Difference matters!

How Different Self-Regulatory Strategies and a Bodily Grounded Experience Enhance Perspective Taking Performance by Facilitating Self-Other Differentiation

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Claudia Chantal Sassenrath

aus Kelheim an der Donau

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Dekan:	Prof. Dr. Wolfgang Rosenstiel
1. Berichterstatter:	Prof. Dr. Kai Sassenberg
2. Berichterstatter:	Prof. Dr. Johannes Keller

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Chapter I: General Introduction

Each and every one of us performs multiple tasks pertaining to different roles that we assume every day. Sometimes we have to give advice to our friends, sometimes we have to negotiate with our superiors when trying to attain a pay raise or job enlargement. In our leisure time we sometimes try to outwit our opponents when playing soccer and trying to predict the adverse team's game strategy. What do all these diverse activities taking place in different situations of our lives have in common? They all require active and accurate understanding about other individuals' perspective – *perspective taking* – to bear fruitful results. By inferring other individuals' thoughts, feelings or perceptions we can adapt our actions to them. We can explain and predict their reaction which enables us, for example, to give a tailored advice to our friend, to effectively negotiate with our superiors, or to prevent the adverse team from winning the tournament.

As these examples illustrate, perspective taking plays a crucial role in meaningful social interaction. Therefore, it is important to learn about the determinants of successful perspective taking. Accordingly, the present dissertation addresses motivational as well as bodily grounded determinants of perspective taking: The influence of two different self-regulatory strategies as well as the influence of temperature cues on perspective taking performance is addressed. While addressing these determinants of perspective taking performance, the present research adopts a social cognitive perspective when targeting the underlying processes (Epley, Keysar, van Boven, & Gilovich, 2004). Specifically, the current research identifies how self-regulatory strategies and temperature cues facilitate self-other differentiation, a process which has been argued and shown to be a core prerequisite of successful perspective taking (e.g., Todd, Hanko, Galinsky, & Mussweiler, 2011; Decety & Summerville, 2003; Higgins, 1980). Thereby, the present research seeks to achieve three aims: First, addressing self-regulatory strategies as predictors of perspective taking performance assigns to the individual an *active* role in perspective taking performance as individuals can actively choose their self-regulatory strategies for goal attainment. Second, the present research provides insights on *content-independent* motivational determinants of perspective taking because self-regulatory strategies focus on the processes individuals use to pursue their goals instead of focusing on the content of motivation (Förster & Denzler, 2006). As a consequence, self-regulatory strategies can be applied in a variety of contexts and independently of the content of the goal. Third, by showing how self-regulatory strategies affect self-other differentiation as underlying process of successful perspective taking, the present research affords differentiated insights into *how* self-regulatory strategies exactly enhance perspective taking

performance. Moreover, the role of self-other differentiation for successful perspective taking is further validated by demonstrating that a bodily grounded experience of self-other differentiation - cold temperature cues - also enhances perspective taking performance.

Accordingly, the present chapter is organized as follows: First, the term perspective taking is defined and an overview over past research on determinants of perspective taking is given. Here, different approaches to perspective taking as well as different determinants, including motivational determinants will be introduced. Second, deficits in research on motivational determinants of perspective taking will be outlined in more detail. Third, the social cognitive process-based account of perspective taking as egocentric anchoring and adjustment (Epley, Keysar, et al., 2004) will be introduced. Subsequently, Regulatory Focus and approach and avoidance motivational orientation will be presented as self-regulatory strategies that affect self-other differentiation. Moreover, a bodily grounded experience of self-other differentiation- cold temperature cues - will be introduced. Finally, the chapter concludes with summarizing how the two different self-regulatory strategies and the bodily grounded experience should facilitate self-other differentiation and thereby enhance perspective taking performance.

Perspective taking – a terminology

The current research uses the term perspective taking to refer to the cognitive capability to take another person's viewpoint and to infer his or her thoughts, feelings and perceptions (for similar definitions, see Davis, 1983; Galinsky, Maddux, Gilin, & White, 2008; Hodges & Biswas-Diener, 2007; Hodges, Clark, & Myers, 2011; Nickerson, 1999). Accordingly, perspective taking is distinguished from empathy which refers to feeling with another person, to emotionally connecting with the person (e.g., Galinsky, et al., 2008; Smith, Ickes, Hall, & Hodges, 2011). However, in social psychological literature other terms have also been put forward. Some researchers use the term 'interpersonal sensitivity' as a generic term that subsumes different forms of sensitivity such as empathic accuracy or empathic concern (see Smith, Ickes, et al., 2011, for an overview). Whereas empathic concern corresponds to empathy, empathic accuracy corresponds to perspective taking because it is described as the sensitivity to others' episodic thoughts and feelings (Smith, Ickes, et al., 2011).

To further clarify terms that are relevant for this dissertation, the term empathic accuracy implies focusing predominantly on the outcome of perspective taking (i.e., perspective taking *performance*) whereas the term perspective taking implies focusing predominantly on the *process* of taking another's perspective. The present dissertation now integrates these two foci by addressing perspective taking as cognitive performance in a

certain context (i.e., the context of different activated self-regulatory strategies) and investigating how the underlying processes of this performance are affected by the context (i.e., the strategies). Accordingly, when presenting approaches and findings on perspective taking in the following, the term perspective taking will be used to refer to both findings related to perspective taking as well as to empathic accuracy.

Perspective taking – a research overview

Different areas of psychology have investigated different research questions related to perspective taking by using different theoretical concepts of perspective taking: Developmental psychologists started at the beginning and studied how perspective taking as a personal *skill* (i.e. as an inter-individual difference) *develops* (see Wellman, 2011, for an overview). Numerous studies demonstrated that with maturation children gradually develop a differentiated system of inferences used to ascribe mental states to the self and others. This system is referred to as *theory of mind* (cf. Karniol, 2003, see also Flavell, 1988; 2004; Premack & Woodruff, 1978). Importantly, a fully developed theory of mind implies the comprehension that others' representations of the same event might differ from own representations (e.g., Forguson & Gopnik, 1988). Within developmental psychology, several theories have been offered to explain how a differentiated theory of mind evolves when children mature. The following are mentioned because they are also echoed by social psychological literature (e.g., Karniol, 2003; Nickerson, 1999), and because the social cognitive process-based account of perspective taking that builds the theoretical framework of the current research integrates elements of these theories (Epley Keysar, et al., 2004).

The so-called theory theory (e.g., Gopnik & Meltzoff, 1997, Gopnik & Wellman, 1994) comprises the idea that infants and children develop a theory of mind by constantly testing and revising their own informal theories about how the social world around them functions. Accordingly, with maturation children develop theories about how others' minds generally work and use these to understand others' mental states. For theory theorists, everyday learning and experience plays the main formative role in theory of mind development because it allows children to test and revise formerly developed theories in the light of newly acquired knowledge.

Simulation theorists, in contrast, argue that children acquire a theory of mind through role-taking or simulation processes (e.g., Gordon, 1992, 2008). By engaging in more and more sophisticated pretend play, children develop a theory of mind. Hence, what develops with maturation is the ability to make increasingly accurate inferences about other's mental states. As theory theorists, simulation theorists view every day experience as major formative

factor contributing to theory of mind development. Experience, here, means practice of role taking which results in more accurate simulation and a more differentiated theory of mind.

Taken together, developmental psychology extensively studied how perspective taking as an inter-individually differing skill develops with maturation of children. In contrast, social psychological literature focused more on situational determinants and the underlying processes of perspective taking performance. However, the conceptualization of perspective taking within social psychology also differs depending on the research tradition and the research question. Some researchers address perspective taking as a skill (similar to research in developmental psychology) that is differentially pronounced depending on certain individual characteristics (e.g., gender, Klein & Hodges, 2001), whereas others address perspective taking as cognitive performance influenced by contextual variables (e.g., mood, Converse, Lin, Keysar, & Epley, 2008).

Social psychological research addressing perspective taking as a skill demonstrated that specific interindividual difference characteristics co-vary with perspective taking abilities (e.g., gender: Klein & Hodges, 2001; cultural background: Wu & Keysar, 2007; working memory capacities: Lin, Keysar, & Epley, 2010). Accordingly, this line of research provides insights into which individual characteristics can play a role in perspective taking abilities. However, it does not address perspective taking as a cognitive performance that can be shaped by the context in which it takes place. It suggests that either the individual possesses the characteristics that foster perspective taking or not. Therefore, social psychological research is now presented that addresses perspective taking as cognitive performance that can be influenced by the context on which it takes place.

Early social psychologists, following the 'symbolic interactionism' tradition (Cooley, 1902; Mead, 1934), stated that an individual's sense of self develops from recurrently taking the viewpoint of a significant other onto the self. More precisely, with maturation individuals become increasingly self-aware because they recurrently take others' perspectives onto the self and put the self under personal attention. Using this theoretical framework, Hass (1984) as well Stephenson and Wicklund (1983, 1984) demonstrated, in turn, that subjecting the self as an object to personal attention via manipulation of private self-awareness leads to enhanced perspective taking performance. This is because the salience of the self highlights that the self is different from others (see also Abbate, Isgro, Wicklund, & Boca, 2006; Gendolla, & Wicklund, 2009 for similar findings). To put it differently, a context in which private self-awareness is heightened facilitates perspective taking performance because salience of the differences between the self and others is heightened. Now, these findings play a crucial role

for the current research, even though the current research relies on different more up-to-date theoretical background: Heightening salience of the self as being different from others (i.e. self-other differentiation) represents the crucial underlying process of successful perspective taking. This will be elaborated when introducing the social cognitive process-based account of perspective taking as egocentric anchoring and adjustment (Epley, Keysar, et al., 2004).

Other social psychological research addressing the influence of contextual variables on perspective taking performance demonstrated that perspective taking is a complex cognitive operation that requires cognitive ressources and effort. To be more precise, contextual variables known to affect cognitive ressources have been shown to influence perspective taking performance (e.g., cognitive load: Lin, et al., 2010; mood: Converse, et al., 2008; time pressure: Epley, Keysar, et al., 2004). Another line of research focused more on perspective taking as cognitive performance taking place in social interaction. In these studies, perspective taking performance was influenced by social relational structures of the context (e.g., social power: Galinksy, Magee, Inesi, & Gruenfeld, 2006; Schmid Mast, Jonas & Hall, 2009; psychological distance: Eyal & Epley, 2010; person perception: Hodges, Kiel, Kramer, Veach, & Villaneuva, 2010).

Taken together, although addressing perspective taking as a cognitive performance that can differ depending on contextual variables, research presented above still does not assign an active role to the individual in a given context. Given that motivation refers to a person's internal response to any situational, emotional or cognitive stimulus with the effect of *actively* changing own behavior (Hall, 2011), motivational determinants of successful perspective taking shall be presented in the following. Accordingly, research presented in the following section addresses the active role of the individual in perspective taking and thereby achieves the first aim of this dissertation.

Motivated perspective taking: deficits in past research

Research on motivational determinants of perspective taking has mainly focused on perspective taking as a cognitive performance that is influenced by context- and content-specific motivation. Accordingly, research summarized below addressed the influence of motivation on perspective taking performance in the following way: motivation refers to the motivation to be accurate in perspective taking. Hence the influence of accuracy motivation on perspective taking performance was addressed. This motivation to be accurate, however, can have different sources, and in line with these sources accuracy motivation can be manipulated or measured differently (see Smith, Ickes, et al., 2011, for an overview). Accordingly, in some studies accuracy motivation has been manipulated very explicitly by

providing monetary rewards for accurate perspective taking (e.g., Klein & Hodges, 2001; Epley, Keysar, et al., 2004), by articulating accuracy goals (e.g., Biesanz & Human, 2010), or by merely emphasizing importance of accurate perspective taking (e.g., Hall et al., 2009). In other studies, accuracy motivation has been manipulated less explicitly. Hall and Schmid Mast (2008), for example, manipulated accuracy motivation by formulating accurate perspective taking to be indicative of social competence (see also Hall, et al., 2009). Likewise, Klein and Hodges (2001) manipulated the motivation to be accurate in perspective taking by emphasizing the importance of accurate perspective taking to be greater for women compared to men (see also Thomas & Maio, 2008; Hodges, Laurent, & Lewis, 2011, for an overview). Other researchers manipulated accuracy motivation by providing social admiration for accurate perspective taking (see Lewis, Smith, & Hawkinson, 2011, for an overview). To subsume, substantial research investigated the consequences of more or less explicit manipulations of accuracy motivation on perspective taking performance and showed that increased accuracy motivation mostly enhanced perspective taking performance (see, e.g., Hall, et al., 2009, for an exception).

Another line of research addressing the influence of accuracy motivation on perspective taking performance focused more on consequences of accuracy motivation being closely related to a specific interpersonal context. Specifically, this line of research addressed perspective taking as an interpersonal phenomenon with accuracy motivation depending on the relation between individuals. Accordingly, Thomas, Fletcher and Lange (1997) showed that accuracy motivation for perspective taking co-varied with relationship length (see also Thomas & Fletcher, 2003). Stinson and Ickes (1992) investigated the effect of type of relationship (i.e., being friends vs. being strangers) on the degree of motivation to be accurate in perspective taking (see also Savitsky, Keysar, Epley, Carter, & Swanson, 2011). Moreover, the influence of relationship partners' attractiveness on accuracy motivation (e.g., Ickes, Stinson, Bissonnette, & Garcia, 1990; Simpson, Ickes, & Blackstone, 1993) as well as the influence of attachment style (Simpson, et al., 2011) and of relationship quality on the motivation to be accurate in perspective taking (e.g., Ickes and Simpson 1997; 2004) has been investigated. Taken together, this line of research thoroughly studied perspective taking as an interpersonal phenomenon taking place in an interpersonal context. Accordingly, influences of accuracy motivation depending on contextual variables of the interpersonal context were examined. Again, increased accuracy motivation mostly led to enhanced perspective taking performance (see Hall, 2011; Smith Ickes, et al., 2011 for an overview).

What can be concluded from research presented above is that it provides a comprehensive picture of the differential effects of the content-specific motivation to be accurate, which can be affected by a variety of contextual variables, on perspective taking performance. More important, this line of research acknowledges the active role of the individual in perspective taking as cognitive performance. Individuals can 'dial up' or 'dial down' their motivation to be accurate in perspective taking (Hall, 2011), depending on the context (see Smith, Ickes et al, 2011, for an overview). However, what still remains unclear and is also pointed out by researchers addressing accuracy motivation in perspective taking (see Smith, Hall, Hodges, & Ickes, 2011), is the question of *how* precisely accuracy motivation affects perspective taking performance. Considering this question might also help answering why accuracy motivation mostly enhanced perspective taking performance but in some cases it did not (e.g., Hall, et al., 2009, but see Hall, 2011, for an overview). As Smith, Hall, et al. (2011) elaborate, accuracy motivation usually translates into increased effort to draw accurate inferences about others' perspectives and thereby enhances perspective taking performance (e.g., Biesanz & Human, 2010; Klein & Hodges, 2001; Thomas & Maio, 2008). However, in specific contexts (e.g., a threatened relationship), when regulating certain higher-order goals (e.g., to maintain a positive self-concept), accuracy motivation can be mixed with other motives and interact with them (see Ickes & Simpson, 2004). This, in turn, can produce inconsistent effects concerning the relation of accuracy motivation, increased effort, and perspective taking performance (see Smith, Hall, et al., 2011, for an overview). Moreover, the theoretical concept of perspective taking as one form of interpersonal judgment also impacts theorizing about accuracy motivation enhancing perspective taking via increased effort. Specifically, researchers endorsing that interpersonal judgments (including perspective taking) are well-learned operations argue that more effort should not enhance but rather hamper accurate perspective taking performance (e.g., Patterson & Stockbridge, 1998; see also Zuckerman & Feldman, 2000).

In sum, three conclusions can be drawn from this obvious inconsistency concerning theorizing and findings about the relation between motivation, effort and perspective taking performance: First, research addressing the influence of motivational determinants of perspective taking mainly addressed influences of the content-specific motivation to be accurate in perspective taking. Second, theoretical concepts of perspective taking have been inconclusive so far (see Smith, Hall, et al., 2011, for an overview). Depending on the theoretical concept of perspective taking (e.g., being a well-learned operation, Patterson & Stockbridge, 1998), different conclusions have been drawn about the role of effort in

translating accuracy motivation into increased perspective taking performance (Smith, Hall, et al., 2011). Third, due to this inconclusiveness concerning theoretical concepts, it is difficult to deduce which specific social-cognitive processes should be responsible for increased effort to translate into increased perspective taking performance. Accordingly, research presented above does not provide insights on content-independent motivational determinants of perspective taking and it does not clarify how exactly motivation should enhance perspective taking performance.

Whereas the first conclusion concerning content-specificity of motivational determinants of perspective taking performance will be addressed when introducing self-regulatory strategies as content-independent motivational determinants, the second and the third conclusion shall be now addressed by introducing a social cognitive perspective on perspective taking. Therefore, the theoretical account of perspective taking consisting of the two underlying processes of egocentric anchoring and adjustment (Epley, Keysar et al., 2004; see Epley & Caruso, 2009 for an overview) is now presented. By addressing the underlying social-cognitive processes of perspective taking, this account allows to derive concrete and testable predictions about how accuracy motivation should enhance perspective taking performance via increased effort. As a result, perspective taking as egocentric anchoring and adjustment will be introduced with a special focus on how increased accuracy motivation influences perspective taking performance by differentially affecting the underlying processes.

Perspective taking as egocentric anchoring and adjustment: A social cognitive process-based account

Taking a social cognitive process-based approach to perspective taking, Epley, Keysar et al., (2004; see Epley, 2008; Epley & Caruso, 2009, for an overview; Epley, Morewedge, & Keysar, 2004), formulate the theoretical concept of perspective taking as a dual process of automatic, egocentric anchoring (i.e., activation of self-related contents) and subsequent, effortful adjustment (i.e., activation of other-related contents). Derived from the more general anchoring-and-adjustment heuristic (Tversky & Kahneman, 1974), Epley and colleagues argue that when taking another's perspective, the first that comes to mind will be used as an anchor to the judgment. Only subsequently adjustment from that anchor will take place (e.g., Epley, Keysar, et al., 2004; see also Nickerson, 1999, for a similar argument). Due to the chronic accessibility of self-related contents and knowledge, the most easily accessible and, thus, automatically activated knowledge when trying to infer another's perspective will be egocentrically biased knowledge (i.e. one's own perspective). This is referred to as the

egocentric anchor. Subsequent to the impact of the egocentric anchor, effortful adjustment will take place. Adjustment refers to considering other related-contents that are activated with more difficulty because this requires executive control.

As mentioned in the beginning, the social cognitive process-based account of perspective taking as egocentric anchoring and adjustment integrates elements of the developmental psychological theories on how children acquire a theory-of-mind: Simulation theories maintain that through simulation of what another person might think or feel, a sophisticated theory of mind develops with maturation (e.g., Gordon, 1992). Egocentric anchoring refers to using the own perspective to simulate what another person's perspective might be. Theory theories, in contrast, maintain that through everyday-testing of informal theories about how others generally function, a sophisticated theory-of-mind develops with maturation (e.g., Perner, 1991). Adjustment from the egocentric anchor takes place by considering other-related contents. These contents can refer to specific other-related contents but they can likewise also refer to general theories about how others usually function.

Epley and Waytz (2010) argue that adjustment from the egocentric anchor requires executive control. This is because primarily activated (egocentrically biased) knowledge has to be corrected, for example, via activation of less easily accessible knowledge or via testing alternative hypotheses with the result of suppressing the primarily activated egocentric anchor. As a result, contextual variables fostering ressources to be invested should lead to a greater influence of other-related contents resulting in less egocentric perspective taking judgments. Testing this notion, Epley, Keysar et al., (2004, see also Epley & Caruso, 2009, for an overview), manipulated time provided for the perspective taking judgment (Study 2) and also monetary rewards to increase accuracy motivation (Study 3). Results revealed that providing individuals with more time for the perspective taking judgment as well as providing them money as an accuracy incentive improved perspective taking performance. This was indicated by a less egocentrically biased perspective taking judgment.

Taken together, the social-cognitive process-based account of perspective taking as egocentric anchoring and adjustment allowed to test and demonstrate that accuracy motivation leads to increased effort which translates into increased adjustment from the egocentric anchor. By taking this process-based account of perspective taking, Epley, Keysar, et al (2004) demonstrated how (i.e. though which processes) effort due to increased accuracy motivation enhanced perspective taking (i.e., through increased adjustment). Hence, this research (a) assigned the individual an *active* role in perspective taking by manipulating

accuracy motivation and (b) provided some insight into *how* accuracy motivation enhances perspective taking performance.

Nevertheless, this research still does not meet the goal to provide insights on content-independent motivational determinants of perspective taking as the influence of content-specific accuracy motivation had been investigated. Therefore, little is known about the influence of content-independent processes of motivation, that is, about individuals' self-regulatory strategies on perspective taking performance. As elaborated in the beginning, the present dissertation strives to bridge this gap by providing insight into self-regulatory strategies as content-independent motivational determinants of perspective taking with a focus on *how* they affect perspective taking.

Before presenting the respective self-regulatory strategies and the proposed way how they affect perspective taking, one conclusion has to be drawn based on the social cognitive process-based account of perspective taking: Perspective taking as egocentric anchoring and adjustment implies that taking another's perspective requires sufficient consideration of other-related contents. That is, individuating information about the other should be considered. This, in turn, reduces the impact of egocentric anchoring in perspective taking. Consideration of individuating information about others highlights potential differences between the self and others. This, in turn, highlights the inadequacy of using egocentrically biased knowledge for the perspective taking judgment to be made. As a result, concerning the underlying processes, this dissertation follows the social cognitive process-based account of perspective taking as egocentric anchoring and adjustment by maintaining that *self-other differentiation* is the underlying process of successful perspective taking (see also, Decety & Summerville, 2003; Higgins, 1980, for similar reasoning). The importance of self-other differentiation in perspective taking has already received empirical support by Todd, Hanko, et al. (2011). The authors showed that a focus on differences enhances perspective taking performance compared to a focus on similarities or a control condition.

What follows from self-other differentiation as the underlying process of successful perspective taking is that it allows deriving concrete predictions about the influence of self-regulatory strategies on perspective taking performance. Moreover, it allows predicting that motivational determinants can enhance perspective taking performance without necessarily translating into increased effort. Accordingly, in the following it will be outlined how two different sets of self-regulatory strategies may affect self-other differentiation and thereby perspective taking performance. The advantage of this approach is that (a) the individual's active role in determining perspective taking performance is considered. Moreover, (b) the

influence of content-independent motivational determinants on perspective taking will be thoroughly addressed. By elaborating how these self-regulatory strategies affect self-other differentiation as underlying process of successful perspective taking, (c) it will be specified how self-regulatory strategies should affect perspective taking performance without increased effort. Finally, the importance of self-other differentiation as the underlying process of successful perspective taking will be further validated by introducing a bodily grounded experience of self-other differentiation, cold (vs. warm) temperature cues.

A self-regulation approach to perspective taking as egocentric anchoring and adjustment

The present dissertation addresses the influence of two different self-regulatory strategies and a bodily grounded experience on perspective taking performance: Regulatory Focus (Higgins, 1997) and approach and avoidance motivational orientation (e.g., Gray 1990; Nussinson, et al., 2011) as self-regulatory strategies and warm and cold temperature cues as bodily grounded experience. The two self-regulatory strategy accounts have been chosen because theorizing and findings indicate that both impact the core implication of perspective taking as egocentric anchoring and adjustment: self-other differentiation. Specifically, it will be elaborated that these self-regulatory strategies should effect self-other differentiation (and thereby perspective taking) by either highlighting distinctiveness of the self (Regulatory Focus, e.g., Brebels, De Cremer, & Sedikides, 2008) or by increasing distance between the self and the other (approach/avoidance motivational orientation, e.g., Fayant, Muller, Nurra, Alexopoulos, & Palluel-Germain, 2011). In line with the notion of distance facilitating self-other differentiation, it will be elaborated how cold (compared to warm) temperature cues should enhance perspective taking. Here, the present research builds upon findings showing that cold temperature cues directly affect self-other differentiation (e.g., IJzerman & Semin, 2009, 2010; Steinmetz & Mussweiler, 2011).

In the following, Regulatory Focus Theory (Higgins, 1997) shall be introduced first. Subsequently, approach and avoidance self-regulatory strategies shall be presented together with temperature cues because both share the theoretical notion of distance facilitating self-other differentiation and thereby enhancing perspective taking performance.

Regulatory Focus: Going for it but still considering others

Regulatory Focus Theory (Higgins, 1997) states that individuals regulate their behavior differently when serving differing underlying motivational concerns, for example, the overarching concern for growth and nourishment versus the concern for security and safety (see also Scholer & Higgins, 2011). According to the theory, the concern for growth and

nourishment (i.e., accomplishment) is regulated in a promotion focus whereas the concern for security and safety is regulated in a prevention focus. In a promotion focus, goals are perceived as ideals or aspirations to strive after. Goal-relevant events are appraised in terms of gains versus non-gains (i.e. in terms of presence or absence of positive outcomes). Strategies of goal-pursuit applied in a promotion focus are eagerness-related. In contrast, in a prevention focus, goals are perceived as duties or responsibilities to assume. Goal-relevant events are appraised in terms of non-losses versus losses (i.e., in terms of presence or absence of negative outcomes). Strategies of goal-pursuit applied in a prevention focus are vigilance-related. Hence, Regulatory Focus Theory addresses the effects of processes of goal pursuit including individuals' cognitions (e.g., judgmental processes), affect (e.g., emotional reactions to success and failure) and behavior (e.g., behavioral goal attainment strategies, see Higgins & Spiegel, 2004; Scholer & Higgins, 2011, for an overview).

Now, what is important for the aims of the present dissertation is the following: Regulatory Focus describes how processes related to goal pursuit can differ depending on the underlying overarching motivational concern (nurture vs. safety) that is being served (see Scholer & Higgins 2011, for an overview). This implies, in turn, that the same goal can be pursued differently depending on the focus (Scholer & Higgins, 2011). Accordingly, the content of the goal does not determine how it is pursued, but the overarching motivational concern, expressed by adopting the corresponding self-regulatory strategy, determines how a goal is pursued. To illustrate this with an example, the goal to be athletic and stay fit can be perceived as a duty to assume, when regulating safety-concerns in a prevention focus. It can also be perceived as an aspiration to strive after, when regulating accomplishment-concerns in a promotion focus. Accordingly, the goal to stay fit can be pursued by applying vigilance-related strategies (e.g., trying not to eat high-caloric food) in a prevention focus or by applying eagerness-related strategies (i.e., trying to participate in any course offered by a fitness center) in a promotion focus. Taken together, considering different Regulatory Foci as motivational determinants of perspective taking performance achieves the aim of providing insights on content independent motivational determinants of perspective taking performance, because the two foci as self-regulatory strategies represent content-independent motivational determinants of a given behavior.

Regulatory Focus Theory has originally been developed as a theory explaining intra-individual processes related to goal pursuit and has received ample empirical support (Higgins, 1997, again see Higgins & Spiegel, 2004; Scholer & Higgins, 2011 for an overview). Meanwhile, recent research has successfully applied Regulatory Focus in the

social domain and yielded new and exciting insights into how intra-individual self-regulatory strategies affect inter-individual (e.g., romantic relationships: Winterfeld & Simpson, 2011; Righetti, Rusbult & Finkeauer, 2010; interaction with partners: Righetti, Finkenauer, & Rusbult, 2011; the influence of role models: Lookwood, Jordan, & Kunda, 2002; Zhang, Higgins, & Chen, 2011) as well as inter-group phenomena (e.g., group identity: Faddegon, Scheeper, & Ellemer, 2008; social discrimination: Shah, Brazy, & Higgins, 2004; but see Sassenberg & Woltin, 2008, for an overview).

In line with research on Regulatory Focus affecting inter-individual phenomena, the present dissertation addresses the influence of Regulatory Focus as self-regulatory strategy on perspective taking performance. Specifically, research presented in the empirical Chapter II of this dissertation tests the prediction that a promotion self-regulatory strategy enhances perspective taking performance due to heightened private self-awareness (Brebels, et al., 2008). As elaborated earlier in this chapter, research inspired by the symbolic interactionism framework demonstrated that a heightened self-focus (i.e., heightened private self-awareness) enhanced perspective taking performance (Hass, 1984; Stephenson & Wicklund, 1983; 1984; see also Abbate, et al., 2006; Gendolla, & Wicklund, 2009 for similar findings). This is explained by private self-awareness subjecting the self as an object to personal attention, which in turn heightens salience of the self as being different from others (i.e., facilitates self-other differentiation).

How do these findings and the argumentation now relate to Regulatory Focus and specifically to a promotion self-regulatory strategy? Brebels, et al. (2008) argued and demonstrated that a promotion focus goes along with heightened private self-awareness, because heightened private self-awareness serves discerning what is to be viewed as an aspiration to strive after in a promotion focus. Accordingly, a promotion regulatory strategy should enhance perspective taking performance due to associated heightened private self-awareness which should facilitate self-other differentiation.

To summarize, research presented in Chapter II of this dissertation argues and demonstrates that a promotion self-regulatory strategy as motivational determinant enhances perspective taking performance due heightened private self-awareness. Thereby, research presented in Chapter II achieves the three aims elaborated in the beginning of this dissertation: (a) An active role is assigned to the individual as Regulatory focus is a motivational concept, (b) Regulatory Focus as self-regulatory strategy represents a content-independent motivational determinant, and (c) this research provides insights into *how* the

underlying processes of perspective taking are affected by Regulatory Focus as self-regulatory strategy.

Increasing distance between the self and others

Approach and avoidance motivational orientation: Approach and avoidance motivational orientations, just as the different Regulatory Foci, represent content-independent motivational determinants of behavior. Any behavior can be categorized as either approach-related, with the consequence of reducing the distance between the self and a desired end state, or as avoidance-related, with the consequence of increasing the distance between the self and an undesired end state (e.g., Carver & Scheier, 1990; Gray 1990). In line with this notion, research based on findings in neuropsychology and animal conditioning formed the concept of two different behavioral systems representing the core determinants of behavior (e.g., Gray, 1990). The behavioral approach system (BAS) deals with appetitive motivation, causing individuals to initiate action towards a desired end state and responds to incentives. The behavioral inhibition system (BIS) deals with aversive motivation, causing individuals to inhibit ongoing action and responds to threat (e.g., Gray, 1990; see Carver, 2001, for an overview). While Gray's account mainly focused on the regulation of behavior in response to incentives and threats (cf. Carver, 2001), other accounts of behavioral approach and behavioral avoidance tendencies focused more on the regulation of behavior in relation to the (un)desired end state (e.g., Carver & Scheier, 1990). The discrepancy reducing loop, accordingly, implies moving toward (i.e., approaching) the desired end state whereas the discrepancy-enlarging loop implies moving away from (i.e., avoiding) the undesired end state (see Carver & Scheier, 1990; Carver, 2001, for an overview). Consequently, individuals can regulate their behavior with the effect of reduced distance between the self and a given aspect in their surrounding by applying approach regulatory strategies. Therefore, approach motivational orientation comprises long-term approach goals as much as approach-related behavioral tendencies. Likewise, individuals can regulate their behavior with the effect of increasing distance between the self and a given aspect in their surrounding by applying avoidance regulatory strategies. Therefore, avoidance motivational orientation likewise comprises long-term avoidance goals as much as avoidance-related behavioral tendencies.

Comparable to Regulatory Focus, approach and avoidance motivational orientations relate to processes of goal pursuit instead of to contents of a goal. Accordingly, the same goal can be achieved either by using the discrepancy-enlarging or the discrepancy-reducing loop: Again using the example of the goal to stay athletic, this goal can be achieved by increasing distance to the undesired end-state of being unathletic (e.g. by avoiding being lazy).

Conversely, it can also be achieved by decreasing distance to the desired end-state of staying athletic (e.g., by seizing any opportunity of body exercise). Taken together, considering approach and avoidance motivational orientation as motivational determinants again achieves the aim of insights on content-independent motivational determinants of perspective taking performance, because approach and avoidance orientation represent content-independent motivational determinants of a given behavior.

As with Regulatory Focus, approach and avoidance motivational orientation address intra-individual strategies of goal pursuit and have been successfully applied to explain inter-individual (e.g., social comparison: Fayant, Muller, Nurra, Alexopoulos, & Palluel-Germain, 2011; Nussinson, Seibt, Häfner, & Strack, 2010) as well as intergroup phenomena (e.g., stereotype reduction: Kawakami, Phills, Steele, & Dovidio, 2007; Phills, Kawakami, Tabi, Nadolny, & Inzlicht, 2011; social self-construal: Nussinson; Häfner, Seibt, Strack, & Trope, in press).

However, in contrast to Regulatory Focus, approach and avoidance motivational orientations imply, as elaborated above, dynamic changes in distance between the self and given aspects in the surroundings. These dynamic changes in distance affect social information processing. Accordingly, research by Kawakami, Steele, Cifa, Phills, and Dovidio (2008) on the influence of approach and avoidance motivational orientation on identification with mathematics as an abstract concept is now exemplarily introduced, because this research reflects the theoretical notion of research presented in Chapter III of this dissertation. Kawakami, et al. (2008) showed that performing approach-related behavior, when being confronted with math-related concepts, leads to an association of the self with mathematics. The authors argue that an approach orientation is related to bringing a given stimulus closer to the self. As a result, performing approach-related behaviors when being confronted with math-related concepts leads to an association of the self with mathematics. This is due to decreased psychological distance between the self and mathematics. Research presented in the empirical Chapter III follows a similar logic. As a consequence of performing avoidance-related behaviors in the context of perspective taking, psychological distance between the self and the other, whose perspective is at question, should be increased. Given that psychological distance corresponds to interpersonal dissimilarity perception (i.e., self-other differentiation; Liviatan, Trope, & Lieberman, 2008), activating avoidance motivational orientation should facilitate self-other differentiation and thereby enhance perspective taking performance.

To summarize, research presented in Chapter III of this dissertation argues and demonstrates that activating an avoidance motivational orientation as process-related motivational determinant enhances perspective taking performance. Avoidance motivational orientation (compared to approach motivational orientation) should facilitate self-other differentiation because psychological distance between the self and the other is increased. Thereby, research presented in Chapter III achieves the three aims elaborated in the beginning of this dissertation: (a) An active role is assigned to the individual, (b) avoidance motivational orientation as self-regulatory strategy represents a content- and context-independent motivational determinant and (c) this research again provides insights into *how* the underlying processes of perspective taking are affected by avoidance motivational orientation as self-regulatory strategy.

Cold temperature cues as embodied self-other differentiation: As elaborated in the beginning of this dissertation, the influence of a bodily grounded experience of self-other differentiation on perspective taking will be investigated to further validate the importance of self-other differentiation as underlying process of successful perspective taking. Following the research tradition of embodied cognition, it will be argued that cold temperature cues as bodily grounded experience of self-other differentiation should enhance perspective taking performance. Research on embodied cognition has acknowledged and empirically supported that human cognition is grounded in and shaped by sensorimotor experiences (see Barsalou, 2008; Semin & Smith, 2008, for an overview). Accordingly, bodily sensations as well as aspects of the physical environment producing a certain bodily sensation are stored together with the correspondent psychological concepts in the respective brain area (e.g., Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005). Hence, they are intertwined in social information processing (see Landau, Meier, & Keefer, 2010, for an overview).

Providing further empirical support for this notion, recent findings have demonstrated that experiences of physical warmth promote interpersonal closeness and also behavior related to psychological warmth (e.g., IJzerman & Semin, 2009; 2010; Williams & Bargh, 2008b; Zhong & Leonardelli, 2008). What is important for the present dissertation is that these findings conversely imply that physical coldness promotes interpersonal *distance*. Hence, theorizing on physical coldness and perspective taking mirrors theorizing on the impact of avoidance motivational orientation on perspective taking: cold temperature cues should increase interpersonal distance. Given that interpersonal distance corresponds to interpersonal dissimilarity perception, (Liviatan et al., 2008), physical coldness should translate into self-other differentiation and thereby enhance perspective taking performance. The proposed

relation between cold temperature cues and self-other differentiation has already received empirical support. Research has demonstrated that warm temperature induces self-evaluative assimilation whereas cold temperature leads to self-evaluative contrast (e.g. IJzerman & Semin, 2010; Steinmetz & Mussweiler, 2011). Building upon these findings, research presented in Chapter III.a, which is named in this manner because it shares the theoretical notion with Chapter III but investigates a different independent variable, tests the prediction that cold temperature cues enhance perspective taking performance.

To summarize, research presented in Chapter III.a of this dissertation leaves the realm of addressing self-regulatory strategies as motivational determinants of perspective taking: It is argued and shown that cold temperature cues enhance perspective taking. The proposed mechanism, by which temperature cues should affect perspective taking, is assumed to be functionally similar to the proposed mechanism by which approach and avoidance motivational orientation affect perspective taking performance (i.e., increased distance between the self and others). Beyond that, the role of self-other differentiation as underlying process of successful perspective taking is further validated by showing that a bodily grounded experience of self-other differentiation, cold temperature cues, enhances perspective taking performance.

A self-regulation approach to perspective taking as egocentric anchoring and adjustment: A summary

As elaborated in the beginning of this dissertation, by taking a self-regulation approach to perspective taking, research presented in this dissertation aims (a) at assigning an active role to the individual in determining perspective taking performance, and (b) at providing insights on content-independent motivational determinants of perspective taking given that self-regulation refers to processes instead of to content of motivation. Moreover, by applying the social cognitive process-based account of perspective taking as egocentric anchoring and adjustment (e.g., Epley, Keysar, et al, 2004), the current research aims at (c) providing differentiated insights in to how exactly self-regulatory strategies enhance perspective taking performance. Accordingly, whereas Chapters II and III address how two different self-regulatory strategies affect perspective taking, Chapter III.a abandons the self-regulation approach by addressing the influence of cold temperature cues as bodily grounded experience of self-other differentiation on perspective taking performance. Research reported in this chapter further validates the notion of self-other differentiation as underlying process of successful perspective taking performance. Hence, this line of research contributes to the self-regulation approach to perspective taking by reaffirming the necessity of the underlying

process, self-other differentiation, through which the respective self-regulatory strategies described in Chapters II and III enhance perspective taking performance.

As research in Chapters II and III will show, self-other differentiation is the underlying process that is affected by a promotion self-regulatory strategy (Chapter II) as well as an avoidance motivational orientation (Chapter III). As research in these chapters will demonstrate, self-other differentiation can be achieved by highlighting distinctiveness of the self (see Chapter II) or by increasing distance between the self and others (see Chapter III). Self-other differentiation, accordingly, explains why these two self-regulatory strategies result in the same effect: enhanced perspective taking performance. As a result, the present dissertation not only consistently demonstrates within each chapter how the respective self-regulatory strategy enhances perspective taking. Moreover, Chapters II and III provide a coherent picture about how two self-regulatory strategies that are often discussed to address opposing processes of goal pursuit (e.g., Förster, Higgins, & Idson, 1998; Förster, Grant, Idson, & Higgins, 2001) indeed result in the same effect, because both afford the underlying process of the phenomenon that they affect. Thereby, the present dissertation contributes to research on self-regulation as it sheds light on the relation between Regulatory Focus and approach/avoidance motivational orientation. Research of Chapter III.a supports the role of self-other differentiation in perspective taking and also adds to literature on embodied cognition as empirical support for the relation between perspective taking and the experience of physical coldness is yielded.

It should be noted that the empirical Chapters II, III and III.a are written in way that they can be read as independent manuscripts. Accordingly, key concepts such as perspective taking as egocentric anchoring and adjustment as well as self-other differentiation as underlying process of successful perspective taking will be recurrently introduced but with differing degrees of complexity.

Chapter II: The influence of regulatory focus on the intention to consider the other and successful perspective taking

Perspective taking represents a key to success in social situations and it comes with numerous desirable outcomes. Perspective taking smoothes communication and social interaction, as it helps in promoting and attaining own goals and facilitates mutual liking and attraction (e.g., Falk & Johnson, 1977). In addition, perspective taking reduces stereotyping and prejudice (e.g., Galinsky & Moskowitz, 2000; Laurent & Myers, in press; Todd, Bodenhausen, Richeson, & Galinsky, 2011) and facilitates prosocial behavior (e.g., Cialdini, Brown, Lewis, Luce, & Neuberg, 1997). Due to these and other beneficial consequences of perspective taking, researchers have directed considerable attention to the antecedents and predictors of perspective taking. Numerous studies provided evidence for the influence (a) of situational, contextual features on perspective taking (e.g., Converse, et al., 2008; Epley, Keysar, et al., 2004; Klein & Hodges, 2001; Kruger, Epley, Parker, & Ng, 2005; Lin, et al., 2010; Todd, Hanko, et al., 2011), (b) of relational features (e.g., Eyal & Epley, 2010; Galinksy, Magee, Inesi, & Gruenfeld, 2006; Hodges, 2005; Hodges, et al., 2010; Schmid Mast, et al., 2009), and (c) of interindividual differences (e.g., Epley, Morewedge, et al., 2004; Klein, & Hodges, 2001; Lin et al., 2010; Wu & Keysar, 2007). Notwithstanding this impressive amount of research addressing various determinants of perspective taking performance, the influence of broader self-regulatory strategies on perspective taking performance has not yet been addressed (neither as chronic inter-individual difference nor as outcome of situational features).

The current research, therefore, takes this new avenue at identifying conditions that facilitate perspective taking by examining the influence of Regulatory Focus (Higgins, 1997). Studying the impact of Regulatory Focus on perspective taking performance is not only promising because the theory already facilitated new insights into other social phenomena (e.g., the influence of role models, Lookwood, Jordan, & Kunda, 2002; the effects of interaction partners advise, Righetti, Finkenauer, & Rusbolt, in press; different types of intergroup behavior, Sassenberg & Woltin, 2008), the theory also allows to derive concrete predictions about how promotion and prevention focus influence the social cognitive processes that underlie successful perspective taking.

Prevention focus and attention to others

Regulatory Focus Theory (Higgins, 1997) holds that the concern for accomplishment is regulated in the *promotion focus* while the concern for security is regulated in the *prevention focus.* Promotion focused individuals pursue goals they view as ideals and aspirations by

eagerly striving towards them. Goal relevant events are appraised in terms of gains vs. non-gains. Prevention focused individuals pursue goals they view as duties and responsibilities by strategically avoiding possible failure or risks in goal attainment. Goal relevant events are appraised in terms of non-losses vs. losses. Both foci vary situationally with as well as chronically between individuals.

In the prevention focus external or socially based standards represent important guides to regulate behavior (Summerville & Roese, 2008). Social norms and rules (i.e., socially based standards) are often are conveyed by other individuals. As the prevention focus goes along with a concern for the duties and responsibilities implied by these norms, others should receive greater consideration in the prevention focus. Furthermore, others can pose a threat to personal security, either physiologically or psychologically. Accordingly, considering others should be a useful goal attainment strategy in the prevention focus. In line with this reasoning, Zhang, et al. (2011) recently demonstrated that individuals' prevention focus (but not their promotion focus) made them copy a role model when they had to take over the same role. These findings provide first evidence that the prevention focus should be related to considering others. Woltin, Corneille, Yzerbyt, and Förster (2011) extend this notion by demonstrating that prevention focused individuals report more empathic concern in a self-report measure (i.e., they report a tendency to feel with other individuals) than promotion focused individuals.

To better understand what these findings tell us for the relation between Regulatory Focus and perspective taking, we first need to understand the difference between perspective taking and empathy. Perspective taking refers to the cognitive ability to take over another person's viewpoint, to understand the other's viewpoint, and is thereby differentiated from empathy which refers to emotionally connecting to someone, to feel with the respective person (cf. Galinsky, et al., 2008; see also, Davis, 1983; Hodges & Biswas-Diener, 2007; Hodges, Clark, et al., 2011; Myers & Hodges, 2009, for similar definitions). Accordingly, the findings of Woltin et al. (2011) address the role of Regulatory Focus in (self-reported) empathy, whereas the aim of the current research is to provide more insights about the impact of Regulatory Focus on perspective taking.

In addition, successful perspective taking (i.e., understanding another person's viewpoint or emotions) as well as empathy (i.e., sharing others emotions) have to be differentiated from the mere *intention* to take another's perspective or the intention to share others emotions. The work by Woltin et al. (2011) rather reflects the *intention* to share others' emotions because self-reports of empathic concern (i.e., empathy) reflect an intention to

consider and care for the others. Hence, the results of Woltin et al. (2011) indicate that the prevention focus instigates the intention to care for others and to consider them. This, in turn, should lead to increased attention allocation to other individuals in the prevention focus (compared to the promotion focus), because attention is needed to recognize another's (mis)fortune causing empathic concern. Following this reasoning, we argue that a prevention focus should lead to more attention allocation to others because other individuals are of certain relevance. Attention allocated to others, however, by no means signifies that the perspective of another individual is successfully taken and is understood correctly (e.g. Myers & Hodges, 2009).

Taken together, we predict that the prevention focus renders other individuals certain relevance and should, therefore, instigate the intention to consider the other. This should be implemented by increased attention allocation to others but does not imply enhanced perspective taking performance. Accordingly, the current research tests the prediction that a prevention focus leads to increased attention allocation to others compared to the promotion focus.

Perspective taking as egocentric anchoring and adjustment

As already elaborated above, successful perspective taking needs more than attention directed towards another individual. To understand how individuals actually manage to take over another's viewpoint, it is necessary to consider the underlying social-cognitive processes. These social-cognitive processes comprise the two processes of (a) egocentric anchoring and (b) subsequent adjustment from that anchor (e.g., Converse, et al., 2008; Epley, Keysar, et al., 2004; Epley, Morewedge, et al., 2004; Lin, et al., 2010; for a summary, see Epley & Caruso, 2009).

Egocentric anchoring. When a judgment about the perspective of another individual has to be made, egocentrically biased knowledge (i.e., one's own perspective) will be activated due to the chronic accessibility of the self. Subsequently, this egocentric anchor will affect the intuition about the other person's perspective (e.g., Birch & Bloom, 2004; Epley, 2008; Epley, Keysar, et al., 2004; Royzman, Cassidy, & Baron, 2003). The question of 'How would *I* feel or think in that situation?' which is intuitively often the first question posed when trying to adopt another's perspective reflects the influence of this egocentric anchoring. However, using one's own perspective to infer another's perspective is not adequate in ambiguous situations where little is known about the other and possible differences between the self and the other would be ignored when using the own perspective as a template for the other. As a consequence, in these situations perspective taking would be egocentrically biased if self-

other differences are not considered (see Epley, 2008; Epley & Caruso, 2009; Epley & Waytz, 2010).

Adjustment from the egocentric anchor. Successful perspective taking requires to overcome the egocentric anchor and to consider possible differences in knowledge, expertise or attitudes between oneself and others (Epley, 2008). This requirement for successful perspective taking can be covered by the secondary process of adjustment from the egocentric anchor. Research so far has shown that spending deliberate effort and cognitive control allows for the consideration of characteristics making another individual unique (and thus different from the self) (e.g., Epley, Keysar, et al., 2004; Lin et al., 2010). However, even if the opportunity for adjustment is provided, adjustment can be inaccurate or miscalibrated (for an overview, see Epley & Caruso, 2009; Epley & Waytz, 2010), because individuals may still use pre-existing knowledge or stereotypes for understanding others (e.g., Ames, 2004a, b; Epley, 2008) or they prematurely stop the adjustment process as they estimate the adjustment to be sufficient (e.g., Epley, Keysar, et al., 2004). Consider, for instance, the case of a 'perspective taker', who possesses knowledge about the thoughts and feelings of another person 'A' which is not possessed by person 'B'. Due to this privileged knowledge, the 'perspective taker' knows that a certain message, sent from 'A' to 'B', is not being meant seriously but is in fact ironic. However, when being asked about how 'B' will interpret the message from 'A', the 'perspective taker' will have to ignore his or her superior knowledge in order to give the answer indicating perspective taking, namely that 'B' will interpret the message as being meant seriously. This adjustment from the privileged knowledge is difficult because once being aware of superior information, it requires strong effort to correct judgments about others thoughts or emotions for this information.

Accordingly, adjustment from the egocentric anchor once it has been activated and applied can be achieved by investing effort (e.g., Epley, Keysar, et al., 2004). A more reliable intervention enhancing perspective taking performance should, hence, begin earlier and avoid that the self serves as egocentric anchor for perspective taking in the first place. One means to avoid that the self serves as an anchor for the judgment of others would be to directly emphasize differences between the self and the others (e.g., by emphasizing that they are members of different groups, Clement & Krueger, 2002; Mussweiler & Bodenhausen, 2002). Emphasizing differences between the self and others (e.g. via activation of a differentiation mindset) should suggest self-related contents to be implausible for perspective taking, therewith reducing egocentric anchoring and enhancing perspective taking. Recent findings support this notion by demonstrating that priming a focus on differences enhanced subsequent

perspective taking in contrast to priming a focus on similarities or a control condition (Todd, Hanko, et al., 2011).

Taken together, chronically active self-knowledge biases perspective taking (i.e., instigates egocentric anchoring). Therefore, successful perspective taking requires sufficient self-other differentiation (see also Decety & Sommerville, 2003; Higgins, 1981; Tamir & Mitchell, 2010). This differentiation can either be initiated by intentionally differentiating between the self and the other (e.g., Epley, Keysar, et al., 2004) or more directly by activating a mental state (i.e. a mindset) in which the focus is on differences instead of similarities between the self and other (Todd, Hanko, et al., 2011). Going beyond these existing routes to enhance perspective taking performance, we argue that egocentric anchoring might also be reduced by emphasizing the distinctiveness of the self, by highlighting *personal* thoughts and feelings as given in a state of heightened private self-awareness. Being highly aware of and paying attention to own thoughts and feelings should render egocentric anchoring during perspective taking less likely, as much as primes individuals become aware of do not elicit assimilation in judgment anymore (e.g., Dijksterhuis & van Knippenberg, 2000; Lombardi, Higgins, & Bargh, 1987; Moskowitz & Roman, 1992). Therefore, we assume that highlighting one's uniqueness should render knowledge provided by the self implausible and inadequate for perspective taking, thereby reducing egocentric anchoring and enhancing perspective taking performance. Stephenson and Wicklund (1983) put forward a similar argument and demonstrated indeed that a heightened private self-awareness leads to better perspective taking performance (see also Abbate, et al., 2006; Gendolla & Wicklund, 2009; Hass, 1984; Stephenson & Wicklund, 1984). This finding is particularly important for the current research question - the impact of Regulatory Focus on perspective taking performance - as the promotion focus comes along with a state of heightened private self-awareness.

Promotion focus and perspective taking

Brebels, et al. (2008) suggested that the regulation of accomplishment concerns in a promotion focus should afford the individual to easily discern what is to be viewed as a personal accomplishment to strive for. Hence, a promotion focus should render the individual self salient (i.e., the elements of the self-concept making oneself unique) which includes personal thoughts and feelings, own goals and standards to adhere to. Consequentially, the promotion focus should go along with a certain awareness of one's own thoughts and feelings, in other words, with heightened private self-awareness (Fenigstein, et al., 1975). Indeed, Brebels et al. (2008) found support for this assumption in several studies demonstrating that individuals in a promotion focus showed more private self-awareness both on implicit as well

as explicit measures (compared to individuals in a prevention focus). Additionally, they demonstrated on a correlational level that only the promotion focus correlated with heightened private self-awareness but not the prevention focus.

Combining the relation between Regulatory Focus and private-self-awareness (Brebels, et al., 2008) as well as between private self-awareness and perspective taking (Abbate, et al., 2006; Gendolla & Wicklund, 2009; Hass, 1984; Stephenson & Wicklund, 1983; 1984), we argue that a promotion focus should foster perspective taking performance. The promotion focus comes along with a state of heightened private self-awareness (i.e., a heightened self-focus) which highlights the inadequacy of self-related contents and thereby reduces egocentric anchoring in perspective taking. Accordingly, we predict that in a promotion focus actual perspective taking performance is enhanced. Moreover, the positive effect of promotion focus on perspective taking performance is mediated by a heightened private self-awareness associated with the promotion focus. In contrast, in the prevention focus attention allocation to others is increased. However, this does not imply better perspective taking as no hint for the inadequacy of self-related contents in perspective taking is given.

Overview

The current research examined whether the prevention focus fosters attention to other individuals whereas the promotion focus fosters perspective taking performance due to heightened attention to the self (i.e., private self-awareness). Studies 1 and 2 were designed to test the hypothesis that a prevention focus leads to more attention allocation to other individuals compared to the promotion focus. Regulatory Focus was either manipulated (Study 1) or assessed (Study 2) and attention to others was either measured indirectly by using the time spent on the acquisition and recall of information about another person (Study 1) or directly via eye-tracking (Study 2).

Studies 2-4 tested the hypothesis that a promotion focus enhances perspective taking performance. Again, Regulatory Focus was either assessed (Study 2) or manipulated (Studies 3 & 4). Perspective taking performance was either assessed with an emotion recognition task to measure understanding of others emotions (Studies 2 & 3) or with a communication intention task which was adapted from Keysar (1994; i.e., the privileged-information paradigm originally developed by Flavell, Botkin, Fry, Wright, & Jarvis, 1968,) to measure understanding others cognitions (Study 4). Additionally, Study 4 tested whether the impact of promotion focus on perspective taking performance was mediated by heightened private self-awareness associated with the promotion focus.

Study 2.1

Method

Particpants and Design. Forty-seven undergraduate students at a German University (36 women, M_{age} = 23.31, *SD*= 3.14, range: 18-33) participated in an experiment with two conditions (Regulatory Focus: prevention focus vs. promotion focus). Participants received 8 Euro (approximately 11 $) for compensation.

Procedure. Participants were recruited for a study session on 'concentration and learning' consisting of two independent experiments. Groups of up to six individuals participated during one experimental session. Upon arrival in the laboratory, they were seated in semi-private cubicles, mostly hiding their view from each other and completely from other participants' screens. After working on the first study, participants started with the current experiment.[1]

All information was provided on the screen. First, participants were told that they would have to work on a quiz addressing diverse topics (i.e., sports, technology, science, art and music) together with a participant from another laboratory. To increase credibility of the computer-mediated interaction scenario, participants watched how an online connection to the other laboratory was ostensibly built up by seeing a blinking sign telling them that the connection was being made. Then they filled out a questionnaire asking for their personal interests in specific topics within broader areas of interest (e.g., within the field of sports how interested they were in biathlon). Participants were then told that they would receive information about their interaction partner's indicated interests. In order to avoid an overlap of interests between participants and their supposed interaction partner, participants' responses and the ostensible responses of the interaction partner covered the same domains (e.g., sport) but different sub-specific topics (e.g., biathlon vs. handball).

While seemingly waiting for their interaction partner's responses to the interest questions, participants worked on a task which was introduced as an unrelated filler task on 'personal memories' which actually served to manipulate Regulatory Focus. Participants had to recall either three typical promotion or three typical prevention situations. This procedure

[1] All analyses reported below include a four-stepped factor representing the manipulation of the experiment that was run previous to the current experiment. The manipulations of the two studies were orthogonal. Importantly, no interaction of this factor and the experimental factor of the current experiment occurred, all *F*s < 1. Including the factor resulting from the preceding study in the experimental session in the analysis thus implies controlling for error variance, because it represents interindividual differences between participants when starting the current study. In case of the attention allocation (and only in case of this dependent variable), evidence for this type of error variance was found, $F(3,46) = 4.90$, $p = .006$, $\eta^2 = .28$.

was adopted from Higgins, et al., (2001): Participants recall both success *and* failure situations so that feelings of success or failure are not induced. In fact, promotion and prevention cues are activated based on the recollection of this type of self-regulation from memory. Specifically, in the promotion focus condition participants recalled a situation in which they "felt like they made progress towards being successful in their life", a situation in which they "felt like they failed to make progress towards being successful in their life" and finally a situation in which "compared to most people, they were able to get what they wanted out of life". In the prevention focus condition, participants recalled a situation in which "being careful enough had prevented them from getting into trouble", one situation in which "not being careful enough had gotten them into trouble" and one situation in which "they acted in a way that nobody would consider objectionable" (see Appendix I of this dissertation).

Thereafter, participants received information about the interests ostensibly indicated by their interaction partner (see Figure 1 for details). To avoid possible influences of romantic motives on the time spent with the information about the supposed interaction partner, gender of the interaction partner was not mentioned. Before reading the information about their interaction partner's interests, participants were instructed to memorize the information because this should help them when working together on the quiz. They were told to move on with the experiment only when they were able to form an impression about their interaction partner.

Subsequently, participants unexpectedly had to remember the information they had received about the interaction partner. From every possible area of interest, participants had to indicate in an open ended format for which topic the interaction partner had indicted his / her interest and for which not. After assessing participants' memory of the information about their supposed interaction partner, participants were debriefed, thanked and compensated.

Your assigned interaction partner has indicated the following personal information:
Age: 25
Study mayor: teaching degree
Semester: sixth semester
Native language: German
Interest:
Within the field of sports: interested in track and field athletics and in handball but not interested in golfing
Within the field of natural science: not interested in mathematics and also not in biology
Within the field of nature and environment: interested in exotic plants and animals
Within the field of art: interested in Cubism and baroque style
Within the field of technology: interested in engine construction and automobile technology but not in new media technology
Within the field of music: interested in Rock and Jazz music

Figure 1. Information about interaction partner presented to every participant about the supposed interaction partner in Study 2.1 (N = 47)

Measures. ***Attention allocation.*** The time spent on memorizing and recalling information about the supposed interaction partner served as indicator for the attention allocated to others. Both times capture how much attention is allocated to the other in the sense that participants thought about them. They significantly correlated with each other, r = .29; N = 47; p = .022. Both times were z-standardized and then averaged. Higher values of this index indicate that others received more attention

Recognition errors. Participants' memory performance was measured based on the averaged number of correct answers participants gave to open ended questions. Participants had to mention the correct facts as they had been presented to them (correct age, correct study course, correct indication of special interest topic within the given area of, for instance, technology, etc.). Each incorrect fact (incorrect age, study course or interest topic within a certain area) and each fact that was not remembered was coded as recognition error. The relative frequency across all facts was computed. This index ranged from 0 to 0.56. Higher values indicated more errors in recalling information about the interaction partner.

Results

Attention allocation. It was predicted that prevention focused individuals would allocate more attention towards the supposed interaction partner than promotion focused

individuals. To test this prediction an analysis of covariance (ANCOVA) including Regulatory Focus as independent variable and the attention allocation index as dependent variable was conducted. To control for inter-individual differences in reading speed and for differences in reading time resulting from the more detailed processing in a prevention focus (e.g., Förster & Higgins, 2005; Förster, Higgins, & Bianco, 2003), we entered two covariates into the analysis: The reading time for the instruction page before the questionnaire about participants own interests appeared (before the manipulation of Regulatory Focus) and the reading time for the instruction page before information about the interaction partner appeared (after the manipulation of Regulatory Focus). The analysis revealed that prevention focused individuals allocated more attention to the supposed interaction partner (M = .14, SD = .76) than promotion focused individuals (M = -.16, SD = .72), $F(1,46) = 4.35$, $p = .044$, ${}_{part}\eta^2 = .11$ (see Table 1) Additionally, both covariates accounted for variance of the attention allocation (reading time before the manipulation: $F(1,46) = 4.07$, $p = .051$, ${}_{part}\eta^2 = .10$; reading time after the manipulation: $F(1,46) = 12.64$, $p = .001$, ${}_{part}\eta^2 = .26$).

***Additional analyses*.** Given that prevention focused individuals allocate more attention towards their supposed interaction partner, it occurred interesting to us whether this effort to understand the other and to recall information about him/her led to success, that is, to a more correct recall of information about the other. However, an analysis of variance (ANOVA) revealed that participants in the prevention condition produced even more recognition errors (M = .23, SD = .12) then participants in the promotion condition (M = .15, SD = .13), $F(1,46) = 4.75$, $p = .035$, ${}_{part}\eta^2 = .11$ (see Table 1). Apparently, although prevention focused individuals took more time considering the information about their supposed interaction partner, they were less successful in remembering the information compared to promotion focused individuals.

Table 1. *Overview over results for the dependent variables attention allocation and memory performance in Study 2.1 (N = 47)*

	Attention allocation	*Memory performance*
Promotion Focus	*M* = -.16, *SD* = .72	*M* = .15, *SD* = .13
Prevention Focus	*M* = .14, *SD* = .76	*M* = .23, *SD* = .12
F (1,46)	4.35*	4.75*

* $p < .05$

Discussion

This study provides initial evidence for the hypothesis that individuals in a prevention focus allocate more attention to an (ostensible) interaction partners than individuals in a promotion focus. At the first glance it might seem surprising that attention to the interaction partner did not lead to better memory for information about this person. In contrast, the promotion focus enhanced memory performance. However, this suggests that the intention to consider another individual (implemented by increased attention to the other) does not even help in memorizing information about the other (not to mention successful perspective taking performance).

To replicate the finding of the prevention focus increasing attention to others with a different operationalization, Study 2 assessed attention allocation more directly via tracking eye gazes during a genuine perspective taking task. We applied an emotion recognition task (also applied in other research on perspective taking such as by Galinsky, Magee, Inesi, & Grunfeld, 2006; Schmid Mast, et al., 2009) that also allowed for a direct test of the prediction that a promotion focus leads to better perspective taking performance. Moreover, Regulatory Focus was assessed rather than situationally manipulated in Study 2, which comes with the advantage that the distinct effects of promotion and prevention focus can be tested. Taken together, we predicted that a chronic prevention focus would lead to more attention to others (i.e., longer fixations of the faces in the emotion recognition task) and a promotion focus would lead to better perspective taking performance (i.e., better emotion recognition performance).

Study 2.2

Method

Participants and design. Fifty undergraduate students at a German university (34 women, M_{age} = 24.38, *SD*= 4.43, range: 19-39) with normal or corrected-to-normal vision

participated in a study on 'visual movement in person perception'. The chronic promotion and prevention focus were assessed as predictors and participants' eye movements and fixations while working on an emotion recognition task served as the dependent variable. All participants received 8 Euro (approximately 11 $) for compensation.

Procedure. The study was run in individual sessions. Upon arrival in the laboratory, the eye-tracking system was adjusted to participants' individual eye gaze features using a nine-point calibration system. After the calibration, all information about the study was provided on the screen. Participants worked on an emotion recognition task using pictures taken from the Diagnostic Analysis of Nonverbal Accuracy (DANVA2, Nowicki & Carton, 1993). In this task pictures of individuals displaying a certain facial emotional expression were displayed in random order in one of the four corners or the center of the screen. The pictures were decreased by one third in size and presented superimposed on cut-outs from German newspapers that covered the whole screen. The newspaper articles were checked not to display any emotional content and contained of both text and pictures (see Figure 2 for details). These backgrounds served to create distraction from the target pictures. Written stimulus material automatically evokes reading. By presenting the target stimulus (i.e., the face of a person displaying a certain emotional expression that has to be identified in order to fulfill the task) in one corner of the screen together within distracting information, one has to allocate attention to the face and simultaneously has to ignore the irrelevant information by which the face is surrounded. This operationalization resembles a natural setting in which relevant individuals are not situated in a clean nonsocial environment but instead present themselves in a setting full of details that may distract attention from them. Even more important, these alterations of the original DANVA2 were necessary because presenting pictures of faces in the center of the screen without any distracting information automatically attracts visual attention, thereby minimizing variance in individual eye gaze behavior.

As with the original DANVA2 task, participants had to identify the emotion displayed on the faces they saw by pressing one of four keys that were assigned to the four emotions happiness, sadness, anger, and fear. Participants saw 24 pictures of adult faces that expressed these four emotions in either high or low intensity.[2] All pictures were displayed for three

[2] For analyses of eye tracking and emotion recognition data mean fixation duration and recognition errors of 20 of the 24 pictures presented were used. Four pictures had been presented at the center of the screen in the same location in which the fixation cross was shown at the beginning of each trial. Therefore, they hardly produced any variance in eye gaze behavior. Hence, they were excluded from further analyses. These trails had to be

seconds but the answer options remained on the screen until participants finally answered. After working on the emotion recognition task, participants filled out the Regulatory Focus questionnaire, were debriefed, thanked, and compensated.

Measures. ***Attention allocation*****.** Eye movements were recorded using a SMI RED eye-tracker (SensuMotoric Instruments), a standalone remote eye-tracking device with an accuracy of 0.5 degrees and a sampling rate of 50 Hz. The minimum fixation duration was set to 50 ms with a fixation radius of 100 pixels. Stimulus material was presented using Experiment Center 2.4, and eye movements during the emotion recognition task were analyzed with BeGaze 2.4 (http://www.smivision.com). For the analysis of the eye tracking data, the raw data were first aggregated into fixations, that is, events during which eye gazes are maintained on a single location and information uptake can take place. A fixation was defined as any gaze that lasted longer than 50 ms and remained on the same display position within an area of 100 pixels.

In a second step, AOIs were defined, that is, areas of the stimulus that were assumed to be most meaningful in answering the question of whether visual attention concerning another person's emotional state would differ as a function of Regulatory Focus. The most important AOI to test this hypothesis covered those parts of a person's picture needed to identify the facial emotion expression, namely, the eyes and the mouth of the face displayed (AOI face). Another AOI consisted of the rest of the picture of the face (AOI picture) including forehead, hair and the background within which the face was embedded. This AOI was created to ensure that visual attention was directed towards the area of the picture containing the relevant information for determining the person's emotional expression rather than just reflecting a general interest in the depicted person (see Figure 2).

included in the materials to render the fixation cross useful for participants and to elicit thereby variance in the eye-movements of the other trials.

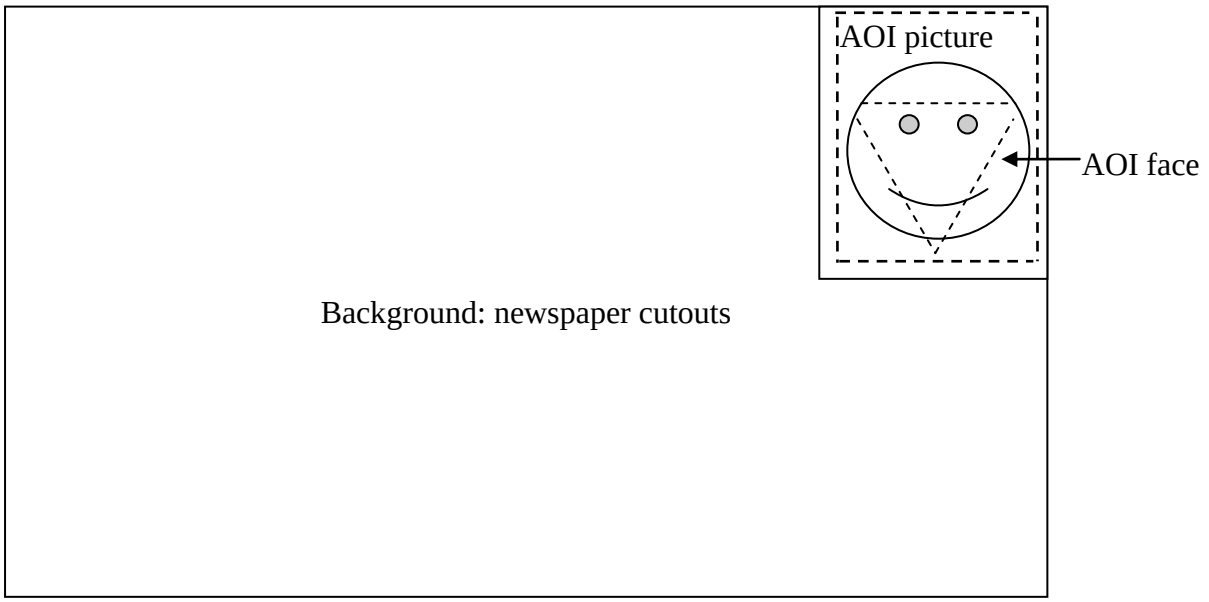


Figure 2. Schematic example of stimulus picture taken from the DANVA2 in Study 2.2 (*N* = 50)

As main dependent variable we calculated the mean fixation duration separately for the two AOIs for each picture by dividing the time spent looking at a given AOI (i.e., dwell time) by the number of fixations. The resulting mean fixation duration is commonly used as a measure of attention to an AOI. Longer mean fixation durations generally occur because the stimulus is of interest to a person (e.g., Henderson, Weeks, & Hollingworth, 1999).

Perspective taking. The accuracy in emotion recognition served as perspective taking measure following the procedure of the DANVA2 (Nowicki & Carton, 1993) from which the pictures were taken. The reversely coded, averaged number of errors for 20 pictures served as perspective taking score with higher numbers indicating better perspective taking performance.

Regulatory focus. The prevention focus subscale (e.g. "In fundamental decisions, safety is an important criterion for me.", "In work and in my studies, it is important for me to be accurate.", "I virtually always stick to rules and regulations.", $\alpha = .54$) consisted of ten items, the promotion focus subscale ("I strive for success in my life.", "I strive for progress", "I want to achieve a great deal.", $\alpha = .70$) consisted of 12 items. All items used a seven-point Likert scale, ranging from "1 = *does not apply to me at all*" to "7 = *completely applies to me*" (see Appendix II of this dissertation).[3]

[3] A newly developed regulatory focus scale was used because the Regulatory Focus Questionnaire (RFQ, Higgins et al., 2001) had a low internal consistency in European studies (e.g., Sassenberg & Hansen, 2007; Sassenberg, Jonas, Shah, & Brazy, 2007; Semin, Higgins, de Montes, Estourget, & Valencia, 2005; in some

Results

Attention allocation. It was predicted that a stronger prevention focus leads to more attention allocation towards others. In particular, mean fixation duration on the AOI relevant to determining a person's emotion (i.e., AOI face) was assumed to increase with a stronger prevention focus, whereas no effects were expected for the AOI that was unrelated to figuring out the emotional expression. To test this hypothesis, multiple regression analysis of mean fixation duration on the AOI face on both regulatory foci was computed. In line with our expectation, the analysis revealed that the stronger participants' prevention focus the longer were participants' mean fixation duration on the AOI face which included the relevant information for the emotion recognition task to carry out ($\beta = .29$, $p = .043$). Conversely, the same analysis revealed somewhat unexpectedly that the stronger participants' promotion focus the shorter were participants' mean fixation duration on the AOI face ($\beta = -.32$, $p = .028$, see Table 2). Furthermore, multiple regression analysis of the mean fixation duration on the AOI picture revealed no significant effect of Regulatory Focus (all *p*s > .75). Hence, as expected prevention strength comes with more attention to information relevant to the emotion recognition task (i.e., the face displaying the facial emotion expression). Thus, the stronger the prevention focus the more attention was allocated to other individuals. Contrarily, a stronger promotion focus even reduced attention allocated to other individuals.

Perspective taking. To test the hypothesis that a stronger promotion focus leads to better perspective taking performance, emotion recognition accuracy was regressed on both regulatory foci. In line with our prediction, the stronger participants' promotion focus, the better they were at identifying the facial emotion expression displayed by the face ($\beta = .31$, $p = .019$). Chronic prevention focus did not affect emotion recognition ($\beta = .16$, $p = .236$, see Table 2).

cases $\alpha < .60$) and the General Regulatory Focus Questionnaire by Lockwood, Jordan, and Kunda (2002) has been heavily criticized (see Summerville & Roese, 2008). Both subscales of the new questionnaire are highly correlated with the respective subscale of the RFQ (both $r > .55$). Unfortunately, the internal consistency of the new prevention scale was not very good in this application, but above or at least close to .70 in other studies applying this scale (e.g., Hamstra, Sassenberg, van Yperen, & Wisse, 2011; Sassenberg & Sassenrath, 2011).

Table 2. *Unstandardized regression weights from multiple regression analyses of mean fixation duration on the two AOIs and perspective taking performance on promotion focus, prevention focus and gender and age as control variables Study 2.2 (N = 50)*

	B	*SE*	*t*	*p*
Mean fixation duration AOI face				
Promotion focus subscale	-.36	.16	-2.27	.028
Prevention focus subscale	.29	.14	2.08	.043
Mean fixation duration AOI picture				
Promotion focus subscale	2.14	23.82	.01	.929
Prevention focus subscale	-6.69	21.15	-.05	.753
Perspective taking performance				
Promotion focus subscale	.04	.02	2.42	.019
Prevention focus subscale	.02	.02	1.21	.236

Discussion

Using chronically assessed rather than manipulated Regulatory Focus, the results of Study 2 replicate the findings of Study 1: individuals' prevention focus increased their attention to others. Study 2 added that this effect can also be found for attention measures in a narrower sense, namely visual attention (i.e., mean fixation duration). Visual attention to others was not only facilitated by individuals' prevention focus but also hampered by their promotion focus. Thus, differences in attention allocation between the two regulatory foci demonstrated in Study 1 are most likely not only due to heightened attention allocation in a prevention focus, but also due to lowered attention allocation in a promotion focus. Even though we did not predict the effect of the chronic promotion focus on attention to others, it is consistent with our theorizing. The lowered attention to others might simply result from a heightened attention to the self (i.e., private self-awareness) in a promotion focus (Brebels et al., 2008) as attention represents a rather limited resource.

Nevertheless and in line with our prediction, a stronger promotion focus fosters perspective taking performance in the emotion recognition task even while reducing attention.

This may appear astonishing but the attentive reader might have recognized that attention to others (i.e. the *intention* to consider another) is not particularly helpful to overcome egocentric anchoring.

One limitation of this study is the internal consistency of the prevention focus scale. However, we consider this as rather minor because in earlier research the scale had a good internal consistency and other measures of Regulatory Focus share this weakness or come with other weaknesses (cf., Footnote 2). Moreover, the current findings replicate those of Study 1 in which a well established manipulation of Regulatory Focus led to the same effect.

Taken together, results of Studies 1 and 2 consistently support the prediction that a prevention focus leads to more attention allocation to other individuals. In Study 1, Regulatory Focus is manipulated and in Study 2 it is measured as an individual difference. Whereas the strength of Study 1 lies in its' experimental design, the strength of Study 2 is that attention allocation is measured in a very direct way by using eye tracking. Moreover, Study 2 provides preliminary evidence concerning the expected relation between promotion focus and perspective taking. Using the adaptation of a genuine perspective taking task, promotion strength positively predicted perspective taking performance. Furthermore, attention to others and perspective taking were measured with the same task in this study, therefore allowing to disentangle the relation between the two for actual perspective taking performance.

Given the correlational design of Study 2, we conducted an experiment manipulating Regulatory Focus and measuring perspective taking performance with the same pictures for emotion recognition as in Study 2. Moreover, Study 3 did not work with an adapted version but with the original and well established emotion recognition measure (DANVA2, Nowicki & Carton, 1993).

Study 2.3

Method

Participants and Design. Ninety-eight undergraduate students at a German university (59 women, M_{age} = 25.18 years, *SD* = 3.29, range: 20-37) participated in the experiment with two conditions (Regulatory Focus: prevention focus vs. promotion focus). All participants received 8 Euro (approximately 11 $) for compensation.

Procedure. Participants were recruited for a study package on 'person perception'. As in Study 1, groups of up to six individuals could participate during one experimental session. Upon arrival in the laboratory, participants were seated in semiprivate cubicles, therewith hiding their view from each other and from other participants' screens. All further information was provided on the screen.

The experimental session started with the Regulatory Focus manipulation following the same procedure as in Study 1 (i.e., recall of three focus-typical events). Afterwards, perspective taking performance was assessed using the same pictures for emotion recognition as in Study 2 but without the newspaper cutouts as background noise and with the pictures presented at the center of the screen in their original size. Participants saw 24 pictures of adult faces that expressed the four emotions happiness, sadness, fear or anger in either high or low intensity and had to indicate what they believed which emotion was expressed by the faces. After having worked on the current experiment, participants moved on to a second independent experiment and worked on it. Finally, they were thanked, debriefed, and compensated.

Measures. ***Perspective taking.*** As in Study 2, perspective taking performance was measured with accuracy in emotion recognition using the pictures from the DANVA2 (Nowicki & Carton, 1993). Since for the 12 high intensity pictures the mean number of errors was very small (M = .17, SD = 0.12) compared to the 12 low intensity pictures (M = .34, SD = 0.15), $t(97) = 12.03$, $p < .001$ d = 1.22, only the averaged number of errors made with the low intensity pictures was used to assess participants' accuracy in recognizing facial emotion expressions. Lower numbers of errors indicated better perspective taking performance.

Results

It was predicted that promotion focused participants would show enhanced perspective taking performance as assessed with the emotion recognition task compared to prevention focused participants. Supporting this prediction, promotion focused participants made fewer errors in identifying ambiguous facial emotional expressions (M = .30, SD = .12) than did prevention focused participants (M = .37, SD = .17), $t(96) = 2.23$, p = .027, d = .45 (see Table 3).

Discussion

Using an experimental design, Study 3 replicated the findings of Study 2 concerning the impact of Regulatory Focus on perspective taking performance. Specifically, a promotion focus led to enhanced perspective taking performance in an emotion recognition task compared to a prevention focus. One might object that in Study 2 both the high and the low intensity pictures were included into analyses but in Study 3 only the low intensity pictures were included. The fact that in Study 3 the high intensity emotional pictures were presented at the center of the screen, in larger size and without distracting visual information in the background, rendered the task much easier than in Study 2. Therefore, it is not very surprising

that high intensity pictures produced few errors. This floor effect did not allow for an impact of Regulatory Focus.

Results so far provided clear evidence that a promotion focus increases perspective taking performance using the same task and implementing both a correlational as well as with an experimental design. Study 4 sought to address two additional aims: testing the predicted processes and demonstrating that the effect generalizes from emotion recognition to other measures. Study 4 tested the predicted mediation of the effect of promotion focus on perspective taking performance via heightened private self-awareness. To test whether the impact of Regulatory Focus on perspective taking generalizes across different measures representing different aspects of the concept, perspective taking performance was measured with a well established cognitive indicator: the privileged-information paradigm (Flavell et al., 1968, adapted and applied by Keysar, 1994, see also Epley, Keysar, et al., 2004). Accordingly, we applied this paradigm to fully capture the concept of perspective taking as understanding not only emotional experiences (as assessed with an emotion recognition task) but also cognitive experiences of another individual.

Study 2.4

Method

Participants and Design. Seventy-one undergraduate students (50 women, M_{age} = 23.87 years, *SD* = 2.66, range: 19-31) participated in an experiment with two experimental conditions (Regulatory Focus: prevention focus vs. promotion focus). All participants received 8 Euros (approximately $ 11) for compensation.

Procedure. The procedure was identical to Study 3, except for three alterations. First, the experiment was introduced as a study on "communication patterns". Second, after having worked on the Regulatory Focus manipulation (see Study 1 for details), participants filled out a self-report measure of situational private self-awareness (Sassenberg, Boos, & Rabung, 2005). Finally, they worked on a perspective taking task adapted from Keysar, 1994. In this task, participants read five short stories about a fictitious protagonist 'A' involved in social interactions with other target persons. By reading the story, participants gained superior knowledge about A's intentions and feelings, namely that A's written messages to a certain target person were not meant seriously. Following each story, participants were asked to indicate on a seven-point Likert scale, ranging from "1 = *not at all seriously*" to "7 = *completely seriously*", whether the target person would interpret the intention of A's message as being meant seriously or not. Perspective taking was given if participants ignored their

superior knowledge about the protagonist A and answered that the target person would interpret A's message as being meant seriously (see Appendix III of this dissertation).

Measures. *Situational private self-awareness*. Participants filled out a seven-item scale (Sassenberg, et al.'s, 2005, adaptation of the private self-awareness scale by Fenigstein, et al., 1975, as a measure of situational private self-awareness). All items (e.g. "While working on antecedent tasks, I was thinking about the way I use to tackle things.", α =.83) used a six-point Likert Scale, ranging from "1 = *does not apply to me at all*" to "6 = *completely applies to me*" (see Appendix IV) of this dissertation).

***Perspective taking*.** The perspective taking score was computed by averaging participants' answers following the five stories. Higher means indicated better perspective taking performance.

Results

It was hypothesized that promotion focused participants show enhanced perspective taking performance compared to prevention focused participants. This effect of Regulatory Focus on perspective taking was predicted to be mediated by a heightened private self-awareness. In line with the prediction, promotion focused participants scored higher in perspective taking (M = 4.90, SD = 1.08) than prevention focused participants (M = 4.35, SD = 1.08), $t(69) = 2.16$, $p = .035$, $d = 0.51$. Furthermore and again as expected, the analysis demonstrated that promotion focused participants had a higher private self-awareness (M = 3.92, SD = 1.00) than prevention focused participants (M = 3.44, SD = 0.97), $t(69) = 2.06$, p = .044, $d = 0.49$ (see Table 3).

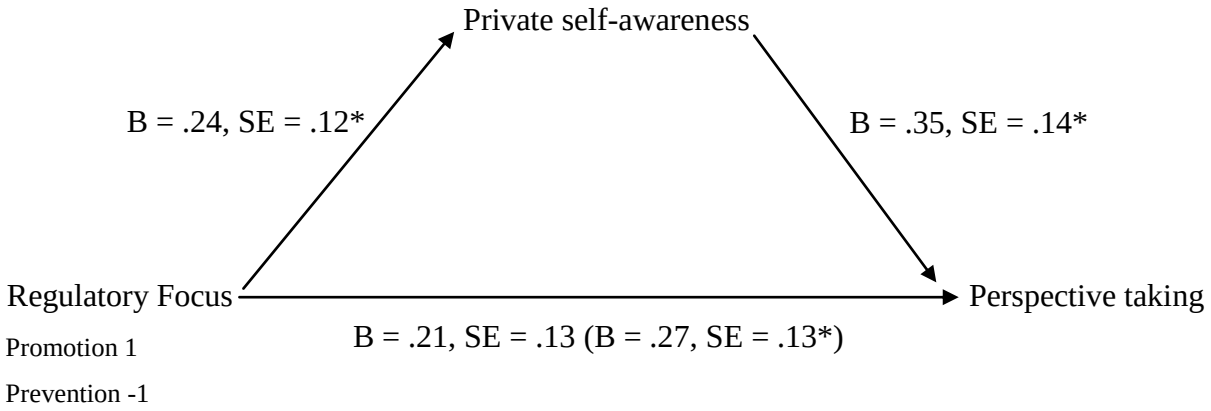
Table 3. *Overview over results for the dependent variable perspective taking in Studies 2.3 (N = 98) and 2.4 (N = 71)*

	Study 3	Study 4	
	Perspective taking	*Perspective taking*	*Private self-awareness*
Promotion Focus	*M* = .30, *SD* = .12	*M* = 4.90, *SD* = 1.08	*M* = 3.44, *SD* = 0.97
Prevention Focus	*M* = .37, *SD* = .17	*M* = 4.35, *SD* = 1.08	*M* = 3.92, *SD* = 1.00
t	2.23*	2.16*	2.06

* $p < .05$ Degrees of freedom for the *t* value are df = 96 in Study 3 and df = 69 in Study 4

Note. In Study 3 perspective taking was operationalized with an emotion recognition task measuring errors in emotion recognition. Thereby, lower means indicate better perspective taking. In Study 4, perspective taking was measured using a perspective taking score. Here, higher means indicate better perspective taking.

In order to test the prediction that the effect of Regulatory Focus on perspective taking is mediated by heightened private self-awareness, we followed the recommendations of Shrout and Bolger (2002), who suggest applying bootstrapping procedures in order to assess a confidence interval around the indirect effect. If this interval does not contain zero, the indirect effect is considered significantly different from zero and therefore mediation can be inferred. To conduct the mediation, we used the SPSS macro, provided by Preacher and Hayes (2004). According to our assumptions, in this analysis the manipulated Regulatory Focus represented the independent variable (coded as 1 = *promotion focus* and -1 = *prevention focus*), the perspective taking score represented the dependent variable, and the measured private self-awareness was the mediator candidate. The bootstrapping procedure (1000 re-samples) estimated the indirect effect to be *B* = .14, *SE* = .09, $CI_{95\%}$ [0.0059; 0.3868]. Since zero is not contained in this confidence interval, the mediation effect is significant (see Figure 3 for details).



Note: *: $p < .05$

Figure 3. Indirect effect of Regulatory Focus via private self-awareness on perspective taking in Study 2.4 ($N = 71$)

Discussion

Using an experimental design with a different perspective taking task that assesses understanding another's cognitions, we could effectively demonstrate once more that a promotion focus leads to enhanced perspective taking performance. In comparison to Studies 2 and 3 that measured understanding other's emotions with an emotion recognition task, this study goes beyond by using a cognitive perspective taking measure that ideally resembled the idea of egocentric anchoring and adjustment. Participants had to adjust from their egocentric anchor delivering them privileged knowledge about protagonist A in order to give the correct answer (namely that a target person without privileged knowledge would interpret the message as being meant seriously). Accordingly, promotion focused individuals understood others' cognitions, because they were better able to adjust from their egocentrically biased knowledge resulting in enhanced perspective taking performance.

Moreover, Study 4 also provided support for the proposed mediation of this effect by private self-awareness. As the mediation analysis revealed, promotion focused individuals were better able to adjust from their egocentrically biased knowledge because they had a higher private self-awareness. Consequently, the current results suggest that for promotion focused individuals it was easy to differentiate between their own and others' thoughts in the given context where the thoughts of other target persons were at question. It seems that highlighting own thoughts this way reduces egocentric anchoring (i.e. using own privileged knowledge about protagonist A's intentions which the other target persons did not have) in perspective taking. Hence, results suggest that self-other differentiation is achieved by

focusing on the self with the effect of making self-related contents implausible for application in perspective taking which results in enhanced perspective taking performance.

General Discussion

The current research tested whether a prevention focus fosters attention allocation to other individuals whereas a promotion focus fosters actual perspective taking performance due to heightened private self-awareness associated with the promotion focus. Results of Studies 1 and 2 revealed that both manipulated as well as chronic prevention focus increases attention allocation to others (compared to a promotion focus). This was demonstrated using two different measures of attention allocation. In Study 1 the time spent with acquisition and recall of information about another individual served as indicator for attention to others. In Study 2, this concept was more directly assessed based on participants' eye gazes on pictures displaying the targets of perspective taking. Taken together, these two studies provide clear evidence that a prevention focus elicits attention to others. In this respect, the current findings correspond with previous research demonstrating that only individuals' prevention focus (and not the promotion focus) predicted whether they copied a role model when they had to take over the same role (Zhang et al., 2011).

Earlier research focusing on the antecedents of perspective taking has rarely distinguished between the intention to consider and understand the other (i.e. attention allocation to others) and actually understanding others (i.e., successful perspective taking, e.g., Converse, et al., 2008; Hodges et al., 2010; Klein & Hodges, 2001; Lin et al., 2010). In this respect the current research goes beyond earlier work by providing evidence that these two aspects are differently affected by Regulatory Focus. The relevance being attributed to others when regulating security needs in the prevention focus leads to more attention allocated to others but does not provide cues facilitating self-other differentiation and does, thus, not increase taking performance. Moreover, prevention-focused individuals are preoccupied with social acceptance and rejection by others as they are very sensitive to cues signaling social rejection (e.g., Keller, Hurst, & Uskel, 2008; Oyserman, Uskul, Yoder, Nesse, & Williams, 2007). When allocating attention to others, this fear of rejection could possibly impair efficient information processing. Prevention focused individuals might focus mainly on detecting signals of possible rejection and other signals of insecurity instead of elaborating and integrating the meaning of the incoming information per se (which would also explain why attention does not increase recognition performance in Study 1). Taken together, the importance of others for the self in the prevention focus fosters attention allocation to others initially (i.e. fosters the *intention* to consider the other) but subsequently impairs efficient use

of the thereby gained information for successful perspective taking (i.e. actually understanding others).

Studies 2 to 4 tested the prediction that a promotion focus facilitates perspective taking performance. They demonstrated that manipulated as well as chronically pronounced promotion focus enhances actual perspective taking performance. Perspective taking was measured using an emotion recognition task as well as a task based on the paradigm of privileged information. The promotion focus, accordingly, fostered understanding others emotions as well as their cognitions. Moreover, Study 4 revealed that the effect of promotion focus on perspective taking is mediated by heightened private self-awareness associated with the promotion focus. Perspective taking as egocentric anchoring and adjustment requires sufficient self-other differentiation to be successful. Heightened private self-awareness cues distinctiveness of the self from others, thereby reducing egocentric anchoring with the result of enhanced perspective taking performance. Accordingly, the regulation of accomplishment needs in the promotion focus leads to more attention to the self (i.e., heightened private self-awareness) and less attention to others. Attention to the self, apparently, provides cues for self-other differentiation and as a result enhances perspective taking performance.

What remains to be tested by future research is the question of whether heightened private self-awareness prevents self-related contents (i.e. the egocentric anchor) to be activated at all or whether it simply prevents activated self-related contents to be applied for perspective taking. The theoretical approach of perspective taking as egocentric anchoring and adjustment claims automaticity and primacy of self-related contents (e.g. Epley, 2008; Epley & Caruso, 2009). This suggests that private self-awareness does not prevent self-related contents from being activated because they always are, but rather implies private self-awareness to hinder the inadequate application of these contents for perspective taking. Future research could address this issue, for instance, with a study investigating whether in the promotion focus self-related contents are not applied in a perspective taking task (due to heightened private self-awareness, as a replication of the current findings) but are applied in a subsequent task, where it is adequate (i.e., where they do not result in inadequately, egocentrically biased judgments, e.g., in a word completion task).

In any case, the current research goes beyond research in the tradition of perspective taking as egocentric anchoring and adjustment (e.g., Epley, Keysar, et al., 2004). Specifically, our findings suggest that self-other differentiation as underlying process of successful perspective taking can be achieved by focusing on the self instead of focusing on the other (which is what Epley, Keysar, et al., 2004, have emphasized so far). Our results indicate that

promotion-focused individuals are better able to take another's perspective because they are furnished with a specific lens through which they process information about another person: Their heightened private self-awareness cues distinctiveness of the self, thereby rendering egocentric anchoring implausible and inadequate for application to understand others. As a result, self-other differentiation is facilitated and perspective taking performance is enhanced (see also Stephenson & Wicklund, 1983; 1984).

Besides, the current findings extend literature on motivational influences on perspective taking as they go beyond findings indicating that content-specific motivation affects perspective taking (e.g., accuracy goals, Biesanz & Human, 2010). In fact, the current findings show that the processes how individuals construe their goals and regulate their behavior (i.e., their self-regulatory strategies) very much influences perspective taking performance.

The present research is based on the theoretical approach of perspective taking as egocentric anchoring and adjustment (e.g., Epley, Keysar, et al., 2004). This approach assumes that individuals have private, unshared and unique experiences that can neither be fully explained by the social norms provided by the situation nor by using the self as a proxy for others' perspectives. Hence, it applies to ambiguous situations with relatively scare information about others (Epley, 2008). However, perspective taking can also take place in contexts providing very clear-cut and thereby less ambiguous information, for example, when social norms or scripts prescribe certain behavior. In these situations, it should not be adjustment from the egocentric anchor that enhances perspective taking performance but rather a certain sensitivity and adherence to social rules and norms as these provide explanation to understand other individuals' experiences. Given that a prevention focus is marked by a sensitivity to rules and norms (i.e., to 'oughts', Higgins, 1997), one could expect prevention focused individuals to better understand others' experiences in these specific situations. These speculations about the limits concerning the generalization of the current findings await empirical testing. Nevertheless, further research should explicitly distinguish between the features of different situations in which perspective taking is required. This is especially important as these features should be linked to different processes leading to successful perspective taking (i.e., adjusting from egocentric anchoring where the anchor impairs perspective taking vs. being sensitive to social norms when they provide explanation for others' experiences). The current research, however, demonstrates that in cases where perspective taking is impaired by an exceeding influence of the egocentric anchor, regulating

eagerness- and accomplishment-concerns effectively reduces the egocentric bias and therewith enhances perspective taking performance.

Conclusion

Addressing self-regulatory determinants of successful perspective taking, the current research is the first to differentiate between the intention to consider another person and actually understanding the other. Given this distinction, the current research tested whether differences in Regulatory Focus influenced attention directed to others (as an expression of intended consideration of others) and successful perspective taking (i.e., actually understanding others). Perspective taking was theoretical approached as egocentric anchoring and adjustment and comprised understanding others' cognitions as well as emotions. Accordingly, besides assessing attention allocation to others directly (eye tracking) and indirectly (viewing time), the current research assessed perspective taking by both using an emotional as well as cognitive perspective taking task. Based on the theoretical framework of perspective taking, the current research showed that the regulation of security needs in the prevention focus renders others certain relevance which results in increased attention allocated to others (i.e., the intention to consider the other). The regulation of accomplishment needs in the promotion focus results in enhanced perspective taking performance (i.e. in actually understanding others). The promotion focus goes along with a state of heightened private self-awareness. This serves self-other differentiation as it highlights distinctiveness of the self in the context of another's perspective and therewith reduces egocentric anchoring in perspective taking. Taken together, the current research provides deeper insight into the processes involved in perspective taking as it shows that mere attention to others does not imply enhanced perspective taking performance and that self-other differentiation as a prerequisite of successful perspective taking can be achieved by highlighting distinctiveness of the self.

Chapter III: The impact of approach and avoidance motivational orientation on perspective taking

Successful perspective taking (i.e., accurately inferring other individuals' thoughts and feelings) is essential for governing the complex requirements of our social world. The ability to infer another person's cognitive, emotional or perceptual experiences helps to avoid miscommunication and conflict and allows for effective communication and smooth social interaction (e.g., Bazerman & Neale, 1982; Falk & Johnson, 1977). Intuitively, psychological closeness breeds understanding of others and their perspectives. Research has extensively studied this link and indeed provided evidence for it (e.g., Zhang & Parmley, 2011; but see Hodges, et al., 2010). The current research considered the impact of a component of closeness on perspective taking performance that has not been studied so far. Whereas earlier research focused on *static* psychological closeness, the current research considered *dynamic* changes in distance. In others words, we aimed at examining how two basic motivational strategies that either imply increasing distance (i.e. avoidance) or imply decreasing distance (i.e. approach), respectively, influence perspective taking by testing a rather counterintuitive prediction: Activating an avoidance orientation enhances perspective taking because it facilitates self-other differentiation compared to activating an approach orientation. Self-other differentiation represents the underlying process of successful perspective taking because it reduces over-imputing one's own perspective inadequately to others that probably have a different perspective.

The role of self-related contents in perspective taking

Successful perspective taking signifies correctly inferring the content of another person's perceptions, thoughts, and feelings. It is differentiated from empathy by referring to the cognitive capacity of adopting another's viewpoint, whereas empathy (sometimes also labeled as empathic concern) refers to emotionally connecting to another person (Galinsky, et al., 2008). One re-occurring finding from research on perspective taking is that individuals use the self as a proxy for predicting others' perspectives (see Nickerson, 1999; Karniol, 2003; but also Epley & Caruso, 2009, for an overview). Using own thoughts and feelings to predict others' thoughts and feelings at first sight appears sensible for two reasons: (a) self-related content is chronically accessible, and (b) the own perspective provides a useful template of others perspective under certain conditions (e.g., Hoch, 1997; Kelley, 1999). However, ample research in various research traditions (e.g., theory-of-mind research; research on biases in social cognition) has demonstrated that individuals tend to over-impute

their egocentric view onto others which results in inaccurate perspective taking (e.g., Birch & Bloom, 2004; Flavell, 1992; Royzman, et al., 2003; Wimmer & Perner, 1983).

Most prominently, literature on perspective taking as egocentric anchoring and adjustment provided empirical support for the biasing effects of self-related contents used in perspective taking (Epley, 2008; Epley & Caruso, 2009; Epley, Keysar, et al., 2004; Epley, Morewedge, et al., 2004; Keysar, 1994). Research in this tradition addressed the underlying social cognitive processes of perspective taking. Epley and colleagues - the main proponents of this approach - assume that perspective taking consists of the two steps of egocentric anchoring and subsequent adjustment from the egocentric anchor (e.g. Converse, et al., 2004; Epley, Keysar, et al., 2004; Epley, Morewedge, et al., 2004; Lin, et al., 2010; Epley & Caruso, 2009). Accordingly, when trying to infer another person's perspective, the first that comes to mind and subsequently impacts the perspective taking judgment is egocentrically biased knowledge (i.e., one's own perspective). However, to arrive at an appropriate judgment about *another* person's perspective egocentrically biased contents have to be adjusted by taking possible differences between the self and others into account (e.g., Epley, Keysar, et al., 2004[4]).

Hence, perspective taking requires sufficient self-other differentiation in order to be successful (see also Stephenson & Wicklund, 1983, for a similar reasoning). So far, research on conditions enhancing perspective taking as egocentric anchoring and adjustment has demonstrated that providing ressources such as time or accuracy incentives enhances perspective taking performance because considering differences and subsequently adjusting from the egocentric anchor requires ressources (e.g. Epley, Keysar, et al., 2004; Lin, et al., 2010).

Going beyond effortful adjustment, recent research by Todd, Hanko, et al. (2011) demonstrated that enhanced perspective taking performance can also be achieved if a mindset fostering self-other differentiation is induced. In their studies, priming a focus on differences (compared to priming a focus on similarities and a control condition) lead to better perspective taking performance. In line with this finding, we will argue in the following that an avoidance motivational orientation enhances perspective taking performance (compared to an approach motivational orientation) because it allows for self-other differentiation.

[4] Please see Chapter II of this dissertation for a more detailed presentation of the social cognitive process-based account of perspective taking as egocentric anchoring and adjustment (e.g., Epley, Keysar, et al., 2004).

Approach and avoidance in self-evaluative judgments

Approach and avoidance constitute basic motivational orientations. Almost any goal-directed behavior can be categorized as either approach-related with the effect of minimizing distance between the self and the desired end state, or as avoidance-related with the effect of maximizing distance between the self and an undesired end state (e.g., Carver & Scheier, 1990; Lewin, 1935). Approach motivational orientation comprises long-term approach goals as much as concrete approach behavioral tendencies, and avoidance motivational orientation likewise comprises long-term avoidance goals as well as concrete avoidance behavioral tendencies. Consequently, approach and avoidance motivational orientation have been effectively induced by the activation of approach and avoidance behavioral tendencies: pressing the palm of the hand from *below* against a table representing an *approach*-related movement towards the self and pressing the palm of the hand from *above* against a table representing an *avoidance*-related movement away from the self, respectively (e.g., Cacioppo, Priester, & Berntson, 1993; Friedman & Förster, 2000, 2002; Nussinson, et al., in press; Nussinson, et al., 2010, 2011).

Based on this and similar procedures, research has generated ample evidence that approach and avoidance orientations entail a readiness to increase or decrease, respectively, the distance between the self and a given aspect of the environment (e.g., Chen & Bargh, 1997; Carver & Scheier, 1990; Gray, 1990; Lang, 1995; Sutton & Davidson, 1997). Consistent with these findings, more recent research has found corresponding effects of approach and avoidance orientation on self-evaluative judgments (Fayant, et al., 2011; Nussinson, et al., 2010), self-construal and ingroup identification (Nussinson, et al., in press), as well as on behavioral tendencies (Nussinson, et al., 2010). Specifically, Fayant et al. (2011) demonstrated that activating an avoidance (approach) orientation leads to self-evaluative contrast (assimilation), that is, to the perception of the self as being dissimilar (similar) to a respective comparison target. Correspondingly, Nussinson et al. (2010) showed that avoidance not only leads to *feelings* of dissimilarity to a given target but also causes *behavioral* contrast. Hence, given that the perception of others as being different to the self constitutes one form of psychological distance (Liviatan, et al., 2008), activating an avoidance orientation not only increases the readiness of assuming actual physical distance but also the readiness to assume psychological distance between the self and the respective target (i.e., self-other differentiation).

Taken together, activating an avoidance orientation facilitates self-other differentiation (Fayant, et al., 2011; Nussinson et al., 2010). By combining this effect with the findings that

self-other differentiation promotes perspective taking (e.g., Todd, Hanko, et al., 2011), the main hypothesis of the current research is the logical conclusion: Activating an avoidance orientation enhances perspective taking performance because self-other differentiation is facilitated compared to activating an approach orientation.

Overview

Three experiments were conducted to test this prediction. Approach and avoidance orientation were manipulated via approach and avoidance motor actions (arm flexion vs. arm extension; also applied by Cacioppo, et al., 1993; Friedman & Förster, 2000, 2002; Nussinson, et al., in press; 2010, 2011). Specifically, in the approach condition participants had to assume an arm flexion position whereas in the avoidance condition participants had to assume an arm extension position. In Study 1, perspective taking performance concerning others' emotions was assessed using an emotion recognition task, whereas in Studies 2 and 3, perspective taking performance concerning others cognitions was measured with a communication intention task based on the paradigm of privileged information (Flavell, et al., 1968; adapted by Keysar, 1994, also applied by Epley, Keysar, et al., 2004). Additionally, Study 3 tested whether an avoidance orientation enhances perspective taking performance because it facilitates self-other differentiation.

Study 3.1

Method

Participants and Design. Eighty-four undergraduate students at a German university (62 women and 22 men, M_{age} = 25.08, *SD* = 5.10, range 19-51) participated in an experiment with two conditions (motivational orientation: approach vs. avoidance). Participants were compensated with 8 Euro (approx. 11 $) for a study session lasting about one hour, including a second study conducted after the current one.

Procedure. Participants were recruited for a study on 'activity'. Groups of up to six individuals participated during one experimental session. Upon arrival in the laboratory, participants were seated in semi-private cubicles, which partly hid their view from each other and completely from other participants' screens. Motivational orientation was manipulated using arm positions (e.g., Cacioppo, et al., 1993; Friedman & Förster, 2000, 2002; Nussinson, et al., in press; 2010, 2011). Conditions were block-randomized, that is, during one experimental session all participants were instructed for the same arm position (approach: arm flexion, or avoidance: arm extension). At the beginning of the experiment, the experimenter, who was blind to the meaning of the arm position, instructed participants concerning their arm position (see Friedman & Förster, 2000, 2002 for a similar procedure). To facilitate assuming

the specific arm position, smooth sponges were handed to the participants, so that participants could better monitor the pressure administered when pressing against the table. The instruction included a cover story to prevent self-perception effects on performance in the perspective taking task. Since Strack, Martin, and Stepper (1988) demonstrated that self-perception effects require inferences regarding the observed behavior, the cover story rendered participants a plausible reason for the arm position (again, see Friedman & Förster, 2000, 2002, for a similar procedure). While explaining, the experimenter also demonstrated the respective position. Instructions for the *approach/arm flexion* (avoidance/arm extension) condition were as follows:

> In everyday life people see each other, talk to each other and form judgments about each other while they are doing something with their body, for example walking, standing, or sitting. With this experiment we aim to systematically investigate how certain muscle activities affect perception and evaluation of everyday situations.
>
> That is why we now show you a certain arm position and ask you to take that position whenever you are asked to do so on the computer screen. Take the sponge in front of you and press it from *below* (above) the table against it. Please use your dominant hand. When you press your hand against the table from *below* (above), take care that your arm is flexed approximately in a 90° angle and that your forearm is parallel to the floor. Do not exert too much force otherwise it will become easily exhausting. You will receive all further instructions on the computer screen. Please put your arm in the position you just practiced and abandon it whenever you are asked to do so.

These instructions were given orally by the experimenter. Afterwards participants received the same instructions again with additional information on the screen, including when to assume the respective arm position and when to end it. In both conditions, participants were instructed to take the arm position while working on the assigned perspective taking task. Perspective taking was assessed with an emotion recognition task (DANVA2, Nowicki & Carton, 1993; also applied by Galinsky, et al., 2006; Schmid Mast, et al., 2009). Participants also answered some control questions concerning affective states, task enjoyment, and perceived effort of the motor actions after they had worked on the perspective taking task. Finally, participants were thanked, debriefed, and compensated.

Measures. ***Perspective taking.*** Applying the Diagnostic Analysis of Nonverbal Accuracy (DANVA2; Nowicki & Carton, 1993), speed of emotion recognition served as perspective taking measure. Specifically, participants had to identify the emotion displayed on the faces of individuals they saw on the screen by pressing one of four keys that were assigned to the four emotions happiness, sadness, anger, and fear. Participants saw 24 pictures of adult faces that expressed these four emotions in either high or low intensity. Reaction time

was assessed in milliseconds for each of these 24 pictures and reaction time scores were computed by averaging reaction time (in ms) for the high intensity pictures, the low intensity pictures, and for all pictures. To control for a possible speed-accuracy trade-off, errors in emotion recognition were assessed for all pictures and averaged for the low intensity pictures, the high intensity pictures, and again for all pictures[5].

Control questions. To control for the differential effects of the motor action, cues on affective states, task enjoyment, perceived effort, participants‘ mood, arousal state, perceived task pleasantness, perceived task effort, perceived difficulty, and perceived fun when working on the task were assessed on a scale (again, see Friedman & Förster, 2000, 2002 for a similar procedure). For all questions, the scale was anchored at ‘1 = *not at all*’ to ‘7 = *completely*’.

Results

It was predicted that participants under an avoidance orientation show enhanced perspective taking performance as assessed with speed in emotion recognition compared to participants under an approach condition. To test this prediction an ANCOVA with motivational orientation as independent variable and response speed as indicator for perspective taking performance as dependent variable was computed. In addition, gender was entered as covariate into the analysis, $F(1,81) = 3.94$, $p = .051$, (men: $M = 2823$ ms, $SD = 911$, women: $M = 2501$ ms, $SD = 727$) because women are known to outperform men in emotion recognition (see Hall, 1984; McClure, 2000, for an overview). Supporting the prediction concerning avoidance and perspective taking performance, participants assuming an arm extension position (i.e. assuming an avoidance-related movement) were overall faster to recognize the emotion displayed by the individuals on the pictures ($M = 2392$ ms, $SD = 694$) than participants assuming an arm flexion position (i.e. assuming an approach-related movement, $M = 2779$ ms, $SD = 834$), $F(1,81) = 6.52$, $p = .013$, ${}_{part}\eta^2 = .08$. This effect also holds when differentiating between the two types of emotional intensity displayed on the pictures. Participants under an avoidance orientation were not only faster to identify the univocal pictures (i.e., pictures of high intensity; $M = 2109$ ms, $SD = 640$) compared to participants under an approach orientation ($M = 2423$ ms, $SD = 801$), $F(1,81) = 5.05$, $p = .027$, ${}_{part}\eta^2 = .06$; they also reacted quicker when they had to identify the ambiguous pictures

[5] It should be noted that in Studies 2.2 and 2.3 of Chapter II, errors in emotion recognition have been assessed for perspective taking whereas in this study speed of emotion recognition has been assessed for perspective taking. However, given that errors and reaction times have been assessed as performance measures equally across the literature (e.g., Uleman, Hon, Roman, & Moskowitz, 1996), it is assumed that both indicators of emotion recognition assess perspective taking to the same extent.

(i.e., pictures of low intensity, M = 2675 ms, SD = 852) compared to participants under an approach orientation (M = 3135 ms, SD = 971.30), $F(1,81) = 6.21$, $p = .015$, $_{part}\eta^2 = .07$. It is important to note that motivational orientation had no effect on emotion recognition accuracy as assessed by errors in emotion recognition, neither for the high nor the low intensity pictures (all Fs <1). Hence, the results are not due to a speed-accuracy tradeoff. Furthermore, no significant effects of the arm position on any of the control questions occurred (all ps > .29), excluding that the effects are driven by potential confounds of the manipulation.

Discussion

Manipulating approach and avoidance motivational orientation via adopting the respective arm position and by using an emotion recognition task, the current results yield first evidence that participants under avoidance orientation show enhanced perspective taking performance compared to participants under approach orientation. While being comparably accurate in emotion recognition (as assessed via errors in emotion recognition), participants under avoidance orientation needed less time to identify the emotion displayed by the individuals on the pictures than participants under an approach orientation. Study 2 sought to test whether the effect of an avoidance orientation on perspective taking performance generalizes across different measures of perspective taking that capture different aspects of perspective taking. Accordingly, the same manipulation of approach and avoidance was used as in Study 1, but perspective taking was assessed with a communication intention task based on the paradigm of privileged information (Flavell et al., 1986, adapted by Keysar, 1994).

Study 3.2

Method

Participants and Design. Eighty-seven undergraduate students at a German university (55 women and 22 men, M_{age} = 25.02, SD = 3.58, range 19-43) participated in an experiment with two conditions (motivational orientation: approach vs. avoidance). Participants were compensated with 8 Euro (approx. 11 $), again for an experimental session lasting one hour and starting with the current experiment.

Procedure. The procedure of this study was identical to Study 1 except for the following alterations: First, the experiment was introduced as a study on ‘activation and perception’. Second, instead of working on the emotion recognition task while adopting the respective arm position, participants worked on the communication intention task (adapted from Keysar, 1994, also applied by Epley, Keysar, et al., 2004; Todd, Hanko, et al., 2011). In this task, participants read five different short stories rendering them information about the communication intentions of a virtual protagonist interacting with other virtual target persons.

After reading each story, participants had to indicate on a seven-point Likert scale that ranged from '1 = *not at all seriously*' to '7 = *completely seriously*' whether a certain target person of the respective story would interpret a given message by the protagonist as being meant seriously or not. Reading the story rendered the participants privileged knowledge about the protagonist's intentions, namely that the message was not being meant seriously. Perspective taking was, therefore, given when participants ignored their privileged knowledge and answered that the respective target person would interpret the message as being meant seriously by the protagonist (see Appendix III).

Measures. ***Perspective taking.*** A perspective taking score was computed by averaging participants' answers to the questions following each short story. Here, higher means signified enhanced perspective taking performance.

Control questions. The same measures of affective states, task enjoyment, perceived effort, participants' mood, arousal state, perceived task pleasantness, perceived task effort, perceived difficulty, and perceived fun when working on the task as in Study 1 were taken.

Results

It was again predicted that participants under an avoidance orientation exhibit enhanced perspective taking performance compared to participants under an approach orientation. Supporting this hypothesis, participants who had adopted an arm extension position scored higher in perspective taking (M = 4.99, SD = 0.94) than participants adopting an arm flexion position (M = 4.56, SD = 1.00), $t(76) = -1.996$, $p = .049$, $d = .44$. As in Study 1, no significant effect of motivational orientation on any of the control questions was observed (all ps > .13).

Discussion

Using the same manipulation for approach and avoidance orientation, but assessing perspective taking with a different measurement, Study 2 replicated the findings of Study 1. Participants under an avoidance orientation were better capable of ignoring their privileged information when answering how a certain target person would interpret the protagonist's message and, hence, showed enhanced perspective taking performance compared to participants under an approach orientation. Taken together, the findings of both studies provide clear evidence that avoidance motivational orientation facilitates perspective taking. Study 3 sought to go beyond the mere demonstration of this effect by investigating the linking mechanism between avoidance and perspective taking. To assess whether, in line with our reasoning and prediction, avoidance orientation enhances perspective taking performance because it facilitates self-other differentiation, an adaptation of the Inclusion of Other into the Self scale (IOS scale, Aron, Aron, & Smollan, 1992) was included. This measure ranges from

complete self-other overlap to maximal self-other differentiation and is therefore suitable to assess the mediator in the current prediction. Approach and avoidance orientation were manipulated as in Studies 1 and 2 and perspective taking was again measured with the communication intention task already administered in Study 2.

Study 3.3

Method

Participants and Design. Eighty-five undergraduate students at a German university (62 women and 23 men, M_{age} = 24.06, *SD* = 3.18, range 19-37) took part in an experiment with two experimental conditions (approach vs. avoidance). Participants were compensated with 8 Euro (approx. 11 $) for the whole experimental session lasting about one hour.

Procedure. Participants were recruited for a study session on 'activation and perception' consisting of two independent experiments. After working on the first study, participants started with the current experiment.[6] The procedure of this experiment was identical to Study 2, except for one alteration. An adaptation of the IOS scale (Aron, et al., 1992) was added to the communication intention task in the following way: After reading each short story and after having answered the subsequent question concerning the interpretation of the protagonist's message by one of the target persons (see Study 2 for details), participants had to indicate how close they felt to the person whose perspective they just had taken (i.e., the respective target person). Using a seven-point version of the scale, participants indicated how much overlap they felt between themselves and the respective target person both represented by a circle. A greater degree of overlap between the two circles (and thus a higher score) indicated more self-other overlap and therefore less self-other differentiation (see Appendix V).

Measures. ***Self-other differentiation.*** A self-other differentiation score was computed by averaging participants' reversely coded answers on the adapted IOS scale (Aron, et al., 1992) following each of the short stories with higher means indicating more self-other differentiation.

Perspective taking. As in Study 2, perspective taking was measured with a perspective taking score based on participants' answers to the questions following each short story of the

[6] The analysis reported below controlled for the experimental factor of the first experiment to assure that the reported effects are independent of that manipulation. More importantly, additional analysis did not result in an interaction between the current manipulation and the manipulation of the first experiment on the dependent variable.

communication intention task (Keysar, 1994). Again, higher means signified enhanced perspective taking performance.

Results and discussion

It was predicted that activating an avoidance orientation enhances perspective taking performance because it facilitates self-other differentiation compared to activating an approach orientation. To test this prediction we applied bootstrapping procedures to assess the confidence interval around the proposed indirect effect using the SPSS macro provided by Preacher and Hayes (2008a). Within the model, approach vs. avoidance motivational orientation served as independent variable (coded as -1 = *approach* and 1 = *avoidance*), the perspective taking score as dependent variable, and the self-other differentiation score represented the proposed linking mechanism between independent and dependent variable. Results revealed a significant indirect effect of avoidance on perspective taking via increased self-other differentiation (1000 re-samples), B = .14, SE = .10, $CI_{95\%}$ [0.0052; 0.4296]. This significant indirect effect provides evidence that avoidance orientation indeed leads to increased perspective taking performance, because it comes with more self-other differentiation (see Figure 1 for details). In other words, self-other differentiation serves as the linking mechanism between avoidance motivational orientation and enhanced perspective taking performance.

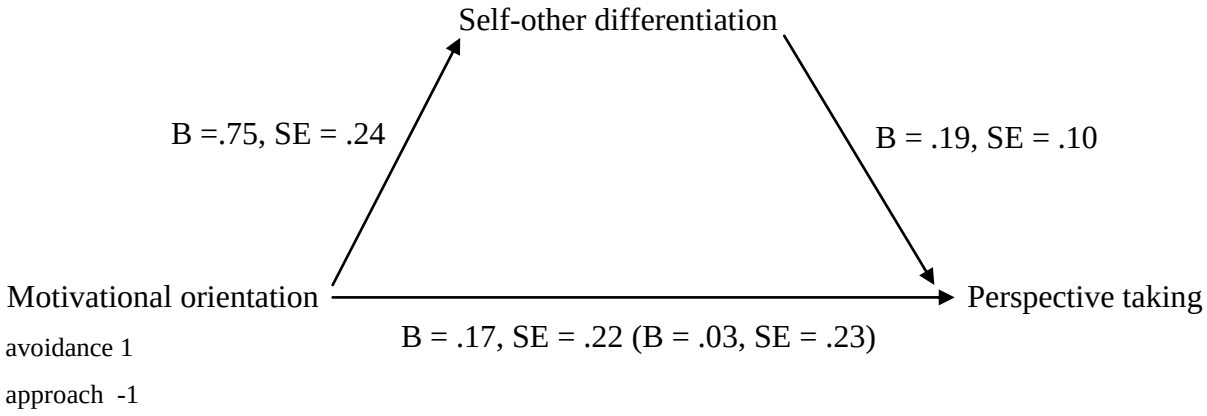


Figure 4. Indirect effect of motivational orientation via self-other differentiation on perspective taking in Study 3.1 (N = 85)

General Discussion

The current research tested whether activating an avoidance motivational orientation enhances perspective taking performance (compared to an approach orientation) because it facilitates self-other differentiation. The first two studies provided evidence for the proposed

main effect. Study 1 demonstrated that activating an avoidance orientation enhances perspective taking performance in an emotion recognition task. Study 2 added that enhanced perspective taking performance under avoidance orientation also occurs in a communication intention task based on the paradigm of privileged information (here as in Study 1 compared to activating an approach orientation). Using an adaptation of the IOS scale (Aron, et al., 1992), Study 3 supported the notion that increased self-other differentiation is the linking mechanism between avoidance orientation and perspective taking. Taken together, results of the three reported experiments provide evidence for the proposed positive effect of avoidance motivational strategies on accurately inferring other individuals' perspectives, comprising their emotions as well as their thoughts. To put it differently, when trying to infer another's thoughts or feelings, choosing an avoidance oriented motivational strategy is beneficial because it creates psychological distance that allows for acknowledging the differences between the self and the other which translates into more accurate inferences about the other's perspective.

At first sight, the finding that a motivational strategy creating psychological distance (i.e., avoidance) fosters a prosocial behavior such as perspective taking may appear surprising, given that psychological distance has been demonstrated to be related to less emotional involvement (e.g., Van Boven, Kane, McGraw, & Dale, 2010) and to muted reactions to depictions of antisocial behavior (e.g., media depicting embarrassment or violence, Williams & Bargh, 2008a). However, these findings rather suggest that psychological distance is negatively correlated with emotional reactions to other individuals' fortunes, that is, with empathy in contrast to perspective taking (which has also been shown by Hodges et al., 2010). As the current research exclusively focuses on the cognitive capability to accurately adopt another person's viewpoint (i.e., perspective taking) it would be open for future research to test whether psychological distance harms empathic concern while fostering perspective taking performance[7].

Somewhat related to this notion, the current findings appear remarkable given that approach orientation goes together with reducing psychological distance which is indicative of close relationships (e.g., Aron, Aron, Tudor, & Nelson 1991; Aron, et al., 2004). Close relationships (e.g., between intimate partners or good friends) in turn have been demonstrated to go along with enhanced emotion recognition accuracy (e.g., Zhang & Parmley, 2011) and

[7] Please note that the relation between the present findings and findings reported in Chapter II of this dissertation and also the implication of these findings for research on self-regulation will be thoroughly discussed in Chapter V, the Concluding Discussion, of this dissertation.

with enhanced empathic accuracy (i.e., perspective taking; e.g., Stinson & Ickes, 1992). This positive relation between psychological closeness and (different aspects of) perspective taking performance is often explained by enhanced *knowledge* that close partners gathered during their relationship about each other. Based on this knowledge they can more accurately predict their partner's thoughts and feelings (e.g., Ickes, 1993; Aron et al., 1991; Aron et al., 2004). This notion is supported by the finding that mere similar experiences do not – other than shared experiences in a close relationship – suffice to facilitate perspective taking performance (Hodges et al., 2010). The knowledge gained about each other during shared experience seems to be critical.

Accordingly, the positive impact of closeness resulting in knowledge about the target person is by no means inconsistent with perspective taking as egocentric anchoring and adjustment. First, the knowledge about the other person might undermine egocentric anchoring in the first place, because others' thoughts and feelings do not have to be inferred if knowledge about past thoughts and feelings is given. Second, egocentric anchoring and adjustment does not only imply that successful perspective taking requires considering actual differences. Conversely, it also implies that egocentric anchoring does not impair perspective taking performance as long as there are only few differences between the self and the other to be considered. If the self and the other have much in common (which is characteristic for close relationships, e.g., Aron et al., 1992) then egocentrically biased contents apply to the other very well. Accordingly, it is not the case that psychological closeness in close relationships *improves* perspective taking performance. It rather *does no harm* to perspective taking performance as fewer differences exist between the self and the other which reduces the necessity for self-other differentiation in this special case.

The current research also adds to the framework of perspective taking as egocentric anchoring and adjustment. Research based on this framework so far has emphasized that adjustment from the egocentric anchor (and thereby enhanced perspective taking performance) requires ressources and cognitive control because other related contents and the consideration of these contents requires effort (e.g., Epley, Keysar, et al., 2004). The current research extends these findings by demonstrating that self-other differentiation, and thereby enhanced perspective taking performance can be achieved without effortfully mobilizing other-related contents: activating avoidance motivational orientation implies an inclination to increase distance between the self and a given aspect of the environment. In the context of another person's perspective being at question, psychological distance to the other person is increased. Given that psychological distance corresponds to dissimilarity perception (Liviatan,

et al., 2008) activating avoidance in the context of a perspective taking situation directly facilitates self-other differentiation. As a consequence, perspective taking performance is increased without actively activating other-related contents.

To conclude, when it comes to inferring the perspectives of (less acquainted) others, self-other differentiation plays a crucial role and activating an avoidance orientation enhances perspective taking performance because it facilitates self-other differentiation compared to activating an approach orientation. Hence, results confirm the rather counterintuitive notion that psychological distance creates a better understanding than psychological closeness. Thereby, the current research allows for an extension of a well-known proverb: *distance makes the mind grow stronger.*

Chapter III.a: The influence of cold temperature cues as bodily grounded experience of self-other differentiation on perspective taking

Perspective taking entails inferring another person's cognitive, emotional or perceptual experiences including her wants or feelings. It is fundamental for successfully navigating the social environment, and is instrumental for personal goal attainment as well as for increased reciprocal attraction and liking (Falk & Johnson, 1977). Understanding the preconditions of perspective taking is therefore important. One prevalent obstacle for successful perspective taking is that the anchor for another's perspective is automatically provided by one's own perspective. Hence, for successful perspective taking to take place, egocentric anchoring needs to be overcome (e.g., Epley & Caruso, 2009). Here, we report a study demonstrating for the first time that a feature of the physical environment helps overcome this barrier for successful perspective taking, namely cold temperature cues. Based on the notion that perspective taking requires sufficient self-other differentiation (e.g., Higgins, 1981; but see also Chapters I II, & III of this dissertation), we argue and find that cold temperature conditions as bodily grounded experience of self-other differentiation (e.g., IJzerman & Semin, 2009, 2010; Steinmetz & Mussweiler, 2011) are likely to reduce an egocentric perspective and, thus, enhance perspective taking performance.

It has recently been argued and shown that perspective taking can be best understood as a two step process of egocentric anchoring and subsequent, effortful adjustment from that anchor (e.g. Epley & Caruso, 2009; Epley, Keysar, et al., 2004; Epley, Morewedge, et al., 2004; see Chapter II of this dissertation for a more detailed presentation of the process-based account of perspective taking). The primacy of the egocentric bias results from the high accessibility of one's own perspective and represents the 'default' approach to intuiting another's perspective. As thinking about others' perspectives requires deliberate effort and cognitive control due to the slow activation of other-related contents (Epley & Waytz, 2010), adjustment of the egocentric anchor constitutes the secondary, more controlled process. In other words, when trying to adopt another person's perspective one's own perspective comes to mind first. This own perspective is subsequently adjusted to the presumed perspective of the other by considering other-related contents (Epley & Caruso, 2009). Accordingly, sufficient *self-other differentiation* (differentiating between the self and others) represents the underlying process of successful perspective taking (see Todd, Hanko, et al., 2011, as well as Chapter III for empirical support).

Inspired by the emerging work on the sensorimotor bases of human cognition (for an overview, see Barsalou, 2008; Semin & Smith, 2008), we examine the implications of recent

research on ambient temperature and interpersonal relationships (cf. IJzerman & Semin, 2009; 2010; Semin & Garrido, in press) for perspective taking. IJzerman and Semin (2009) have demonstrated that cold (warm) ambient temperature conditions invoked less (more) self-other overlap (i.e., more self-other differentiation). In line with this finding, Steinmetz and Mussweiler (2011) showed that warm temperatures affect social comparison in that they facilitate self-evaluative assimilation whereas cold temperatures facilitate self-evaluative contrast. In sum, these findings indicate that cold temperature can be perceived as bodily grounded experience of self-other differentiation because they cause differentiating between the self and others. Given that successful perspective taking requires self-other differentiation, cold temperature cues (compared to warm temperature cues) should enhance perspective taking performance.

This hypothesis was examined in an experiment in which cold vs. warm temperature cues were controlled for between participants and perspective taking was assessed with a communication intention task adapted from Keysar, 1994 (also applied by Epley, Keysar et al., 2004; Galinsky, et al., 2006).

Study 4.1

Method

Participants and Design. Eighty-one undergraduate students (56 women and 25 men, M_{age} = 24.85, *SD* = 3.16, range: 20-34) participated this experiment on a paid voluntary basis.

Procedure. Participants were told that they would be involved in two different experiments. The first one was ostensibly a 'product evaluation' study. Participants were given a cup filled with either warm (app. 40° Celsius) or cold water (app. 20° Celsius) and informed that they were expected to evaluate the cup they were holding (see Williams & Bargh, 2008b, for a similar procedure). All further information was provided on the monitor. Participants received 10 questions concerning the cup they were holding and had to judge it's suitability on various dimensions (e.g., user handiness of the cup).

After finishing the 'product evaluation', participants handed the cup to the experimenter and continued with the second study, namely the perspective taking task. To assess perspective taking participants received 3 different narratives about a fictitious protagonist 'A' interacting with other target persons adapted from Keysar, 1994. Reading the story furnished the participants with 'superior' knowledge about A's intentions and feelings that the target person could not have had, namely that messages A had written to the target person were not meant seriously. Following each story, participants were asked a question about the target's perception of the interaction (i.e., perspective taking). Thus, the participant had to

indicate their perception of how the target person would interpret the intention of A's message on a seven-point Likert scale ("1 = *not at all seriously*" to "7 = *completely seriously*"). Perspective taking involved that participants did not use their superior knowledge and indicated that the target person would interpret A's message as being meant seriously. A perspective taking score was computed by averaging the participants' answers across three similar stories. Higher means indicated enhanced perspective taking (see Appendix III). After having completed the experimental session, participants were thanked, debriefed and compensated.

Results

An independent-samples *t*-test revealed that participants scored higher in perspective taking (M = 5.10, SD = 1.24) after having evaluated a cup filled with cold water than after having evaluated one filled with warm water (M = 4.38, SD = 1.62), $t(80) = -2.83$, $p = .029$, d = 0.50. Additionally, we also found that the cup was judged more suitable (M = 3.84 SD = .63) in the warm condition compared to the cold condition (M = 3.56, SD = .48), $t(80) = 2.26$, $p = .028$ d = .50. To control whether the suitability judgment of the cup affected perspective taking, the perspective taking score was regressed on the centered experimental manipulation as well as the z-standardized mean judgment across the 10 items. This regression analysis reaffirmed the result reported above. Participants scored higher in perspective taking in the cold condition relative to the warm condition, ß = .24, $p = .035$, and the judgment of the cup revealed no systematic influence on perspective taking, ß = -.001, $p = .994$.

Discussion

The current research, for the first time, demonstrated that cold temperature cues enhance perspective taking performance. The results suggest that participants in the cold (compared to the warm) temperature condition were better able to reduce the impact of the egocentric anchor, furnishing them with superior knowledge about a protagonist's intentions, on their perspective taking judgments. They were therefore more likely to give the appropriate answer of how the target would interpret the message. Hence, cold temperature cues enhance perspective taking performance (in contrast to warm temperature cues). Accordingly, the current findings build upon earlier findings (IJzerman & Semin, 2009; 2010; Steinmetz & Mussweiler, 2011) and go beyond them. Whereas these earlier findings have shown that cold temperature causes self-other differentiation, the current study revealed that cold temperature cues influence an outcome of self-other differentiation, namely, perspective taking performance. Furthermore, the findings indicate that warm conditions, which have already been shown to influence the perception of social situations to be more positive (Williams &

Bargh, 2008b; Zhong & Leonardelli, 2008) also influences judgments within a nonsocial domain, as the cup was judged more suitable under warm conditions than under cold condition. However, this judgment reveals no relation to perspective taking performance. In contrast, the current findings effectively demonstrate cold temperature cues as bodily grounded experience of self-other differentiation enhance perspective taking performance.

Taken together, investigating the bodily grounded correlates of processes related to successful perspective taking constitutes an important research avenue since perspective taking is one of the most important aspects of how we manage our social world.[8]

[8] I wish to thank Gün R. Semin for reading an earlier version of this manuscript. His comments on it were invaluable and have been integrated into this version of the manuscript.

Chapter V: Concluding Discussion

The present dissertation investigated the influence of two different self-regulatory strategies as well as a bodily grounded experience of self-other differentiation on perspective taking as egocentric anchoring and adjustment. Thereby, the present research achieved the following three aims: First, addressing self-regulatory strategies as predictors of perspective taking performance assigns to the individual an *active* role in perspective taking performance, because individuals can actively choose their self-regulatory strategies for goal attainment. Second, the present research provides insights on *content-independent* motivational determinants of perspective taking because self-regulatory strategies refer to the processes instead of the contents of motivation (Förster & Denzler, 2006). Third, by showing how self-regulatory strategies affect self-other differentiation as underlying process of successful perspective taking, the present research affords differentiated insights into *how* self-regulatory strategies exactly enhance perspective taking performance. Moreover, the role of self-other differentiation for successful perspective taking is further validated by demonstrating that a bodily grounded experience of self-other differentiation - cold temperature cues - enhances perspective taking performance.

The first empirical chapter (Chapter II) reported research on the influence of individuals' Regulatory Focus on attention allocation to others and perspective taking performance. It was assumed that a prevention focus fosters attention allocation to others, because regulating security concerns renders others certain relevance. Moreover, it was predicted that promotion fosters perspective taking performance because of heightened private self-awareness associated with the promotion focus. In line with these predictions, Studies 2.1 and 2.2 of this chapter yielded empirical support for a manipulated as well as a chronically assessed prevention focus to foster attention directed towards others (assessed with two different attention measurements). Study 2.2 particularly provided insight into the relationship between attention to others and actual perspective taking as both constructs were measured simultaneously within the same context. As results of this study indicate, attention directed towards others does not imply enhanced perspective taking performance. Accordingly, the prevention focus fosters the intention to consider other individuals, which results in more attention being allocated to others, but it does not enhance actually understanding others. In contrast, Studies 2.2, 2.3 and 2.4 demonstrated that a manipulated as well as a chronically assessed promotion focus fosters perspective taking performance (measured with two different perspective taking measures). Moreover, Study 2.4 provided empirical support for the prediction that heightened private self-awareness associated with a

promotion focus mediates the impact of promotion focus on perspective taking performance. This finding suggests that a promotion focus facilitates perspective taking performance because heightened private self-awareness renders activated self-related contents implausible for inferring others' perspectives. This in turn facilitates self-other differentiation and thereby enhances perspective taking performance. To put it differently, it is not surprising that attention to others in the prevention focus does not help enhancing perspective taking performance, given that attention to the self (as given when private-self-awareness is heightened) in the promotion focus improves perspective taking performance.

Taken together, research reported in Chapter II achieves the three aforementioned aims of this dissertation. To be more precise, by demonstrating that a situationally activated as well as a measured promotion self-regulatory strategy enhances perspective taking performance due to heightened private self-awareness, this research this assigns the individual an active role in determining perspective taking performance, it provides insights on Regulatory Focus as content-independent motivational determinant of perspective taking and also specifies how exactly a promotion self-regulatory strategy enhances perspective taking performance.

The second empirical chapter (Chapter III) investigated the impact of approach and avoidance motivational orientation on perspective taking performance. It was assumed that an avoidance motivational orientation enhances perspective taking performance because it facilitates self-other differentiation (compared to activating an approach motivational orientation). Activating an avoidance orientation via avoidance related arm position should increase psychological distance between the self and the other in the context of perspective taking. This increased psychological distance should translate into interpersonal dissimilarity perception (i.e., self-other differentiation, Liviatan, et al., 2009) which in turn should enhance perspective taking performance. In line with these predictions, Studies 3.1 and 3.2 established the proposed main effect and demonstrated that activating an avoidance motivational orientation enhances perspective taking performance when using two different perspective taking tasks (compared to activating an approach motivational orientation). Moreover, Study 3.3 provided additional support for self-other differentiation as the linking mechanism between avoidance and perspective taking performance. Activating avoidance motivational orientation facilitated differentiating between the self and the other and this, in turn, enhanced perspective taking performance.

To sum up, research presented in Chapter III also achieves the three aims of this dissertation. Specifically, be showing that an avoidance motivational orientation facilitates self-other differentiation and perspective taking performance (compared to an approach

motivational orientation), this research again this assigns the individual an active role in determining perspective taking performance. It provides insights on approach and avoidance motivational orientation as content-independent motivational determinant and also specifies how exactly avoidance motivational orientation enhances perspective taking performance, namely by increasing psychological distance between the self and others.

The third empirical chapter (Chapter III.a) explored the influence of bodily grounded experience of self-other differentiation, cold (vs. warm) temperature cues, on perspective taking performance. In consideration of a growing body of literature providing support for the relation between bodily sensations and psychological concepts (Semin & Smith, 2008), research has demonstrated that cold ambient temperature facilitates differentiating between the self and others (e.g., IJzerman & Semin, 2009; 2010; Steinmetz & Mussweiler, 2011) as a consequence of increased psychological distance. Accordingly, research presented in this chapter predicted and tested that cold temperature cues increase perspective taking performance because they represent a bodily grounded experience of self-other differentiation. In line with this prediction, Study 4.1 showed that cold temperature cues enhance perspective taking performance.

Taken together, research presented in Chapter III.a leaves the realm of self-regulatory strategies as motivational determinants but provides further empirical support for self-other differentiation as the underlying process of successful perspective taking, because a bodily grounded experience of self-other differentiation enhanced perspective taking performance. Moreover, this research shares the theoretical notion with Chapter III, which argued and showed that increases of psychological distance facilitate self-other differentiation and perspective taking (see also Chapter I of this dissertation).

To summarize across the three empirical chapters, research presented in this dissertation showed that different self-regulatory strategies, promotion focus and avoidance motivational orientation, enhance perspective taking performance because they both facilitate self-other differentiation. To be more precise, the current research indicated that self-other differentiation can be achieved either by highlighting distinctiveness of the self (via heightened private self-awareness in a promotion focus) or by increasing distance between the self and others (under avoidance). Furthermore, the positive effect of cold temperature cues as bodily grounded experience of self-other differentiation on perspective taking further emphasized the role of self-other differentiation as underlying process of successful perspective taking performance. Thereby, the present research achieves the aims elaborated in the beginning of this dissertation.

Strengths and limitations

Methodological strengths and limitations

As summarized above, research presented in this dissertation demonstrated how two different self-regulatory strategies and bodily grounded experience of self-other differentiation enhance perspective taking performance. Given the diversity of the investigated independent variables influencing perspective taking performance, it appears most sensible to discuss methodological issues addressing each chapter separately whereas theoretical issues will be discussed across chapters.

Research presented in Chapter II provided evidence for heightened private self-awareness to mediate the effect of promotion focus on perspective taking performance. As elaborated above, private self-awareness should facilitate self-other differentiation (as a later step in the complete process) which then enhances perspective taking performance. Given that self-other differentiation is emphasized as the main underlying process of successful perspective taking, it could be perceived as limitation that this research does not provide evidence for promotion focus directly enhancing self-other differentiation (e.g., by measuring self-other differentiation directly with the IOS scale, Aron, et al., 1992, as in Study 3.3 of Chapter III). However, an important strength of the research presented in this chapter is that it combines two up to now unrelated lines of research: Research on Regulatory Focus and private self-awareness and research on private self-awareness and perspective taking. Correspondingly, private self-awareness represents the connecting concept between these two lines of research. By demonstrating that heightened private self-awareness associated with the promotion focus mediates the positive effect of promotion focus on perspective taking, the current findings replicate and combine the previously unrelated lines of research. Moreover, it can be safely argued that private self-awareness facilitates self-differentiation and thereby enhances perspective taking performance because the mediation was found when assessing perspective taking with a task completely representing the notion of perspective taking requiring self-other differentiation (i.e. the communication intention task based on the paradigm of privileged information used in Study 2.4, see also Discussion of Study 2.3). Accordingly, promotion focused individuals were better in perspective taking because they were highly self-aware which then facilitated self-other differentiation. Nevertheless, future research would support the present findings by replicating the effect of promotion focus on perspective taking and assessing self-other differentiation directly with the same measurement as in Study 3.3 of Chapter III.

Research presented in Chapter III comes with the already mentioned important strength that self-other differentiation is directly measured via the IOS scale (Aron, et al., 1992). This measurement represents a very direct assessment of the concept. Nonetheless, one might have noticed that Studies 3.1 and 3.2 established the main effect of avoidance on perspective taking whereas Study 3.3 identified self-other differentiation as the linking mechanism between avoidance and perspective taking without replicating the main effect again. Accordingly, an indirect effect of avoidance on perspective taking via self-other differentiation has been shown without a significant total effect. This lack of a significant total effect in Study 3.3 could be considered a limitation of the research. However, recent theorizing on meditational analyses recommended not putting too much emphasis on a missing significant total effect, because this lacking effect has most likely methodology- but not theory-related reasons (e.g., sample size, size of the total effect, see Preacher & Hayes, 2008b; Rucker, Preacher, Tormala, & Petty, 2011; for an overview). The total effect of avoidance motivational orientation on perspective taking performance has been established by Studies 3.1 and 3.2 with two different perspective taking measures. Hence, it can be concluded that a missing total effect in Study 3.3 rather hints at a too small sample size in this study, instead of questioning the already demonstrated relation between avoidance and perspective taking.

Furthermore, it could be also criticized that the impact of approach and avoidance motivational orientation on perspective taking has been investigated by manipulating approach and avoidance via the respective arm position (i.e., pushing against the table from below activates approach and vice versa). The impact of individual differences in approach and avoidance orientation has not been considered. This might appear as a limitation given that an important strength of research in Chapter II (see Discussions of Studies 2.2 and 2.3 in Chapter II) is that it investigated the effects of Regulatory Focus on perspective taking both by measuring the individual difference in Regulatory Focus as well as situationally activating Regulatory Focus. Moreover, recent research has demonstrated that individual differences in approach and avoidance motivation explain certain aspects of phenomena in the social domain (e.g., relationship satisfaction: Elliot, Gable, & Mapes, 2006; group identification processes: Matschke & Sassenberg, 2010a; 2010b). However, as the introduction of Chapter III emphasized, this research aimed at investigating the impact of *dynamic* changes in distance, namely, of motivational orientations implying increased or decreased psychological distance on perspective taking performance. Given that assessing approach and avoidance motivational orientation as individual difference variable hardly covers these dynamic

changes in distance, operationalizing approach and avoidance motivational orientation via the respective arm position adequately meets the aim of this research.

One important methodological strength across Chapters II and III is the use of two different perspective taking tasks: The emotion recognition task assessing the understanding of another's emotions (applied in Studies 2.2, 2.3 & 3.1) and the communication intention task assessing the understanding of another's cognitions (used in Studies 2.4, 3.2, 3.3, & 4.1). Using these two different perspective taking tasks represents a strong point because (a) perspective taking refers to understanding other thoughts *and* feelings, and (b) because in both lines of research the pattern of results is replicated with both tasks and this speaks for robustness of the findings.

However, applying these two different perspective taking tasks can also represent a limitation to some extent. The process-based account of perspective taking as egocentric anchoring and adjustment is easily applied to the communication intention task but is somewhat difficult to be applied to the emotion recognition task. The communication intention task, based on the paradigm of privileged information (Flavell et al., 1968,) reflects perspective taking as egocentric anchoring and adjustment as follows: The gained privileged information about the virtual protagonist represents the egocentric anchor from which one has to adjust in order to accurately infer the perspective of another virtual target person not possessing the privileged information (see Discussion of Study 2.3). In contrast, how is the egocentric anchor represented in the emotion recognition task? What kind of adjustment has to take place in order to accurately recognize the displayed emotion? It appears rather difficult to answer these questions directly. Nevertheless, it can certainly be argued that the emotion recognition task assessing the ability to understand another's *feelings* and the communication intention task assessing the ability to understand another's *cognitions* both require different aspects of the same capability: correctly inferring another person's inner mental state without having direct access to it. In line with this notion, research from clinical psychology and neuroscience has demonstrated that impairment of theory-of-mind development correlates with impairment in emotion recognition performance (e.g., Snodgrass & Knott, 2006; Domes, Kumbier, Herpertz-Dahlmann, & Herpertz, 2008). Moreover, the same brain regions (e.g., Medial Prefrontal Cortex) are active when inferring another's cognitions as well as when inferring another's feelings (for an overview, see Domes, et al., 2008). Accordingly, to understand others' thoughts *and* feelings, it is important to understand the notion of another person having his or her own mind (i.e. having a theory-of-mind) and that thoughts and feelings bred by the other person's mind most probably differ from own thoughts and feelings

(e.g., Forguson & Gopnik, 1988). Perspective taking as egocentric and adjustment subsumes this notion and can consequentially be applied to perspective taking referring to others' thoughts as well as to their feelings. The pattern of results in Chapters II and III supports this argumentation as both a promotion focus and an avoidance orientation enhance perspective taking performance consistently when assessed with the communication intention as well as the emotion recognition task.

Finally, given that only a single study is reported, research presented in Chapter III.a comes with several limitations. Results of Study 4.1 showing that cold temperature cues enhance perspective taking performance would be strengthened by replicating this finding using different temperature manipulations as well as different perspective taking tasks. In line with this notion, future research should also aim to show that increased self-other differentiation (e.g., via the adapted IOS scale, Aron et al., 1992) mediates the relation between cold temperature and perspective taking (see Chapter III). However, given existing research which indicates that cold temperatures represent a bodily grounded experience of self-other differentiation (e.g., IJzerman & Semin, 2009; 2010; Steinmetz & Mussweiler, 2011), the current research should be interpreted as an application of this well established effect and as a validation of self-other differentiation as underlying process of successful perspective taking performance.

Theoretical strengths and limitations

As elaborated above, research presented in this dissertation achieves the aim to assign an *active* role to the individual in determining perspective taking performance. Moreover, insights on *content-independent* motivational determinants of perspective taking performance are provided by showing *how* self-regulatory strategies affect self-other differentiation as underlying process of successful perspective taking. The role of self-other differentiation for successful perspective taking is further validated by demonstrating as bodily grounded experience of self-other differentiation enhances perspective taking performance. While achieving these aims, the present research also accomplishes to show how self-other differentiation as underlying process of successful perspective taking performance can likewise be facilitated by manipulating cognitive procedures, motor actions or physical experiences.

The findings reported in Chapter II of the present dissertation indicate that a promotion self-regulatory strategy enhances perspective taking performance because it facilitates self-other differentiation by highlighting the distinctiveness of the self (via heightened private self-awareness). Subsuming these findings on a theoretical level, Regulatory Focus affects self-

other differentiation and thereby perspective taking via activated cognitive procedures as a mindset. Regulatory Focus as a motivational theory describes processes of goal pursuit but, furthermore, it can be and has been viewed as a mindset (e.g., Murphy, Richeson, & Molden, 2011). Specifically, the processes of goal pursuit described by Regulatory Focus Theory imply activating *cognitive procedures* that relate to the manner how individuals choose their goals and how they plan to attain these goals. This is precisely what Gollwitzer, Heckhausen, and Stellar (1990) have stated to be indicative of a mindset. Moreover, mindsets have been demonstrated to cause carry-over effects (e.g., Sassenberg, Moskowitz, Jacoby, & Hansen, 2007). In line with this notion, research presented in Chapter II (except for Study 2.2)[9] demonstrates that experimentally activating Regulatory Focus carries over to perspective taking performance in a subsequent, unrelated task (see also, Gino & Margolis, 2011; Baas, De Dreu, & Nijstad, 2011; Friedman & Förster, 2001, as other examples for carry-over effects of Regulatory Focus). More important, the process that explains how precisely a promotion self-regulatory strategy affects self-other differentiation and perspective taking performance also operates on cognitive dimension: Heightened private self-awareness directs attention to the self (Fenigstein et al., 1975). Thereby, distinctiveness of the self is made salient. This, in turn, facilitates self-other differentiation and enhances perspective taking performance. Accordingly, it can be concluded that Regulatory Focus functions as a mindset by activating *cognitive procedures* (self-focused attention) that result in self-other differentiation and thereby enhance perspective taking performance.

Chapter III effectively demonstrates that activating avoidance motivational orientation (via an avoidance related arm position) enhances perspective taking because it directly facilitates self-other differentiation (compared to activating approach motivational orientation). Subsuming these findings on a theoretical level, approach and avoidance motivational orientation affect self-other differentiation and perspective taking by activated *motor actions* that change psychological distance. In line with the aim of studying the impact of dynamic changes in distance on perspective taking performance, research presented in Chapter III shows that carrying out avoidance motor action facilitates self-other

[9] Note that in Study 2.2 the relation between measured Regulatory Focus and attention allocation to others and perspective taking performance was investigated. Accordingly, Regulatory was not manipulated but assessed as individual difference variable. Accordingly, a carry-over effect was not observed in this study. Nevertheless, given that one could argue that Regulatory Focus as individual difference signifies chronically activated cognitive procedures, the argument of self-other differentiation being facilitated via cognitive procedures stills holds, also for this Study.

differentiation and thereby perspective taking. Given that self-other differentiation corresponds to psychological distance (Liviatan et al., 2008), self-other differentiation constitutes an aspect of distance that responds to distance changing manipulations: approach and avoidance *motor actions*. Accordingly, approach and avoidance motivational orientation function by activated motor actions that result in changes in psychological distance which, in turn, affect self-other differentiation and perspective taking performance.

Chapter III.a yields empirical support for cold temperature cues enhancing perspective taking performance. Subsuming this research abstractly, the findings indicate that perspective taking can also be *physically* fostered by a bodily grounded experience. Based upon research indicating the cold temperature translates into self-other differentiation (e.g., IJzerman & Semin, 2009, 2010; Steinmetz & Mussweiler, 2011), this research shows that cold temperatures as *physical experience* affect an outcome of self-other differentiation: perspective taking. Moreover, these findings are in line with research on avoidance motivational orientation and perspective taking performance: Physical coldness corresponds to increased psychological distance (e.g. IJzerman & Semin 2009) which translates into self-other differentiation (, IJzerman & Semin, 2009, 2010; Steinmetz & Mussweiler, 2011) just as avoidance motivational orientation enhances self-other differentiation due to increased psychological distance.

Taken together, the current research comes with the theoretical strength of showing how self-other differentiation as the underlying process of successful perspective taking can be facilitated by manipulating different dimension of psychological functioning: By activating *cognitive procedures* (heightened private self-awareness in a promotion focus), by activating *motor actions* (via an avoidance-related am position), and by a *physical experience* (cold temperature cues). Thereby, the present dissertation provides novel insights and a coherent picture on how self-regulatory strategies as content independent motivational determinants plus a bodily grounded experience of self-other differentiation affect self-other differentiation and thereby perspective taking performance.

Concerning theoretical limitations of research presented in this dissertation, one specific issue needs to be discussed: The social cognitive process-based account of perspective taking as egocentric anchoring and adjustment constitutes the theoretical framework of perspective taking in the present dissertation. As it is argued and demonstrated in this dissertation, perspective taking as egocentric anchoring and adjustment implies that sufficient self-other differentiation is the underlying process of successful perspective taking. Furthermore, the framework suggests that perspective taking is enhanced when the influence of the egocentric

anchor is reduced. Accordingly, in all three empirical chapters of the present dissertation it is argued and shown that increased self-other differentiation enhances perspective taking performance, which is expressed by a less egocentrically biased perspective taking judgment. However, what remains unclear and is not itemized by the present research is how exactly self-other differentiation and egocentric anchoring are intertwined and whether a reduction of egocentric anchoring is actually the antecedent or the consequence of self-other differentiation resulting in enhanced perspective taking performance.

Egocentric anchoring refers to putting self-related contents into use for a judgment about another individual's perspective (see Epley, 2008; Epley & Caruso, 2009). Self-other differentiation refers to the process of discriminating between the self and others (e.g. Higgins, 1980). When taking into account these two processes, it seems most likely and research of this dissertation supports the suggestion that self-other differentiation is the process through which egocentric anchoring is actually reduced. Specifically, self-other differentiation should reduce *applicability* of the egocentric anchor (i.e., of self-related contents) in the perspective taking judgment, because differentiating between the self and others should highlight inadequacy of using self-related contents for predictions about others. As any prime, the egocentric anchor succumbs to the rule of accessibility x applicability that determines whether an anchor impacts judgment and decision making (e.g., Higgins, Rholes, & Jones, 1977). Accordingly, processes affecting applicability of the egocentric anchor should also affect the impact of the egocentric anchor in the perspective taking judgment.

Specifically, as research from Chapter II indicates, in a promotion focus applicability of the egocentric anchor should be reduced due to heightened private self-awareness fostering self-other differentiation: Highlighting self-related contents via heightened private self-awareness highlights the self as a distinct individual. Highlighting the self as a distinct individual suggests differences between the self and others (i.e., self-other differentiation). As a result, the promotion focus results in less egocentrically biased perspective taking judgments.

In the case of avoidance motivational orientation (Chapter III), applicability of the egocentric anchor should be reduced due increased psychological distance between the self and the other, which suggests differentiating between the self and the other (i.e., self-other differentiation). This again results in a less egocentrically biased perspective taking judgment.

In Chapter III.a, applicability of the egocentric anchor should be reduced because cold temperatures cues as bodily grounded experience of differentiating between the self and

others should directly translate into self-other differentiation. This again leads to less egocentrically biased perspective taking judgments

To summarize, by achieving the three aims articulated in the beginning of this dissertation, the present research suggests that processes facilitating self-other differentiation affect *applicability* of the egocentric anchor which then results in less egocentrically biased, that is, in enhanced perspective taking performance. Extending this notion, it appears unlikely that research presented in this dissertation affects *accessibility* of the egocentric anchor: This would mean that heightened private self-awareness in the promotion focus and increased psychological distance under avoidance and experiences of cold temperatures all result in switching off accessibility of the most prevalent knowledge – knowledge about and provided by the self. Nevertheless, the possibility of accessibility of self-related contents being affected by Regulatory Focus, approach and avoidance motivational orientation and temperature manipulations remains to be tested by future research.

Contributions to research on motivated perspective taking

Research presented in Chapters II and III of this dissertation contributes to research on motivated perspective taking as it documents how individuals' self-regulatory strategies as content-independent motivational determinants affect perspective taking performance. Specifically, research on motivated perspective taking so far focused on the content-specific motivation to be accurate in perspective taking (see Chapter I of this dissertation for an overview). Research of Chapters II and III goes beyond this, because it does not address the influence of a specific content of motivation but addresses the influence of the processes individuals use to pursue their goals, their self-regulatory strategies, on perspective taking and the underlying social cognitive processes. As elaborated above, this research, thereby, achieves the aims of assigning the individual an active role in determining perspective taking performance, provides a comprehensive picture of content-independent motivational determinants of perspective taking and also specifies which underlying processes are affected by self-regulatory strategies.

Beyond the above mentioned achieved aims that contribute to research on motivated perspective taking, the present dissertation might also further differentiate the role of effort in motivational determinants of perspective taking. As discussed in the introduction of this dissertation, the role of effort in translating accuracy motivation into increased perspective taking performance has not been decisively clarified by empirical evidence (see Smith, Hall, et al., 2011). Epley, Keysar, et al. (2004) shed some light onto this issue by taking the social process based account of perspective taking as egocentric anchoring and adjustment.

Accordingly, they showed that manipulating accuracy motivation (by providing monetary incentives) leads to increased effort to adjust from a primarily activated egocentric anchor that biases perspective taking. Now, the present research argues and demonstrates that self-other differentiation is the underlying process of successful perspective taking (also supported by research from Todd, Hanko, et al., 2011). Moreover, the influence of the egocentric anchor in perspective taking appears to be reduced via self-other differentiation without effortful adjustment (see Chapter I, but also General Discussion of Chapters II & III). Hence, what could be concluded for future research addressing the role of effort in motivation is that if motivation is manipulated in a way that directly fosters self-other differentiation, then additional effort should not further enhance perspective taking performance. However, if motivation is manipulated in way that does not directly facilitate self-other differentiation, then effort being exerted into the activation of other-related contents should enhance perspective taking performance. (e.g., Epley, Keysar, 2004).

Taken together, the present research contributes to research on motivated perspective taking by providing insights on how content-independent motivational determinants (self-regulatory strategies) affect perspective taking performance and the underlying process, self-other differentiation. This allows for discovering broader content-independent regularities of how to enhance perspective taking performance. Moreover, the role of effort in motivational determinants of perspective taking is further differentiated. As a result, this research allows for a better understanding of how individuals can actively determine their perspective taking performance (i.e. by serving their accomplishment concerns in a promotion focus or by activating an avoidance motivational orientation).

Contributions to the social cognitive process-based account of perspective taking as egocentric anchoring and adjustment

The social cognitive process-based account of perspective taking as egocentric anchoring and adjustment represents the theoretical framework of the present dissertation. Accordingly, research presented Chapters II and III indicates in which way self-other differentiation as the underlying process of successful perspective taking is affected by the individuals' self-regulatory strategies, promotion focus (vs. prevention focus) and avoidance motivational orientation (vs. approach motivational orientation).

When taking a closer look at these results it seems that the theoretical approach of perspective taking as egocentric anchoring and adjustment (in the way Epley and his colleagues formulate and test it) needs to be further differentiated. This refers particularly to the sequence of steps of preconditions and processes involved in perspective taking.

Specifically, Epley and colleagues elaborate on the primacy of egocentric anchoring in a situation that asks for inferring another's perspective. Subsequently, that is, after the egocentric anchor has unfolded its' influence, they argue that adjustment from this anchor takes place. The extent to which adjustment takes place, in turn, decides whether perspective taking is successful or not. Hence, their theorizing acts on the assumption that perspective taking is composed by the two processes of egocentric anchoring and adjustment (see Epley, 2008; Epley & Caruso, 2009, for an overview, but also Epley, Keysar, et al., 2004).

Further scrutinizing this assumption, it has to be acknowledged that the primacy of the egocentric anchor in perspective taking is due to the chronic accessibility of self-related contents or knowledge. Hence, chronic accessibility of self-related contents represents the necessary, most probably preconscious precondition for egocentric anchoring to unfold at all. The next step that comes before egocentric anchoring takes place is the simple demand to take another individual's perspective. At this step, the concept of another person, whose perspective is at question, is introduced for the first time in the whole perspective taking sequence. Only subsequently, the egocentric anchor unfolds its influence in the required judgment. Finally, in the last step conscious, effortful adjustment (as Epley and colleagues label it) from the egocentric anchor takes place.

The current research now suggests that certain motivational states and physical experiences (i.e., a promotion focus, avoidance motivational orientation, cold temperatures) reduce egocentric anchoring: They affect the applicability of chronically accessible (probably preconscious) self-related contents as an anchor in perspective taking judgments, because they all facilitate self-other differentiation (see the discussion of conceptual strengths and limitations of the present research in this chapter for a detailed discussion of this notion). As a result, it is important to emphasize the difference between the given precondition of chronically available self-related contents and the actual process of applying these contents as happening when the egocentric anchor unfold its influence in perspective taking. Manipulations of the current research seem to operate precisely at this interface: A promotion self-regulatory strategy influences the sequence of steps in perspective taking in that private self-awareness highlights self-related contents. This could imply that formerly preconsciously accessible self-related contents are turned into somewhat consciously accessible contents. Consequently, application of these self-related contents in egocentric anchoring is reduced. In contrast, avoidance motivational orientation most probably comes into play when the concept of the other person has been introduced by the demand to take another's perspective. Then, increased distance under avoidance translates into self-other differentiation and enhances

perspective taking performance. Accordingly, one could argue that via promotion self-regulatory strategies and via avoidance motivational orientation preconsciously accessible self-related contents are turned into somewhat consciously accessible contents. As a consequence, these contents are not used in perspective taking, that is, they are not applied in egocentric anchoring. This means that an assimilation of the perspective taking judgment to the egocentric anchor (i.e., an egocentrically biased perspective taking judgment) is reduced.

Taken together, the present research contributes to the theoretical framework of perspective taking as egocentric anchoring and adjustment as it suggests that the sequence of processes jointly representing perspective taking has to be further differentiated. Specifically, it should be differentiated between chronically accessible self-related contents as the given precondition for egocentric anchoring and actually applying these contents in egocentric anchoring.

Contributions to research on self-regulation

As elaborated in the General Introduction of this dissertation, Regulatory Focus and approach and avoidance address intra-individual strategies of goal pursuit and have been successfully applied to explain inter-individual phenomena (e.g., Righetti et al., 2010; Righetti, et al, 2011; Fayant, et al., 2011; Nussinson, et al., 2010). In line with this research, the current research demonstrated for the first time how a promotion self-regulatory strategy (Chapter II) and an avoidance motivational orientation (Chapter III) facilitate self-other differentiation and thereby enhance perspective taking performance.

In his seminal article introducing Regulatory Focus as an individuals' set of self-regulatory strategies, Higgins (1997) emphasized independence of the two sets of self-regulatory strategies promotion and prevention focus and approach and avoidance motivational orientation. Specifically, he elaborated that both promotion focus as well as prevention focus comprise approach and avoidance inclinations: In a promotion focus growth and accomplishment-related goals can be achieved by employing either approach or avoidance-related behaviors and likewise in a prevention focus security and safety-related goals can be achieved by employing either approach or avoidance-related behaviors. However, some findings suggest that under certain conditions promotion focus and approach and prevention focus and avoidance are related (e.g. Förster, et al., 1998; Förster, et al., 2001). These findings, suggesting convergence of promotion focus and approach and prevention focus and avoidance, can be explained to some extent by considering that different conceptualizations of Regulatory Focus exist (Summerville & Roese, 2008). Different conceptualizations entail different operationalizations of Regulatory Focus that impact the

relation of promotion focus and approach orientation and prevention focus and avoidance orientation: Conceptualizing Regulatory Focus more as an abstract self-guide that directs behavior (i.e., promotion focus representing an 'ideal-self' self-guide and prevention focus representing an 'ought-self' self-guide) implies using both approach or avoidance related behaviors to correspond to the respective self guide. However, conceptualizing Regulatory Focus more concrete as self-regulation following the attainment of different end states or reference points (i.e. approaching a positive end state, a 'gain', in a promotion focus and avoiding a negative end state, a 'loss', in the prevention focus) relates promotion focus and approach and prevention focus and avoidance to some extent (see Summerville & Roese, 2008, for an overview).

Besides this conceptional explanation for the apparent convergence of promotion and approach and prevention and avoidance, substantial empirical evidence in fact supports independence of Regulatory Focus and approach and avoidance motivational orientation (e.g., Grant & Higgins, 2003; Scholer, Stroessner, & Higgins, 2008; Scholer, Zou, Fujita, Stroessner, & Higgins, 2010). Research presented in Chapters II and III of the present dissertation contributes to these findings and empirically supports orthogonality of Regulatory Focus and approach and avoidance motivational orientation. Specifically, as Chapters II and III demonstrate, prevention focus *only* affects attention allocated towards others whereas promotion focus and avoidance motivational orientation go together in their positive effect on perspective taking performance. This should not be the case if promotion focus and approach motivational orientation and prevention focus and avoidance likewise would be closely related concepts. Hence, the present research suggests that it is the social cognitive structure of the phenomenon that they affect, which determines that the two self-regulatory strategies result in the same effect. Sufficient self-other differentiation represents the underlying process of successful perspective taking performance. Both, promotion focus and avoidance motivational orientation afford sufficient self-other differentiation and therefore these two self-regulatory strategies co-vary in their effect on perspective taking performance.

Taken together, research presented in Chapters II and III of the present dissertation contributes to research on self-regulation as it demonstrates for the first time the influence of Regulatory Focus and approach and avoidance motivational orientation on perspective taking performance. More important, this research also provides further empirical support for the notion that Regulatory Focus and approach and avoidance motivational orientation represent independent self-regulatory strategies.

Contributions to research on embodied cognition

Chapter III.a of the present dissertation addresses the influence of a bodily grounded experience of self-other differentiation on perspective taking performance.

Research presented in this chapter empirically validates existing findings of bodily sensations and abstract concepts being stored and processed together. Recent research has shown that physical warmth as bodily grounded experience is related to interpersonal closeness and psychological warmth (IJzerman & Semin, 2009; 2010; Steinmetz & Mussweiler, 2011; Williams & Bargh, 2008b). In reverse, physical coldness is related to interpersonal distance and interpersonal distance, in turn, facilitates self-other differentiation (Liviatan, et al., 2008) which underlies successful perspective taking. By confirming this theorizing, research of Chapter III.a suggests that physical coldness as bodily sensation and perspective taking as abstract concept are stored and processed together.

Furthermore, the present findings also theoretically contribute to research on embodied cognition. Within this domain, various theoretical frameworks have been developed (see Landau, et al., 2010, for an overview) with embodied simulation (e.g., Barsalou, 2008) and conceptual metaphor framework (e.g., Lakoff & Johnson, 1980) representing the most influential ones. Both frameworks comprise the notion that abstract concepts are given meaning partly by the recurring patterns of bodily experiences that are associated with these abstract concepts (Landau, et al., 2010). However, the two frameworks also differ to some extent: Embodied simulation refers to the role of very specific bodily states that occur when related abstract concepts are processed (e.g., facial muscle activity of a smile during the processing of happiness-related words). Hence embodied simulation refers to an intra-conceptual mechanism (Landau, et al., 2010). Conceptual metaphor framework goes beyond and elaborates that superficially dissimilar concepts can be metaphorically linked to each other because the (body) sensations linked to the superficially dissimilar concepts correspond to each other. Thereby, these superficially dissimilar concepts mutually shape information processing (Landau, et al., 2010). Hence, conceptual metaphor framework refers to an inter-conceptual mechanism. The present research contributes to conceptual metaphor framework to the extent that it shows that gripping a cold cup influences an (superficially) unrelated concept such as perspective taking. Hence, the demonstrated link between cold-cup sensations and the comprehension of others' perspectives reflects, beyond experiential correlations, a metaphoric mapping between the bodily grounded concept of coldness and the abstract concept of perspective taking.

Taken together, research presented in Chapter III.a contributes to research on embodied cognition because it (a) empirically validates existing findings on temperature and interpersonal distance and (b) because it shows that perspective taking is metaphorically represented together with sensations related to physical coldness. Thereby, the present research supports conceptual metaphor framework.

Further implications

Further theoretical implications

The present dissertation demonstrated how self-regulatory strategies as content-independent motivational determinants affect perspective taking by affecting self-other differentiation, the underlying process. The role of self-other differentiation for successful perspective taking was further validated by showing the positive influence of a bodily grounded experience of self-other differentiation on perspective taking performance. Accordingly, research presented in the empirical Chapters II, III, and III.a demonstrated that self-other differentiation (and thereby enhanced perspective taking) can be facilitated by manipulating different dimension of psychological functioning. Specifically, it can be facilitated *cognitively* (in a promotion focus via heightened private self-awareness), *motorically* (under avoidance by increasing psychological distance between the self and others), or *physically* (when being exposed to cold temperature cues). Continuing this line of argumentation, one could further speculate whether self -other differentiation and thereby enhanced perspective taking performance can also be facilitated *affectively* (e.g., via antipathy). Close relationships, which are indicative of intimacy and positive affect towards the other (i.e. sympathy and affection), breed self-other overlap (e.g., Aron, et al., 1991). Hence, one could argue that the opposite of positive affect towards another (i.e., antipathy) should facilitate the opposite of self-other overlap, that is, self-other differentiation. This, in turn, should enhance perspective taking performance. To be more concrete, not liking another individual usually implies that one does not seek closeness to that individual. As a consequence, distance between the self and that other individual should be increased. Liviatan, et al. (2008) showed that interpersonal distance corresponds to self-other differentiation (see also Chapter III of this dissertation). Thus, if antipathy does not bias perspective taking differently, antipathy should facilitate self-other differentiation and thereby enhance perspective taking performance. To summarize, this line of argumentation bears exciting avenues for future research. It suggests that antipathy, an affective state commonly perceived as the precondition of various rather anti-social tendencies, affords an increased understanding of other’s perspectives.

Broadening this line of argumentation even more, the present research suggests that any concept known or assumed to cause self-other differentiation should also enhance perspective taking performance (e.g., social categorization, Clement & Krueger, 2002; cognitive processing style, Förster & Dannenberg, 2010; social comparison focus, Mussweiler, 2001, 2003). As illustrated with the above outlined example of antipathy, it seems that following this line of argumentation might provide some ironical insights on perspective taking as an outcome of sufficient self-other differentiation.

Furthermore, it should be considered that those determinants facilitating self-other differentiation and perspective taking performance as a short-term consequence possibly harm other prosocial tendencies in the long run. To illustrate this thought with an example from the literature, Todd, Hanko, et al. (2011) demonstrated that focusing on other individuals as outgroup members actually enhanced subsequent perspective taking performance (Studies 4 & 5). This corresponds perfectly to perspective taking requiring sufficient self-other differentiation, because focusing on others as outgroup members results in differentiation from them (e.g., Clement & Krueger, 2002). However, does this finding also imply less discrimination due to enhanced perspective taking (see, e.g., Galinsky & Moskowitz, 2000), which originally resulted from focusing on the other as an outgroup member? This appears unlikely given that Cikara, Bruneau and Saxe (2011) recently pointed out that empathic reactions usually fail when it comes to facing the misfortune of outgroup members.

Beyond that, Galinsky, Wang and Ku (2008, see also Galinsky, Ku &, Wang, 2005) demonstrated that one consequence of perspective taking is increased self-other overlap. Moreover, the authors elaborate that self-other overlap explains why perspective taking results in decreased stereotyping (e.g., Galinsky, et al., 2005). Consequently, perspective taking requires self-other differentiation as a precondition and it bears self-other overlap as a consequence. Applying this notion to the findings of this dissertation, the question arises whether a promotion self-regulatory strategy, avoidance motivational orientation or cold temperatures (which have been shown to induce self-other differentiation and therewith enhance perspective taking performance) possibly harm other prosocial tendencies that result from perspective taking, because it bears self-other overlap. To be more precise, future research should address whether determinants of self-other differentiation that enhance perspective taking performance in the short run actually harm other prosocial tendencies, known to result from increased self-other overlap, in the long run.

Taken together, the present research opens avenues for future research addressing determinants of self-other differentiation that possibly enhance perspective taking

performance. Thereby, novel and even ironic insights on antecedent of perspective taking as prosocial tendency might be provided. Here, future research will also have to consider short and long term consequences of those determinants facilitating self-other differentiation and perspective taking performance[10].

Practical implications

The present dissertation addresses the influence of self-regulatory strategies and a bodily grounded experience on a pervasive phenomenon of meaningful social communication and interaction: understanding others' perspectives. This research has been designed and conducted with a focus on testing theoretical assumptions and emphasizing high internal validity (instead of a focus on applied implications and high external validity). Nevertheless, results of this dissertation are also of relevance for a larger (i.e., not so much theory-focused) audience, because every one of us needs to understand others and their perspectives every day. Specifically, in order to understand other's perspectives (i.e., their thoughts, feelings, or perceptions), one has to acknowledge in the first place that these might differ from own perspectives. As the current research shows, an individual can actively foster this acknowledgement and thereby understand others' perspectives by applying certain self-regulatory strategies, that is, by regulating own behavior in a certain way. Adding the findings regarding temperature cues, the present research coherently demonstrates how conditions that help differentiating between self and others actually enhance perspective taking.

As illustrated by the examples in the beginning, successful perspective taking can help us to better tailor an advice that we give to friend, it can facilitate successfully negotiating personal interests or it can aid winning a game. Taking the findings presented in this dissertation seriously, in the future we might indeed give a better tailored advice to friend of us, if we, beforehand, make salient to ourselves that we are a distinct individual (e.g., by activating promotion self-regulatory strategies). This should help us differentiate between ourselves and our friend and therewith help us to better understand him or her which then should facilitate to tailor our advice to him or her. Similarly, when negotiating personal interests with our superiors in the future, we should activate promotion self-regulatory strategies to achieve our goal, because this helps us understanding what our superior wants.

[10] Vorauer and Sasaki (2009a, see also Vorauer & Sasaki, 2009b) likewise discuss ironic effects of perspective taking, though in the context of intergroup interaction. Whereas Vorauer and Sasaki stress that perspective taking implies activating metastereotypes that can undermine the positive effects of perspective taking in actual intergroup interaction, the argumentation elaborated above stresses that preconditions fostering self-other differentiation and thereby perspective taking can have ironic effects on subsequent prosocial tendencies that result from perspective taking, because it generates self-other overlap.

As a result we can adapt our interests, or at least the way we propose them to him or her. Thereby, chances for successfully negotiating these interests should be higher (see also Galinsky, Leonardelli, Okhyusen, & Mussweiler, 2005). In line with this notion, activating promotion self-regulatory strategies should also help when entering, for example, a soccer pitch and trying to infer the adverse team's game strategy.

Importantly, the present research indicates that the above mentioned positive effects of promotion self-regulatory strategies on perspective taking can also be achieved by activating strategies that increase psychological distance between ourselves and our vis-à-vis (e.g. by activating avoidance motivational orientation via avoidance related behaviors). To give an example, when we want to give our friend a well-tailored advice, the present findings indicate that we should try not be too close to our friend, because this would not conduce to self-other differentiation and enhanced perspective taking. Notably, the beneficial role of psychological distance for self-other differentiation and thereby for understanding others has also found its' way into folk wisdom: 'Professional Distance' (e.g., between oneself and colleagues or clients) is often mentioned as a competence and, notably, its importance is mainly stressed for professions with a focus on understanding others and helping them managing their interests (e.g., a trainer, or a therapist).

Furthermore, as the findings on temperature cues affecting perspective taking performance suggest, our friends should wait for cold days to expect a really helpful advice from us. Likewise we should consider negotiating with our superiors in the winter, instead of in warmer seasons. Furthermore, it should be easier to predict our adverse team' game strategy when playing outside on a cold day.

Taken together, the present dissertation provides theoretical insights into a phenomenon that is of interest for all of us. Moreover, this research provides a selection of motivational strategies and contextual variables that help us successfully understanding and predicting others' perspectives, which is fundamental for coordination and momentous functioning in our social world.

Conclusion

To conclude, perspective taking, in the case of scarce knowledge about the target, requires sufficient self-other differentiation to be successful. Accordingly, conditions fostering self-other differentiation enhance perspective taking performance. In line with this notion, the current research reveals that individuals' self-regulatory strategies and a bodily grounded experience that facilitate self-other differentiation result in enhanced perspective taking performance.

As a result, the present research increases our understanding of the complex nature of how to infer others' inner mental states – their perspectives - and understand their actions. By using diverse methodological approaches and by bringing together previously unrelated lines of research, the present dissertation provides innovative and counter-intuitive insights on the processes that underlie successful perspective taking and demonstrates that we can actively influence how good we understand others and their perspectives. This should help us to coordinate our communication and social interaction every day.

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Appendices

Appendix I: Regulatory Focus Manipulation in English and German

Appendix II: Regulatory Focus Scale in English and German

Appendix III: Perspective taking stories in English and German

Appendix IV: Situational Private Self-Awareness Scale in English and German

Appendix V: Adapted version of the IOS scale (Aron, et al., 1992), Example of the adapted version following Story 1 in English and German

Appendix I

Regulatory Focus Manipulation in English

Promotion focus condition

Please write about three different times in your past:

1. When you felt like you made progress toward being successful in life.
2. When you felt like you were not making progress toward being successful in life.
3. When compared to most people you were able to get what you wanted out of life.

Prevention focus condition

Please write about three different times in your past:

1. When being careful enough has avoided getting you into trouble.
2. When not being careful enough has got you into trouble.
3. When you behaved in way that nobody would consider objectionable.

Regulatory Focus Manipulation in German

Promotion focus condition

Bitte beschreiben Sie in einigen Worten drei verschiedene Erlebnisse Ihrer Vergangenheit:

1. ein Erlebnis, bei dem Sie das Gefühl hatten, Sie machen Fortschritte dahingehend, in Ihrem Leben erfolgreich zu sein.
2. ein Erlebnis, bei dem Sie das Gefühl hatten, Sie machen keine Fortschritte dahingehend, in Ihrem Leben erfolgreich zu sein.
3. sowie ein Erlebnis, bei dem Sie im Vergleich zu anderen Personen dazu fähig waren, das zu bekommen, was Sie wollen.

Prevention focus condition

Bitte beschreiben Sie in einigen Worten drei verschiedene Erlebnisse Ihrer Vergangenheit:

1. ein Erlebnis, bei dem eine ausreichende Vorsicht Sie davor bewahrt hat, in Schwierigkeiten zu geraten.
2. ein Erlebnis, bei dem eine mangelnde Vorsicht dazu geführt hat, dass Sie in Schwierigkeiten geraten sind.
3. sowie ein Erlebnis, bei dem Sie sich so verhalten haben, dass niemand etwas daran hätte aussetzen können.

Appendix II

Regulatory Focus Scale in English

Promotion focus subscale

“My motto is ‘Nothing ventured, nothing gained’.”

“I want to achieve a great deal.”

“I am very productive.”

“If I really want to attain a goal, I will find a way”

“For me, the great whole counts, not the details.”

“I strive for success in my life.”

“I follow my ideals.”

“I am sometimes fanatical concerning attainment of my goals.”

“I like trying out new things.”

“I am willing to take risks.”

“I strive for progress.”

“I am fully committed to my goals.”

Prevention focus subscale

“Success calms me.”

“I virtually always stick to rules and regulations.”

“If I do not attain my goals, I become nervous.”

”My motto is ‘Cobbler, stick to thy last’.”

“In order to attain my goals, I sometimes violate rules and norms. (recoded)

” My motto is ‘Strength comes from calmness’.”

“I am not a cautious person.” (recoded)

“In fundamental decisions, safety is an important criterion for me.”

“In work and in my studies, it is important for me to be accurate.”

“I take care to fulfill my duties.”

Regulatory Focus Scale in German

Promotion focus subscale

“Mein Motto lautet, „wer nicht wagt, der nicht gewinnt“.”

“Ich will viel erreichen.”

“Ich bin sehr produktiv.”

“Wenn ich ein Ziel wirklich erreichen will, finde ich einen Weg.”

“Das große Ganze ist für mich wichtig, nicht die Details.”

“Ich strebe in meinem Leben nach Erfolg.”

“Ich folge meinen Idealen.”

“Ich bin manchmal fanatisch hinsichtlich des Erreichens meiner Ziele.”

“Ich probiere gerne Neues aus.”

“Ich bin risikobereit.”

“Ich strebe nach Fortschritt.”

“Ich setze mich ganz und gar für meine Ziele ein.”

Prevention focus subscale

“Erfolg beruhigt mich.”

“Ich halte mich eigentlich immer an Regeln und Vorschriften.”

“Wenn ich meine Ziele nicht erreiche, werde ich nervös.”

“Mein Motto lautet „Schuster, bleib bei Deinen Leisten“.”

“Um meine Ziele zu erreichen, übertrete ich hin und wieder auch Regeln oder Normen.” (recoded)

“Mein Motto lautet „in der Ruhe liegt die Kraft“.”

“Ich bin keine vorsichtige Person.” (recoded)

“Bei wichtigen Entscheidungen ist Sicherheit für mich ein wichtiges Kriterium.”

“In Arbeit und Studium ist für mich Genauigkeit sehr wichtig.”

“Ich achte darauf, dass ich meine Pflichten erfülle.”

Appendix V

Perspective taking stories in English

(Story 1) Imagine you meet a fellow student at the cafeteria. You have once lent that student a book which he gave back to you after a full semester and only after various demands. This fellow student now tells you that he has borrowed very useful notes from another student. While the two of you are talking, the owner of the notes that your fellow students just mentioned comes by. The owner asks your fellow student when he gets back the notes because he himself needs them for an exam. Your fellow student promises to bring back the notes on the following day.

Question 1: How likely do you think it is that your fellow student brings back the notes on the following day?

Question 2: Please indicate whether you believe that the owner of the notes believes you fellow student.

(Story 2) Imagine you meet a good friend of yours on the street. She tells you that she feels very lonely, because she has split up with her boyfriend only recently and now has no longing to meet other people. While the two of you are talking, another friend passes by and invites both of you to a dinner. Your good friend declines with thanks and says she has just too many things to do at the moment.

Question 1: How likely do you think it is that your good friend still comes to the dinner?

Question 2: Please indicate whether you think that the person inviting you for the dinner recognizes your good friend to be lonely.

(Story 3) The following story recounts a short episode from the life of "Markus Schmidt":

Markus is invited to dinner by his two friends Christian and Tina. During the meal they talk about the latest movie Christian and Tina have seen. They were both really delighted by the movie and strongly recommend the film to Markus. A few days later Markus decides to go to the movies with his girlfriend and watches the recommended film. He is not at all delighted by the movie and finds it rather boring. The next day though, he writes a short email to his friends with the following content:

"Hey guys! How are you? Thanks for the dinner lately.

By the way, I went to see the movie we were talking about. Really, I must say, it' been a long time that I have seen such a good movie. It's really worth the money."

Question 1: Please indicate below whether the content of the mail was being meant serious or not.

Question 2: Will Christian and Tina recognize that the content of the mail was not being meant seriously?

(Story 4) The following story recounts a short episode from the life of "Katharina Werner":

Katharina plays indoor hockey for her university team. When playing against another university team, Katharina and her team loose badly and drive home being frustrated and disappointed. On the following day, Katharina writes her friend Maike a mail with the following content:

"Hey Maike,

How are you? I am fine. We had a hockey game yesterday and we showed it to them. We played really well and deserve winning the tournament."

Question 1: Please indicate below whether the content of the mail was being meant serious or not.

Question 2: Will Maike recognize that the content of the mail was not being meant seriously?

(Story 5) The following story recounts a short episode from the life of "Johannes Schimmer":

Johannes celebrates his birthday and he ends up with more people coming to his party than he had actually invited. During the evening, the party becomes a bit wilder so that his neighbors call the police. Moreover, on the following day Johannes has to acknowledge that his apartment has become very messy due to the party. He writes a mail with the following content to his brother Jochen, who could not come to his party:

"Hey Jochen,

What a pity you were not at our party. It was pretty calm. Only few people came and that is probably why the apartment still looks quite good."

Question 1: Please indicate below whether the content of the mail was being meant serious or not.

Question 2: Will Jochen recognize that the content of the mail was not being meant seriously?

Perspective taking stories in German

(Geschichte 1) Stellen Sie sich vor, Sie treffen einen Kommilitonen in der Mensa. Sie haben diesem Kommilitonen einmal ein Buch ausgeliehen, welches er Ihnen erst nach einem ganzen Semester und unzähligen Aufforderungen zurückgegeben hat. Dieser Kommilitone erzählt Ihnen nun, dass er sich ein sehr nützliches Skript von einem weiteren Kommilitonen ausgeliehen habe. Während Sie sich unterhalten, kommt zufällig der Besitzer des Skripts an den Tisch. Er fragt Ihren Kommilitonen, wann dieser ihm denn sein Skript wieder mitbringt. Er brauche es für die kommende Klausur. Ihr Kommilitone verspricht, das Skript am nächsten Tag in die gemeinsame Vorlesung mitzubringen.

Frage 1: Geben Sie anhand der folgenden Skala an, für wie wahrscheinlich Sie es halten, dass Ihr Kommilitone dem Skriptbesitzer das Skript am nächsten Tag mitbringt.

Frage 2: Geben Sie anhand der folgenden Skala an, ob der Skriptbesitzer ihrem Kommilitonen glauben wird?

(Geschichte 2) Stellen Sie sich vor, Sie treffen eine gute Freundin von sich zufällig auf der Straße. Sie erzählt Ihnen, dass sie sich momentan sehr einsam fühle. Vor kurzem habe sie sich von ihrem Freund getrennt und verspüre jetzt nur wenig Antrieb vor die Tür zu gehen. Während Sie sich unterhalten, kommt zufällig eine gemeinsame Bekannte von Ihnen beiden dazu. Sie lädt Sie beide zu einem gemeinsamen Abendessen bei sich an. Ihre Bekannte lehnt dankend ab mit der Begründung, sie habe momentan einfach zu viel zu tun

Frage 1: Geben Sie anhand der folgenden Skala an, für wie wahrscheinlich Sie es halten, dass Ihre Freundin die Einladung zum Abendessen doch noch annimmt.

Frage 2: Geben Sie anhand der folgenden Skala an, ob Ihre gemeinsame Bekannte erkennt, dass Ihre Freundin einsam ist.

(Geschichte 3) Die folgende Geschichte befasst sich mit einer Episode aus dem Leben von „Markus Schmidt“:

Markus Schmidt ist bei seinen guten Freunden Christian und Tina zum Essen eingeladen. Während des Essens unterhalten sich die drei über einen Kinofilm, der kürzlich in den Kinos angelaufen ist. Tina schwärmt von dem Film und legt Markus dringend ans Herz, sich den Film anzuschauen. Markus geht daraufhin mit seiner Freundin ins Kino und schaut sich den Film an. Er ist allerdings gar nicht begeistert und findet den Film langweilig und die Schauspieler nicht überzeugend. Am darauf folgenden Tag schreibt er seinen Freunden Christian und Tina eine Mail mit folgendem Inhalt:

„Hallo Ihr beiden, wie geht es Euch?

Vielen Dank für das Essen am Samstag. Ich war übrigens in dem Film, den Ihr mir so empfohlen habt. Ich muss sagen, der Film war seinen Eintritt echt wert. Ich habe schon lange keinen so guten Film mehr gesehen."

Frage 1: Geben Sie bitte anhand der folgenden Skala an, ob der Inhalt der Nachricht ernst gemeint ist oder nicht.

Frage 2: Geben Sie anhand der folgenden Skala an, ob Christian und Tina erkennen, dass der Inhalt der Nachricht ernst gemeint ist oder nicht?

(Geschichte 4 Die folgende Geschichte beschreibt eine Episode aus dem Leben von „Katharina Werner". Katharina spielt Hallenhockey in der Universitätssportmannschaft ihrer Universität. Bei einem Auswärtsspiel gegen die Sportmannschaft einer anderen Universität verlieren Katharina und ihre Mannschaft sehr hoch gegen die gegnerische Mannschaft. Katharina und ihre Mannschaft fahren enttäuscht und frustriert wieder nach Hause. Am nächsten Tag schreibt Katharina ihrer besten Freundin Maike ein Mail mit folgendem Inhalt:

„Hallo Maike!

Wie geht es dir? Bei mir ist alles klar. Wir haben ja gestern wieder ein Hockeyspiel gehabt und haben es echt allen gezeigt. Wir waren unschlagbar gut und haben den Meistertitel wirklich verdient!"

Frage 1: „Geben Sie bitte anhand der folgenden Skala an, ob der Inhalt der Nachricht ernst gemeint ist oder nicht.

Frage 2: „Geben Sie anhand der folgenden Skala an, ob Maike erkennt, dass der Inhalt der Nachricht ernst gemeint ist oder nicht?

(Geschichte 5) Die folgende Geschichte beschreibt eine Episode aus dem Leben von „Johannes Schimmer". Johannes feiert an seinem Geburtstag gemeinsam mit seinen Freunden eine Geburtstagsparty. Es kommen mehr Menschen als Johannes eingeladen hat zu seiner Feier. Im Laufe des Abends wird die Stimmung unter seinen Gästen so übermütig, dass Nachbarn die Polizei rufen, da sehr laut und mit viel Alkohol gefeiert wird. Am nächsten Tag stellt Johannes zudem fest, dass seine Wohnung recht verwüstet ist durch die vorangegangene Feier. Seinem Bruder Jochen, der nicht kommen konnte, schreibt er eine Mail mit folgendem Inhalt:

„Hallo Jochen!

Schade, dass du nicht kommen konntest. Unsere Party gestern war ziemlich ruhig. Es waren leider viel weniger Leute da, als wir eingeladen hatten. Unsere Wohnung sieht dementsprechend auch noch ziemlich gut aus."

Frage 1: Geben Sie bitte anhand der folgenden Skala an, ob der Inhalt der Nachricht ernst gemeint ist oder nicht.

Frage 2: Geben Sie anhand der folgenden Skala an, ob Jochen erkennt, dass der Inhalt der Nachricht ernst gemeint ist oder nicht?

Appendix IV

Appendix III: Situational Private Self-Awareness Scale in English

Situational Private Self-Awareness
"While working on the antecedent tasks, I tried to find more out about myself."
"While working on the antecedent task, I thought reflected on myself."
"While working on antecedent tasks, I was thinking about the way I use to tackle things."
"While working on antecedent tasks, I recognized that my mood changed."
"While working on antecedent tasks, I monitored my feelings at heart."
"While working on antecedent tasks, I realized that I was monitoring myself."
"While working on antecedent tasks, I found my thoughts circling around myself."

Situational Private Self-Awareness Scale in German

Situational Private Self-Awareness

„Während der vorangegangenen Aufgaben versuchte ich, über mich selbst etwas herauszufinden.“

„Während der vorangegangenen Aufgaben dachte ich über mich nach.“

„Während der vorangegangenen Aufgaben machte ich mir Gedanken über die Art, wie ich Dinge anpacke.“

„Während der vorangegangenen Aufgaben spürte ich es, wenn sich meine Stimmung veränderte.“

„Während der vorangegangenen Aufgaben beobachtete ich meine innersten Gefühle.“

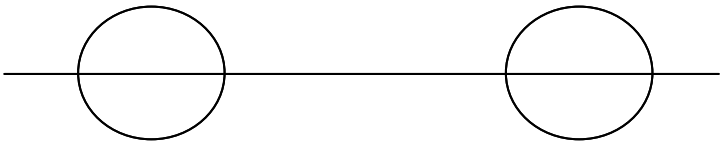
„Während der vorangegangenen Aufgaben merkte ich, wie ich mich selbst beobachtete.“

„Während der vorangegangenen Aufgaben ertappte ich mich dabei, wie meine Gedanken um mich selbst kreisten.“

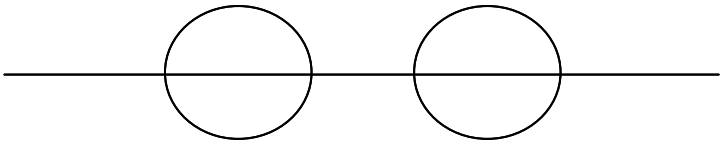
Appendix V

Adapted version of the IOS scale (Aron, et al., 1992), Example of the adapted version following Story 1 in English

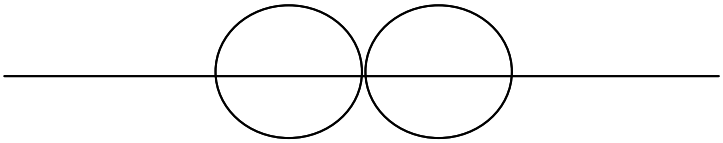
Please indicate which of the following depictions best describes the closeness between you and the fictive other target person!



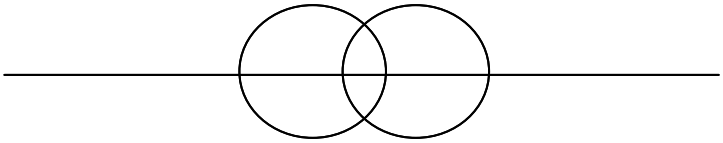
me The script owner 1



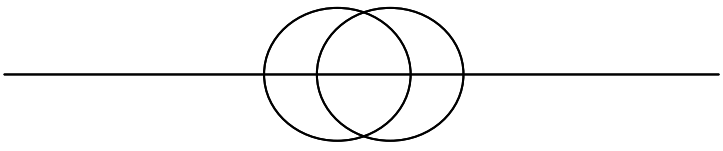
me The script owner 2



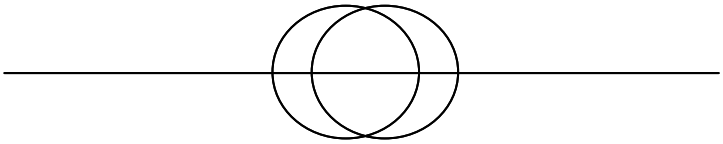
me The script owner 3



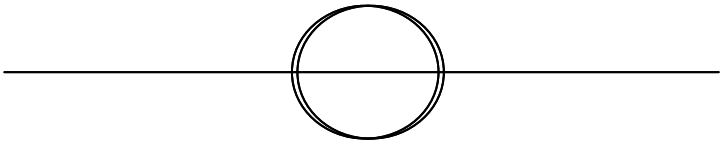
me The script owner 4



me The script owner 5



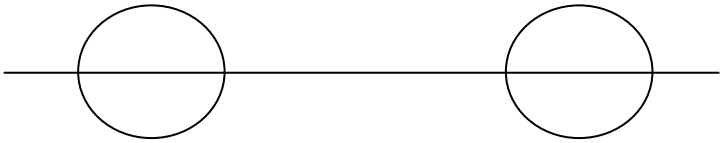
me The script owner 6



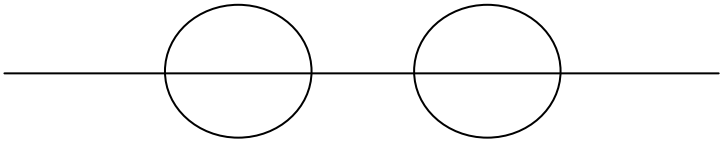
me The script owner 7

Adapted version of the IOS scale (Aron, et al., 1992), Example of the adapted version following Story 1 in German

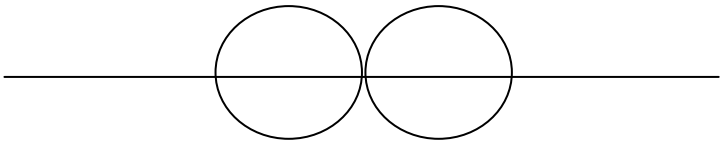
Kreuzen Sie die Darstellung an, die *Ihrer Meinung nach* am besten die Nähe zwischen sich und der anderen fiktiven Person beschreibt!



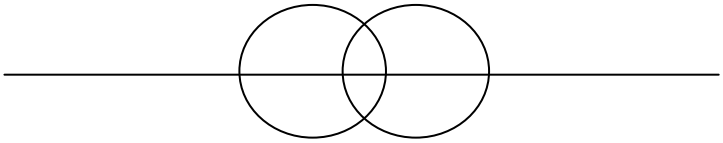
ich Der Skriptbesitzer 1



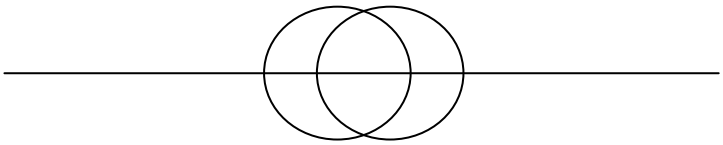
ich Der Skriptbesitzer 2



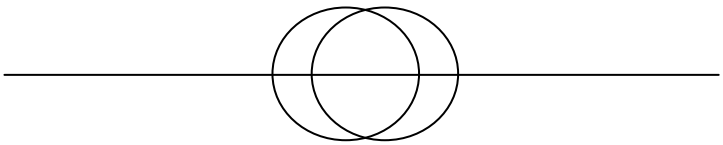
ich Der Skriptbesitzer 3



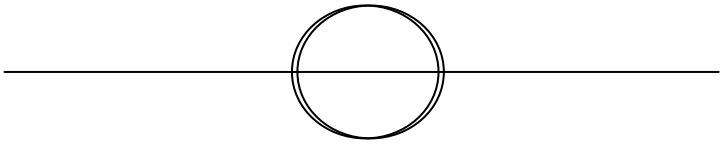
ich Der Skriptbesitzer 4



ich Der Skriptbesitzer 5



ich Der Skriptbesitzer 6



ich Der Skriptbesitzer 7

Summary

Perspective taking is essential for meaningful social interaction and communication. Perspective taking corresponds to inferring other individuals' thoughts, feelings, or perceptions and can, when being performed successfully, help to coordinate communication with others and to react adequately to their actions. Research presented in this dissertation addresses the influence of content-independent motivational determinants and a bodily grounded experience on perspective taking performance.

Taking a social-cognitive point of view, the current dissertation uses the notion of perspective taking as egocentric anchoring and adjustment (Epley, Keysar, et al., 2004) as theoretical framework for perspective taking. Accordingly, perspective taking is assumed to consist of two subsequent processes: Egocentric anchoring refers to using self-related contents (i.e., one's own perspective) to predict the perspective of others. Adjustment refers to subsequently adjusting from the egocentric anchor by considering other-related contents in order to reduce over-imputing an egocentrically biased perspective to others. What can be concluded and is crucial for the present research is that perspective taking as egocentric anchoring and adjustment implies sufficient self-other differentiation to be the underlying process of successful perspective taking. Thus, using this theoretical framework allows for deriving and testing specific predictions about determinants of successful perspective taking performance and how they operate.

The current research, now, is the first to investigate the influence of self-regulatory strategies as content-independent motivational determinants and of cold temperatures as bodily grounded experience on self-other differentiation and perspective taking performance. Thereby, this research strives to achieve the following aims: First, investigating self-regulatory influences on perspective taking assigns the individual an active role in determining how good he or she understands others' perspectives. Second, a comprehensive picture of content- independent motivational determinants of perspective taking performance will be provided given that self-regulatory strategies refer to the processes of motivation instead of to the content of motivation (Förster & Denzler, 2006). Third, by investigating how self-regulatory strategies affect self-other differentiation as the underlying process of successful perspective taking, this research aims at demonstrating specifically how perspective taking performance can be enhanced by self-.regulatory strategies. The role of self-other differentiation is sought to be further validated by investigating the influence of a bodily grounded experience of self-other differentiation on perspective taking performance.

The first empirical chapter (Chapter II) addressed the aims of investigating how self-regulatory strategies affect perspective taking performance by studying the influence of Regulatory Focus (Higgins, 1997) on perspective taking performance. Regulatory Focus implies that individuals regulate their behavior differently depending on the overarching motivational concerns that are being served. Accordingly, it is not the content of the goal but the underlying motivational concern that determines how behavior is regulated. Research presented in this chapter argued and found that individuals serving their accomplishment concerns in a promotion focus showed enhanced perspective taking performance compared to individuals serving their security concerns in a prevention focus. In contrast, individuals in a prevention focus only revealed increased attention to others. Moreover, this research demonstrated that the effect of promotion focus on perspective taking is mediated by heightened private self-awareness associated with the promotion focus. The findings suggest that heightened private self-awareness affords self-other differentiation, the underlying process of successful perspective taking: Heightened private self-awareness implies subjecting the self as an object under personal attention. Thereby, salience of the self as a distinct individual is heightened. This, in turn, facilitates self-other differentiation and thereby enhances perspective taking performance. Taken together, this research provided empirical evidence for individuals' Regulatory Focus as motivational determinant of perspective taking performance. Furthermore, by showing that a promotion focus facilitated self-other differentiation and enhanced perspective taking performance via heightened private self-awareness, this research suggests that a focus on the self can in fact facilitate understanding of others because it affords salience of differences between the self and others.

The second empirical chapter (Chapter III) again addressed how self-regulatory strategies affect perspective taking performance and investigated the influence of approach and avoidance motivational orientation on perspective taking performance. Research presented in this chapter argued and found that avoidance motivational orientation enhances perspective taking performance because it facilitates self-other differentiation by increasing distance between the self and others. Performing avoidance-related behaviors in the context of perspective taking implies increasing psychological distance between the self and the other whose perspective is at question. Given that psychological distance corresponds to interpersonal dissimilarity perception (i.e., self-other differentiation; Liviatan, et al., 2008), avoidance motivational orientation facilitated self-other differentiation and perspective taking performance. Taken together, research presented in this chapter provided further evidence of self-regulatory strategies as motivational determinants of perspective taking performance. By

demonstrating the influence of avoidance motivational orientation on self-other differentiation and perspective taking performance, this research extends research presented in Chapter II. Whereas a promotion self-regulatory strategy afforded self-other differentiation by heightened private self-awareness, avoidance motivational orientation afforded self-other differentiation and enhanced perspective taking performance by increasing psychological distance between the self and others.

Research presented in the third empirical chapter (Chapter III.a) addressed the role of self-other differentiation as underlying process of successful perspective taking by studying the influence of cold (vs. warm) temperature cues on perspective taking performance. Building upon research that has demonstrated cold temperature to induce self-other differentiation (e.g. IJzerman & Semin, 2009, 2010; Steinmetz & Mussweiler, 2011), this research argued and showed that cold temperature cues enhance perspective taking performance. Thereby, research presented in this chapter further validated the role of self-other differentiation in successful perspective taking by showing that a bodily grounded experience of self-other differentiation enhances perspective taking performance.

To conclude, research presented in this dissertation demonstrated that an individual can actively determine how good he or she understands others and their perspectives by choosing the respective self-regulatory strategy. By showing how individuals' self-regulatory strategies affect self-other differentiation and perspective taking performance, the present dissertation provides a comprehensive picture of content-independent motivational determinants of perspective taking performance and how they operate. Moreover, the role of self-other differentiation is further validated by showing that a bodily grounded experience of self-other differentiation enhances perspective taking performance. Accordingly, the present research not only contributes to literature on perspective taking but also contributes to research on self-regulation by showing that a promotion focus and avoidance motivational orientation can result in the same effect because of the social cognitive structure of the phenomenon that they affect. Research on embodied cognition is also extended as it is shown that the cognitive ability to take another's perspective is bodily grounded in cold temperature. Therewith, the present dissertation contributes to a profound understanding of how individuals construe others' minds and understand their perspectives.

Zusammenfassung

Perspektivenübernahme ist unentbehrlich für sinnvolle soziale Interaktion und Kommunikation. Perspektivenübernahme bedeutet, die Gedanken, Gefühle und Wahrnehmungen eines anderen Individuums zu erschließen und kann, wenn sie erfolgreich ist, dabei helfen, Kommunikation mit Anderen zu koordinieren und adäquat auf die Handlungen Anderer zu reagieren. Die Forschung, die in dieser Dissertation vorgestellt wird, beschäftigte sich mit dem Einfluss von inhaltsunabhängigen motivationalen Determinanten auf Perspektivenübernahme.

Die hier vorgestellte Forschung nimmt eine sozial-kognitive Perspektive ein und nutzt die die Auffassung von Perspektivenübernahme als egozentrische Verankerung und darauffolgende Anpassung als theoretischen Rahmen. Dementsprechend wird angenommen, dass Perspektivenübernahme aus zwei aufeinanderfolgende Prozessen besteht: Egozentrische Verankerung bezieht sich darauf, selbstbezogene Inhalte (d.h. die eigene Perspektive) zu nutzen, um die Perspektive eines Anderen vorherzusagen. Anpassung bedeutet, im Anschluss die egozentrische Verankerung auszugleichen, indem Inhalte, die mit dem Anderen verbunden sind, berücksichtigt werden. Auf diese Weise soll verhindert werden, dass dem Anderen eine egozentrisch verzerrte Perspektive zugeschrieben wird. Was von diesem theoretischen Rahmen abgeleitet werden kann und entscheidend für die vorliegende Forschung ist, ist dass eine ausreichende Selbst-Fremd-Differenzierung den zugrundeliegenden Prozess von erfolgreicher Perspektivenübernahme darstellt. Die Verwendung dieses theoretischen Rahmens erlaubt also, spezifische Vorhersagen über Determinanten von Perspektivenübernahme und ihrer Wirkweise abzuleiten und diese auch zu testen.

Die vorliegende Forschung untersucht nun erstmals den Einfluss verschiedener Selbstregulationsstrategien sowie den Einfluss einer körperlichen Erfahrung auf Selbst-Fremd-Differenzierung und Perspektivenübernahme. Dabei werden folgenden Ziele verfolgt: Erstens, durch die Erforschung von Einflüssen von Selbstregulationsstrategien wird Individuen eine aktive Rolle dabei zugeschrieben, wie gut sie die Perspektive eines Anderen verstehen. Zweitens, es werden Erkenntnisse über inhaltsunabhängige motivationale Determinanten von Perspektivenübernahme gewonnen, weil selbstregulatorische Strategien sich auf Prozesse der Motivation und nicht auf ihren Inhalt beziehen (Förster & Denzler, 2006). Drittens, durch die Erforschung der Wirkweise von Selbstregulationsstrategien auf Selbst-Fremd-Differenzierung und Perspektivenübernahme versucht diese Forschung zu zeigen, auf welche Weise Perspektivenübernahme durch Selbstregulationsstrategien

beeinflusst werden kann. Die Bedeutung von Selbst-Fremd-Differenzierung soll dadurch weiter validiert werden, dass der Einfluss eines körperlich verankerten Erlebens von Selbst-Fremd-Differenzierung auf Perspektivenübernahme untersucht wird.

Das erste empirische Kapitel (Kapitel 2) beschäftigte sich damit, zu erforschen, wie Selbstregulationsstrategien Perspektivenübernahme beeinflussen, indem der Einfluss des Regulatorischen Fokus (Higgins, 1997) auf Perspektivenübernahme untersucht wurde. Die Theorie des Regulatorischen Fokus besagt, dass Individuen ihr Verhalten unterschiedlich regulieren in Anhängigkeit davon, welches zugrundeliegende motivationale Bedürfnis bedient wird. Dementsprechend entscheidet nicht der Inhalt des Ziels sondern das zugrundeliegende motivationale Bedürfnis, wie Verhalten reguliert wird. Die in diesem Kapitel vorgestellt Forschung zeigte, dass Individuen, die ihr Bedürfnis nach Leistung im Promotion Fokus bedienen bessere Perspektivenübernahme zeigen als Individuen, die ihr Bedürfnis nach Sicherheit im Prevention Fokus bedienen. Demgegenüber zeigen Individuen im Prevention Fokus lediglich eine erhöhte Aufmerksamkeit gegenüber Anderen. Darüber hinaus belegte diese Forschung, dass der Einfluss des Promotion Fokus auf Perspektivenübernahme durch eine erhöhte private Selbstaufmerksamkeit, die mit dem Promotion Fokus einher geht, mediiert wird. Die Ergebnisse legen nahe, dass erhöhte private Selbstaufmerksamkeit Selbst-Fremd-Differenzierung ermöglicht, weil sie beinhaltet, dass die eigene Person als Objekt der eigenen Aufmerksamkeit unterworfen wird. Hierdurch wird die Salienz der eigenen Person als distinktes Individuum gesteigert. Das wiederum erleichtert Selbst-Fremd-Differenzierung und damit Perspektivenübernahme. Zusammenfassend liefert diese Forschung empirische Evidenz für den Regulatorischen Fokus eines Individuums als inhaltsunabhängige motivationale Determinante von Perspektivenübernahme. Dass im Promotion Fokus Perspektivenübernahme durch erhöhte private Selbstaufmerksamkeit verbessert wird, zeigt weiterhin, dass ein Fokus auf die eigene Person tatsächlich das Verständnis für Andere verbessern kann, weil die Salienz von Unterschieden zwischen sich und Anderen erhöht wird.

Das zweite empirische Kapitel (Kapitel 3) beschäftigte sich ebenfalls damit, wie Selbstregulationsstrategien Perspektivenübernahme beeinflussen und erforschte den Einfluss von motivationaler Annäherungs- und Vermeidensorientierung auf Perspektivenübernahme. Die in diesem Kapitel vorgestellte Forschung fand heraus, dass eine motivationale Vermeidensorientierung Perspektivenübernahme verbessert, weil sie Selbst-Fremd-Differenzierung durch erleichtert, dass die psychologische Distanz zwischen der eigenen Person und dem Anderen erhöht wird. Das Ausführen von Vermeidens-bezogenen Verhaltensweisen im Kontext von Perspektivenübernahme beinhaltet, die psychologische

Distanz zwischen sich und dem Anderen, dessen Perspektive zur Frage steht, zu vergrößern. Da psychologische Distanz der Wahrnehmung interpersonaler Unterschiede (d.h. Selbst-Fremd-Differenzierung, Liviatan, et al., 2008) entspricht, erleichterte eine motivationale Vermeidensorientierung Selbst-Fremd-Differenzierung sowie Perspektivenübernahme. Zusammengefasst liefert die in diesem Kapitel vorgestellte Forschung weitere empirische Evidenz für den Einfluss von Selbstregulationsstrategien auf Perspektivenübernahme. Die Erforschung des Einflusses von motivationaler Vermeidensorientierung auf Selbst-Fremd-Differenzierung erweitert die in Kapitel 2 vorgestellte Forschung. Während im Promotion Fokus Selbst-Fremd-Differenzierung durch einen verstärkten Fokus auf die eigene Person ermöglicht wird, fördert eine motivationale Vermeidensorientierung Selbst-Fremd-Differenzierung und Perspektivenübernahme durch erhöhte psychologische Distanz zwischen der eigenen Person und dem Anderen.

Die im dritten empirischen Kapitel (Kapitel 4) vorgestellte Forschung beschäftigte sich mit Selbst-Fremd-Differenzierung als dem Prozess, der erfolgreicher Perspektivenübernahme zugrunde liegt, indem der Einfluss von kalten (vs. warmen) Temperaturen auf Perspektivenübernahme untersucht wurde. Aufbauend auf Befunden, die gezeigt haben, dass kalte Temperaturen Selbst-Fremd-Differenzierung hervorrufen (z.B. IJzerman & Semin, 2009; 2010; Steinmetz & Mussweiler, 2011), belegte diese Forschung nun, dass kalte Temperaturen Perspektivenüberahme verbessern. Dadurch validiert diese Forschung die Bedeutsamkeit von Selbst-Fremd-Differenzierung für erfolgreiche Perspektivenübernahme, weil sie zeigt, dass eine körperlich verankerte Erfahrung von Selbst-Fremd-Differenzierung Perspektivenübernahme verbessert.

Zusammenfassend belegt die in dieser Dissertation präsentierte Forschung, dass Individuen aktiv dazu beitragen können, wie gut sie Andere und deren Perspektive verstehen, indem sie die jeweilige Selbstregulationsstrategie auswählen. Die vorliegende Dissertation zeichnet zudem ein umfassendes Bild von inhaltsunabhängigen motivationalen Determinanten von Perspektivenübernahme und ihrer Wirkweise, indem sie darstellt, wie die selbstregulatorischen Strategien eines Individuums Selbst-Fremd-Differenzierung und Perspektivenübernahme beeinflussen. Des Weiteren wird die Bedeutsamkeit von Selbst-Fremd-Differenzierung validiert, indem gezeigt wird, dass ein körperlich verankertes Erleben von Selbst-Fremd-Differenzierung Perspektivenübernahme verbessert. Dementsprechend erweitert die vorliegende Forschung nicht nur Literatur zu Perspektivenübernahme. Sie leistet auch einen Beitrag zur Forschung zu Selbstregulationsstrategien, weil sie darstellt wie sowohl der Promotion Fokus als auch eine motivationale Vermeidensorientierung die gleichen

Effekte zeitigen können aufgrund der sozial-kognitiven Struktur des Phänomens, das sie beeinflussen. Forschung zur körperlichen Verankerung von Kognitionen wird ebenfalls erweitert, da gezeigt wird, dass die kognitive Fähigkeit, die Perspektive eines Anderen zu übernehmen, körperlich verankert ist in der Erfahrung kalter Temperaturen. Auf diese Weise leistet die vorliegende Dissertation einen Beitrag zu einem umfassenden und tiefgreifenden Verständnis davon, wie Individuen die Perspektive Anderer verstehen.

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