.

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Footnotes

[1] By using Cyberball, Studies 2 and 3 are technically manipulating ostracism rather than exclusion (Williams, 2007; Williams, 2009). For reasons of consistency, we will stick to the term exclusion throughout the manuscript.

[2] We adapted each item of Zadro et al.'s (2004) basic need questionnaire to our essay manipulation, except for one item from the meaningful existence subscale that was not suitable for the used manipulation ("I felt that my performance [e.g., catching the ball, deciding whom to throw the ball to] had some effect on the direction of the game") resulting in a scale of 11 items.

[3] Shani et al. (2009) argue the urge to seek further information to be an affective goal, which was less attractive for participants with high-level construals. However, when looking at the operationalization of the variable *information seeking* (e.g., "the likelihood they would ask the friend to uncover the exact amount..." or "the degree they want to search for this information", p. 38) it appears to be more cognitive. Participants were not asked to indicate their affective reasons for either searching for more information or not, but their deliberative expression of whether they were interested in knowing more about unpleasant truth.

Appendix

Example for a highly concrete exclusion essay: “At the age of six, I visited my aunt abroad. I had been outside wearing rubber boots which had become dirty. The neighbor’s child came across and wore clean shoes. We went into my aunt’s house and ran up the stairs. Upstairs, my aunt came out of the kitchen, grabbed my dirty rubber boots which I had just taken off and threw it down the stairs. Additionally, she slapped my face with the open hand, because I had come up the stairs with the dirty boots. Then, she gave a chocolate to the neighbor’s child. After the slap in the face, I was totally confused and went down the stairs to my rubber boots. I felt humbled and like “Cinderella”. At the same time, I thought…”

Example for a highly concrete inclusion essay: “When I came to university in October, I got to know a lot of new people. At the beginning, I was very nervous and excited how my future fellow students would be. I already thought that they might be open and outgoing as they studied education. When I was in university in the first days, I realized that my stress had been unnecessary. The other people received me warmly and accepted me as I am. Now, I am still together with them and we are a circle of friends.”

Example for a highly abstract exclusion essay: “Feelings: Sadness, anxiety, anger. Thoughts: Why? How can I change it? Behavior: Attempts to come into contact, avoid certain people.”

Example for a highly abstract inclusion essay: “Before: Respect for the situation, anxiety. In the situation: At first uncertainty, pressure, then relief, happiness.”

Table 1

Means and standard deviations (in parenthesis) of variables as a function of exclusionary status for Studies 1 to 3

	Study 1		Study 2		Study 3	
	Exclusion (n = 17)	Inclusion (n = 18)	Exclusion (n = 23)	Inclusion (n = 26)	Exclusion (n = 68)	Inclusion (n = 61)
Belonging	2.82 (1.28)	5.85 (1.24)	2.30 (1.15)	5.06 (0.67)	2.62 (1.17)	4.77 (1.02)
Self-esteem	2.69 (1.19)	6.39 (1.00)	3.91 (1.38)	5.54 (1.17)	4.03 (1.34)	5.43 (1.19)
Control	3.51 (1.50)	6.02 (0.90)	2.12 (0.67)	4.15 (1.05)	2.16 (1.05)	4.34 (1.18)
Meaningful existence	2.85 (1.53)	6.28 (1.32)	2.30 (1.06)	4.85 (0.89)	2.61 (1.44)	4.50 (1.06)

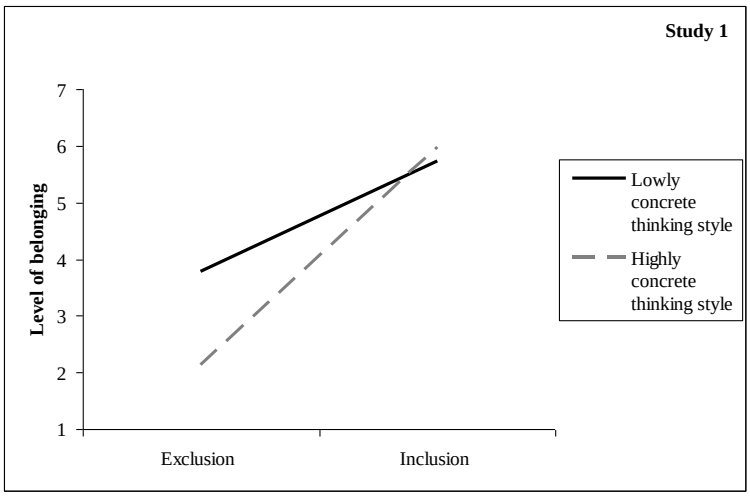

Figure 1. Levels of belonging predicted by exclusionary status and thinking style.

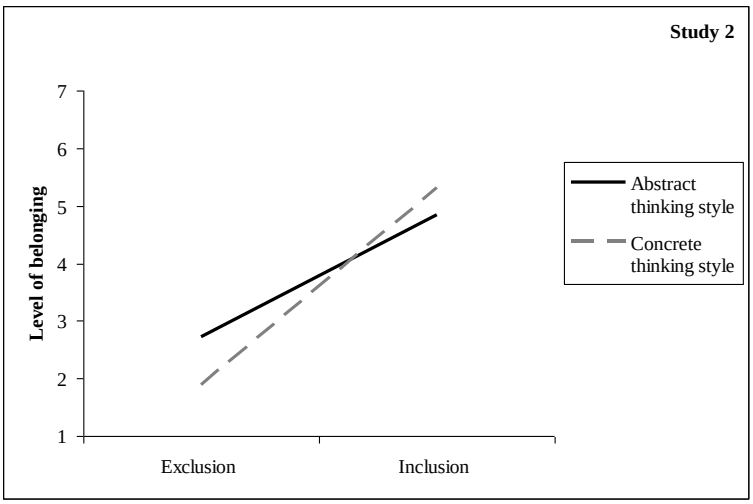

Figure 2. Levels of belonging predicted by exclusionary status and thinking style.

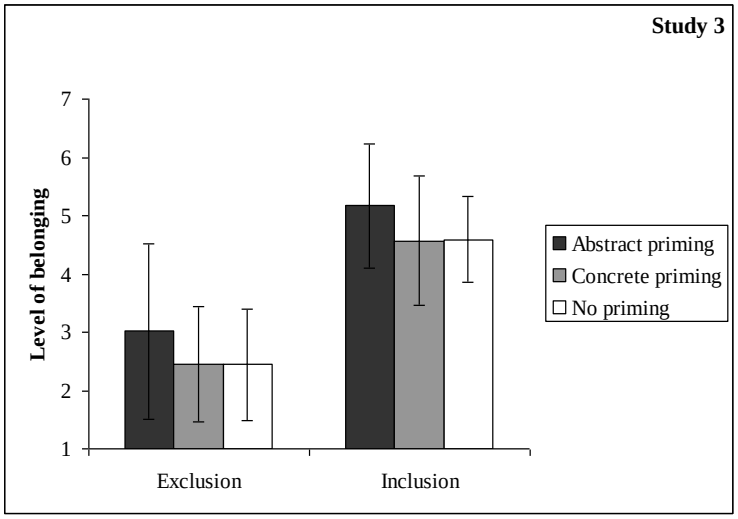

Figure 3. The effect of exclusionary status (exclusion vs. inclusion) x priming of construal level (abstract vs. concrete vs. control) on self-reported levels of belonging; error bars represent ± 1 *SE*.