When Trying to Understand Detracts From Trying to Behave: Effects of Perspective Taking in Intergroup Interaction

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Four studies demonstrate that perspective taking can backfire in intergroup interaction, leading lower prejudice individuals to treat an outgroup member less positively than they do when they adopt alternative mind-sets; for higher prejudice individuals, perspective taking instead had a positive, albeit less consistent, effect on behavior. The net result was behavior disruption, whereby individuals’ treatment of an outgroup member became incongruent with their inner attitudes. This disruption effect was evident for cognitive and affective forms of perspective taking, in ostensible and real face-to-face intergroup interactions, and for feelings of happiness experienced by individuals’ interaction partner as well as outside observers’ behavior assessments. Results further suggested that self-regulatory effort mediated the effect of perspective taking on intergroup interaction behavior, with the negative consequences of perspective taking for lower prejudice individuals’ behavior appearing to stem from complacency rather than trying too hard. Overall, the findings reveal that perspective taking rather than self-focus accounts for the cognitive resource depletion and behavior disruption effects previously demonstrated to stem from evaluative concern in intergroup interaction and indicate that perspective taking may be more reliably helpful outside of intergroup interaction situations than within them.

*Keywords:* perspective taking, intergroup interaction, meta-stereotypes, metaperceptions, evaluative concern

There are a variety of reasons why trying to take another person’s perspective and to understand his or her inner feelings should be beneficial for interpersonal relationships. For example, perspective taking can foster enhanced closeness with another person in the form of self—other merging (Davis, Conklin, Smith, & Luce, 1996), more generous (i.e., situational) attributions for negative outcomes the person experiences (Gould & Sigall, 1977), and more helpful and supportive behavior (Toi & Batson, 1982). Thus, it would seem to be a very good thing for people to tell themselves (and others) to try to do during social interaction.

In view of the unwarranted negative expectations and heightened potential for miscommunication that often characterize exchanges between members of different groups (e.g., Mallett, Wilson, & Gilbert, 2008; Vorauer, 2005), perspective taking would seem apt to be especially helpful in intergroup contexts. And indeed, numerous studies have documented substantial benefits of perspective taking for intergroup judgments and attitudes (Dovidio et al., 2004; Galinsky & Moskowitz, 2000; Vescio, Sechrist, & Paolucci, 2003). However, none of this work has examined actual intergroup interaction. Instead, research to date has focused on individuals’ reactions to an outgroup member who has had no personal contact with them and where there is thus little potential for evaluation.

The general hypothesis guiding the present research was that perspective taking has ironic, undesirable consequences in intergroup interaction because here efforts to appreciate an outgroup member’s point of view quickly lead individuals to contemplate how the outgroup member sees them. In the context of an actual interaction situation, one of the very first things that individuals may see when they try to look through an outgroup member’s eyes is themselves. The desire to know what the outgroup member will see may then lead individuals to consider meta-stereotypes about how the outgroup views the ingroup in the hope of gaining some insight into how they will be viewed (Frey & Tropp, 2006; Vorauer, 2006; Vorauer, Main, & O’Connell, 1998). For example, in one study White Canadians who anticipated interacting with an Aboriginal Canadian activated traits such as *prejudiced* and *closed-minded*, which were part of their meta-stereotype regarding how their group was viewed by Aboriginal Canadians but not part of their self-concept (Vorauer, Hunter, Main, & Roy, 2000).

Previous research indicates that when meta-stereotypes are activated, they guide the metaperceptions that individuals form about how they personally will be perceived in systematic ways that depend on their level of prejudice. Lower prejudice individuals expect that they will ultimately be contrasted with the negative stereotype of their group (e.g., as different from “most White people”) and viewed positively, whereas higher prejudice individuals expect that they will be assimilated to the stereotype and viewed unfavorably (see Vorauer et al., 1998, 2000). These divergent metaperceptions, which are not corroborated by out-
group members’ actual impressions (Vorauer & Kumhyr, 2001), are thought to arise as a function of factors such as lower and higher prejudice individuals’ different levels of attachment to their ingroup and the differing distance between their self-concepts and the meta-stereotype. In sum then, trying to take an outgroup member’s perspective during intergroup interaction should lead both lower and higher prejudice individuals to form divergent metaperceptions, each biased by the meta-stereotype in a different direction.

In the current studies, we examined the possibility that perspective taking has important implications for the effort that lower and higher prejudice individuals devote to managing their behavior in intergroup interaction because of the biased metaperceptions it fosters. Specifically, we predicted that perspective taking leads lower prejudice individuals to behave less positively toward an outgroup member as a function of basking in the glory of the favorable impression they imagine that he or she will form of them: If perspective taking has a reassuring effect on these individuals, prompting them to feel comfortable in the assumption that they will be viewed favorably, it should diminish the effort they make to convey egalitarian attitudes and warm feelings. In contrast, perspective taking may prompt higher prejudice individuals to behave more positively: If considering an outgroup member’s point of view focuses higher prejudice individuals on the possibility that they might be judged negatively, in terms of the stereotype of their group, it should lead them to work to prevent this from happening. The net result of these divergent levels of effort should be behavior disruption, whereby individuals’ treatment of an outgroup member becomes less congruent with their inner attitudes.

**Does Self-Versus Other-Focus Matter? Effects of Evaluative Concern**

The behavior disruption pattern that we predict will result from perspective taking in intergroup interaction is parallel to previously documented consequences of evaluative concern. A series of experiments by Vorauer and Turpie (2004) demonstrated that being preoccupied with how they were viewed decreased the intimacy-building behaviors (e.g., positive other-directed remarks, intimate self-disclosures) that lower prejudice individuals exhibited and increased the intimacy-building behaviors that higher prejudice individuals exhibited during an exchange with an outgroup member. Notably, positive effects on higher prejudice individuals proved more variable than negative effects on lower prejudice individuals and seemed to be particularly contingent on favorable conditions, such as the concerns being invoked in a manner that did not also trigger defensiveness.

Because evaluative concern involves looking at oneself through another person’s eyes, it explicitly and directly combines perspective taking with self-focus. It is quite possible that the disruptive effect of evaluative concern stems from the self-focus it involves. For example, research has shown that when people are self-focused, they feel more transparent (Gilovich, Savitsky, & Medvec, 1998; Vorauer & Ross, 1999): They perceive what is salient and accessible to them as salient and readily accessible to others. In the intergroup case, this could lead to behavior disruption if lower prejudice individuals perceive that their positive feelings are obvious (so why bother trying to convey them?), and higher prejudice individuals feel the need to try to cover up their ostensibly apparent negative feelings. If the disruptive effect of evaluative concern does stem from the self-focus it involves, a pure, other-focused form of perspective taking that directs individuals to focus on the outgroup member’s inner thoughts and feelings might have favorable effects consistent with the numerous previously documented benefits of perspective taking on intergroup judgments and attitudes. That is, perspective taking without the encumbrance of self-focus might generate warmer feelings toward the outgroup member and concomitant positive behavior.

However, on the basis of the strength of individuals’ motive to accurately understand how they are viewed by others (Leary & Downs, 1995), the close connection between perspective taking and meta-stereotype activation (Lammers, Gordijn, & Otten, in press), and the numerous mechanisms through which stereotype activation might affect behavior (see Wheeler & Petty, 2001), we considered it more plausible that perspective taking rather than self-focus accounts for the disruptive effects of evaluative concern. If perspective taking is indeed the active ingredient, even highly other-focused perspective-taking instructions—such as those used in previous work documenting salutary effects of perspective taking on intergroup attitudes and judgments—should trigger behavior disruption.

We tested this hypothesis in the present research by separately manipulating the person on whom participants were asked to focus (self or other) and the perspective they were asked to adopt (own or other’s) during an intergroup exchange. This basic 2 × 2 design results in the creation of the four key kinds of social awareness, or mind-sets, depicted in Table 1 (see Sheldon & Johnson, 1993). If it is self-focus that drives the effects of evaluative concern, then behavior disruption should be evident for both private self-awareness and evaluative concern. If instead it is perspective taking, as we hypothesize, behavior disruption should be evident for both other-focused perspective taking and evaluative concern.

**Divergent Effort or Enhanced Mindfulness?**

The *divergent effort* account for the link between perspective taking and behavior disruption maintains that individuals’ metaperceptions about how they are apt to be viewed guide the effort they devote to presenting themselves positively to outgroup members. This account is consistent with research and theory on meta-stereotypes emphasizing that individuals activate these knowledge structures for prediction and behavior planning purposes. However, according to an alternative *enhanced mindfulness* account for behavior disruption, considering multiple perspectives on their behavior and stopping to assess whether they might inadvertently confirm stereotypes about their group leads individuals away from doing what comes naturally, which is beneficial for those higher but not lower in prejudice: Working to avoid confirming the

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stereotype leads lower prejudice individuals to be cautious and inhibit even positive behaviors but leads higher prejudice individuals to inhibit negative reactions they would otherwise have exhibited. This account draws on the findings of numerous previous studies showing that lower and higher prejudice individuals hold similar meta-stereotypes and activate them to the same extent when there is the potential for evaluation by an outgroup member (Vorauer et al., 1998, 2000). It is consistent with research and theory maintaining that the fear of confirming stereotypes of their group generally prompts individuals to seek to avoid being stereotype-typed (Goff, Steele, & Davies, 2008; Steele, Spencer, & Aronson, 2002) as well as previous interpretations of the behavior disruption effect (Vorauer & Turpie, 2004).

We tested the viability of these different accounts for the behavioral consequences of perspective taking by including measures of the self-regulatory effort that individuals exerted during intergroup interaction. As both accounts suggest that perspective taking leads to greater effort by higher prejudice individuals, our test centered on lower prejudice individuals. Specifically, we assessed whether any negative effect of perspective taking on lower prejudice individuals’ behavior was accompanied by their trying too hard (enhanced mindfulness account) or by their seeming to feel that they did not need to try at all (divergent effort account).

Overview

Our first three studies all involved interactions with an ostensible partner that occurred via the exchange of written or audiotaped information. In these studies we used a 2 (focus: self vs. other) × 2 (perspective: own vs. other’s) design to test our hypothesis that perspective taking exerts a disruptive effect on intergroup interaction behavior regardless of whether it is accompanied by a focus on self or other. Study 1 focused exclusively on intergroup interaction and included questions assessing the effectiveness of the experimental manipulations. In Study 2, we added an intragroup control condition, so as to demonstrate the specificity of the effects to individuals’ reactions to outgroup members. In Study 3, we added the Stroop color-naming task to assess resource depletion following the interaction and thereby assess the viability of the divergent effort and enhanced mindfulness accounts for the effects of perspective taking on intergroup interaction behavior.

The form of perspective taking examined in the first three studies was cognitive in nature, in that it involved relatively intellectual reactions and efforts to accurately understand another person’s inner thoughts and feelings. Study 4 involved real face-to-face intergroup interaction and examined a more affective form of perspective taking involving emotional reactions to another person’s feelings and experiences. In this last study, we assessed metaperceptions and impressions along with self-regulatory effort to further evaluate the relative plausibility of the divergent effort and enhanced mindfulness accounts.

Study 1

Study 1 was designed to provide an initial test of our hypothesis regarding the negative behavioral consequences of perspective taking in intergroup interaction. Participants, who had previously completed McConahay, Hardee, and Batts’ (1981) Modern Racism Scale (MRS), engaged in a brief controlled interaction with an ostensible partner in the study who was an outgroup member. Immediately before the interaction, they were led to adopt one of the four forms of social awareness created by the 2 (focus on self vs. other) × 2 (own vs. other’s perspective) design. Coders judged the intimacy-building behavior that participants exhibited.

The instructions for private self-awareness were similar to those used in previous work to instantiate this state (e.g., Prentice-Dunn & Rogers, 1982; Webb, Marsh, Schneiderman, & Davis, 1989), as were the instructions for impression formation (e.g., Hoffman, Mischel, & Mazze, 1981; Jeffery & Mischel, 1979). The instructions for the other two forms of social awareness were more novel. Specifically, although the evaluative concern instructions were somewhat similar to those used by Vorauer and Turpie (2004), the present manipulation avoided any specific reference to ethnicity. The other-focused perspective-taking instructions were unique in specifying that individuals should focus on trying to understand their partner’s feelings about and perceptions of him- or herself. These instructions specifying the partner as the focus of judgment were designed to be true to the 2 × 2 design and to clearly distinguish other-focused perspective taking from evaluative concern.

Ensuring the effectiveness of this type of manipulation is complicated by difficulties that individuals may have in providing accurate self-reports about cognitive processes (Nisbett & Wilson, 1977; see also Vorauer & Turpie, 2004). Nonetheless, we administered a series of direct questions to examine the states that individuals reported experiencing subsequent to the manipulations, with a particular focus on the more novel evaluative concern and other-focused perspective-taking instructions. It is reassuring that previous research has shown that instructions parallel to those adopted here for inducing private self-awareness and impression formation are effective in triggering theoretically expected results (e.g., Hoffman et al., 1981; Jeffery & Mischel, 1979; Prentice-Dunn & Rogers, 1982; Webb et al., 1989). Finally, because of its close connection to evaluative concern, we assessed individual differences in public self-consciousness as a potential covariate.

Method

Participants

Participants were 73 White Canadians (36 men, 37 women) who were recruited from introductory psychology classes to take part in the study in exchange for partial course credit. Participants had all previously completed a mass testing survey and had indicated being White and 40 years old or younger. The mass testing survey included the MRS, adapted for a Canadian context (i.e., references to “ethnic minorities” replaced references to “black people”; \( M = 4.30, SD = 1.41, \alpha = .77 \)), and the Fenigstein, Scheier, and Buss (1975) Public Self-Consciousness Scale (PSCS; \( M = 6.32, SD = 1.52, \alpha = .74 \)); in each case, a 10-point response scale was used where 1 = strongly disagree and 10 = strongly agree. Participants were randomly assigned to one of the four conditions created by the 2 (perspective: own vs. partner’s) × 2 (focus: self vs. partner) design. Participant ages ranged from 17 to 40 years (\( M = 21.62, SD = 5.35 \)).

Procedure

Participants arrived in the laboratory on an individual basis for a study of “first meeting situations.” The White female experi-
menter informed participants that the researchers were interested in how perceptions in first meeting situations are affected by the kind of information that is exchanged between two people. Osten-
sibly, there was another participant in their session in a room down the hall with whom they would exchange written personal information, and they would have the option of meeting the other participant face-to-face at the end of the session if both of them were interested in doing so.

Participants’ first task was to fill out a brief personal information sheet that included demographic questions (i.e., age, sex, and ethnicity) as well as two questions about their personal qualities (e.g., “What personal qualities are important to how you see yourself?”). The experimenter left participants for 10 min to complete the sheet. When she returned, she had their partner’s completed sheet for them to read and ostensibly took their completed sheet to their partner. Their partner’s sheet indicated that he (“Eric”) or she (“Susan”) was the same sex as the participant and Aboriginal Canadian. The answers to the personal qualities questions were typical of the kinds of answers that most students provide on such questions. The experimenter left participants alone for a few minutes to read their partner’s answers.

Participants’ next task was to answer a second, more extensive, personal information sheet. The experimenter explained that participants would exchange this sheet with their partner in the same way as they had exchanged the first. Participants were informed that they could answer the questions in as much or as little detail as they liked and that if it seemed appropriate to them they could directly refer to their partner (e.g., his or her answers on the first sheet) as they would in an actual conversation. Just before leaving them to answer the questions, the mind-set manipulation was administered. The experimenter told participants:

In questionnaires that you will be completing a bit later, we are asking different participants different kinds of questions about the exchange. We have found that it is useful to give participants a bit of warning about the kinds of things that they will be asked about, as it helps them to pay attention to and remember information relevant to the questions.

The script that she followed next depended on participants’ experimental condition. Those in the other-focused perspective-taking condition (partner’s perspective, partner focus) were told that they would later be asked about their partner’s current feelings about and perceptions of him- or herself. Specifically, the experimenter informed them:

The questionnaires that you will be asked to complete later will focus on the other participant’s current feelings about and perceptions of him/herself. We are interested in whether people can accurately estimate another person’s self-evaluations in a situation like this. For example, can you predict whether the other participant will feel positively or negatively about him/herself?

Participants in the other conditions received parallel mind-set-congruent instructions. Specifically, those in the evaluative concern condition (partner’s perspective, self-focus) were told that they would later be asked about their partner’s likely feelings toward and impressions of them. Those in the impression formation condition (own perspective, partner focus) were told that they would later be asked about their feelings toward and impressions of their partner. Those in the private self-awareness condition (own perspective, self-focus) were told that they would later be asked about their current feelings about and perceptions of themselves. Participants were all encouraged to “please keep this in mind so that you will be prepared to answer the questions on the questionnaire.” In all cases, we avoided explicit reference to the mind-set labels.

Participants were left alone for up to 15 min to complete the second personal information sheet. After an initial question that gave participants an opportunity to expand on their responses to the items on the first sheet, two questions from Aron, Melinat, Aron, Valone, and Bator’s (1997) closeness-inducing procedure were presented (“If you knew that in one year you would die suddenly, would you change anything about the way you are now living? Why?” and “If you could change anything about the way you were raised, what would it be? Why?”). The experimenter then gave participants the questionnaire, assuring them of the confidentiality of their responses. Afterwards, participants were thanked and thoroughly debriefed.

Dependent Measures

Manipulation checks. The questionnaire began with an opened-ended question, designed to reinforce the cover story, on the topic that the manipulation told them to expect. For example, participants in the other-focused perspective-taking condition were asked to describe their partner’s likely current feelings about and perceptions of him- or herself. Next, they self-reported the extent to which they experienced evaluative concern (“I was focused on the other participant’s evaluation of me”), engaged in other-focused perspective taking (“I was focused on the other participant’s evaluation of him/herself”), experienced private self-awareness (“I was focused on my evaluation of myself”), and engaged in impression formation (“I was focused on my evaluation of the other participant”) as they completed the second personal information sheet. Responses to the private self-awareness item were submitted to a reciprocal transformation to reduce negative skew and reverse-scored to preserve the appropriate direction (the predicted values reported are back-transformed). Participants indicated their agreement with the items on 7-point scales where 1 = strongly disagree and 7 = strongly agree.

Intimacy-building behavior. Three White independent coders (two women, one man) who were blind to participants’ prejudice score and experimental condition (true of all coders in this research) reviewed participants’ answers to the second set of personal questions and made judgments about the intimacy-building behaviors that were exhibited. The coders were provided with all of the information and instructions that were given to participants.

Coders made seven different types of judgments that were combined together to form an overall intimacy-building behavior index (see Vorauer & Turpie, 2004). Using 7-point scales on which higher numbers reflected greater endorsement, the coders rated how much liking participants communicated to their partner, how attentive they were to their partner’s comments, how much they seemed to feel similar to their partner, and how responsive they had been to their partner. They also rated the breadth of participants’ self-disclosures and how prejudiced they seemed to be (reverse-scored). Finally, they counted the number of specific positive other-directed remarks that participants made; these were square-root transformed to reduce positive skew.
These judgments were made separately for each of the two questions. Coders’ judgments were then standardized and averaged together (α = .82).

Results

All dependent measures were analyzed in multiple regression, with public self-consciousness, sex (male = −1, female = 1), and age (which was highly variable) included as covariates, as preliminary analyses revealed significant or marginal effects for these variables. Predicted values for effects involving continuous variables were computed at one standard deviation below and above the mean. Throughout the article, all significant effects are reported.

Manipulation Checks

The analysis of responses to the manipulation check items included perspective (own = −1, partner’s = 1), focus (self = −1, partner = 1), and the interaction between these variables as predictors. For self-reports of other-focused perspective taking, a Focus × Perspective interaction was evident, b = 0.46, β = .26, t(64) = 2.22, p < .05. Simple effects analyses revealed that the focus effect was significant within the partner-perspective conditions, Ȳs = 2.49 and 3.84 for evaluative concern and other-focused perspective taking, respectively, b = 0.67, t(64) = 2.25, p < .05, but not across the own-perspective conditions, Ȳs = 3.13 and 2.63 for private self-awareness and impression formation, respectively (b = −0.25, t < 1). A further specific contrast confirmed that higher levels were reported in the other-focused perspective-taking condition than in the three other conditions combined, b = 0.54, β = .27, t(66) = 2.30, p = .025. Thus, other-focused perspective taking was successfully and uniquely instantiated in the appropriate condition.

For self-reported evaluative concern a main effect for perspective was evident, b = 0.54, β = .31, t(64) = 2.62, p = .01, whereby those in the partner’s-perspective conditions reported greater evaluative concern (Ȳ = 3.83) than those in the own-perspective conditions (Ȳ = 2.75). That is, other-focused perspective taking and evaluative concern instructions both led participants to experience enhanced evaluative concern. There was also a main effect whereby individuals scoring higher in public self-consciousness reported more evaluative concern, b = 0.27, β = .24, t(64) = 1.98, p = .05. In sum, participants who received the other-focused perspective-taking instructions reported both enhanced other-focused perspective taking and evaluative concern.

For self-reports of private self-awareness, a main effect for focus was evident, b = −0.16, β = −.25, t(64) = 2.09, p < .05, whereby those in the self-focus conditions reported greater private self-awareness (Ȳ = 6.51) than those in the partner-focus conditions (Ȳ = 6.05). There were no effects for self-reported impression formation. There were no effects for prejudice or its interaction with the manipulations when these terms were included in the analyses.

Intimacy-Building Behavior

The analysis of intimacy-building behavior included prejudice (centered), perspective (own = −1, partner’s = 1), focus (self = −1, partner = 1), and all interactions between these variables as predictors. Results indicated a Prejudice × Perspective interaction, b = 0.08, β = .25, t(62) = 2.21, p < .05. In line with predictions, simple effects analyses revealed that trying to adopt their Aboriginal partner’s perspective disrupted the connection between participants’ prejudice and intimacy-building behavior. Whereas in the own-perspective condition there was a negative relationship between prejudice and intimacy-building behavior, Ȳs = 0.19 and −0.12 for lower and higher prejudice individuals respectively, b = −0.11, t(62) = 2.18, p < .05, this relationship was eradicated in the partner’s-perspective condition, respective Ȳs = −0.04 and 0.11, b = 0.05, t(62) = 1.08, ns. The simple effects of perspective for lower and higher prejudice individuals were in the predicted direction but not significant, b = −0.11, t(62) = 1.50, p < .14, and b = 0.12, t(62) = 1.63, p < .11, respectively. There was also a main effect for sex, b = 0.26, β = .29, t(62) = 2.55, p = .01. The absence of any effects for the focus manipulation indicated that other-focused perspective taking and evaluative concern had similar behavioral effects.

Discussion

The results of this initial study were consistent with our hypothesis that perspective taking exerts a disruptive effect on intergroup interaction behavior: In the own-perspective conditions, participants’ prejudice scores were negatively related to the intimacy-building behavior that they exhibited, but in the partner’s-perspective conditions they were not. Importantly, the behavioral effects of other-focused perspective taking were the same as those of evaluative concern, even though the manipulation check results indicated that other-focused perspective taking was successfully and uniquely instantiated in the appropriate condition.

The manipulation check results for the other mind-sets did not show similarly clear one-on-one mappings across conditions. To some extent, this was anticipated on the basis of the difficulties that individuals have in providing accurate self-reports about cognitive processes (Nisbett & Wilson, 1977). However, the fact that self-reported evaluative concern was elevated across the evaluative concern and other-focused perspective-taking conditions fits with our contention that even explicitly other-focused efforts to take another person’s perspective readily turn egocentric in an interaction context. We consider evaluative concern and perspective taking to be mutually reinforcing during intergroup exchanges. Individuals who are preoccupied with evaluation may engage in perspective taking because knowing how an outgroup member sees him- or herself or someone else might help them estimate how they themselves are viewed (Vorauer, 2006). Perspective taking may trigger evaluative concern in a more bottom-up fashion, as individuals who put themselves in an outgroup member’s shoes then see themselves and wonder how they appear to the outgroup member. Indeed, although the preoccupation involved in evaluative concern is not required, we believe that biased metaperceptions that result from at least considering an outgroup member’s probable impressions account for the behavior disruption that was triggered by the other-focused perspective-taking instructions in this study.

1 Degrees of freedom fluctuate because of missing data on some measures.
The focus effect on self-reported private self-awareness, which indicated that individuals in the self-focus conditions did focus more on themselves than did those in the partner-focus conditions, renders the lack of behavioral effects for the focus manipulation more meaningful. Alongside these results, the fact that behavior disruption was triggered by the perspective rather than the focus manipulation suggests that perspective taking is critical to the behavior disruption effect. This conclusion, as well as the potential role of biased metaperceptions, would be reinforced if the results were shown to be specific to intergroup interaction. Study 2 was designed to accomplish this objective. Another goal of Study 2 was to demonstrate that the effects obtained in Study 1 extend beyond purely verbal (i.e., written) behavior to situations where individuals emit verbal and nonverbal cues (e.g., tone of voice, speech disfluencies, pauses, and speed of speech).

Study 2

Study 2 followed the same design as Study 1 except for the addition of an intragroup comparison condition, which allowed us to examine whether perspective taking led individuals to direct different levels of intimacy-building behavior toward an outgroup as compared with an ingroup member. By adopting this approach we were able to address the possibility that the disruption pattern documented in Study 1 might have had nothing to do with the intergroup nature of interaction: Perhaps it instead reflected lower and higher prejudice individuals’ general responses—such as feeling distracted or uncertain—to engaging in the cognitive activity of perspective taking. We did not expect this to be the case. Rather, we hypothesized that the partner’s-perspective mind-sets would lead lower prejudice individuals to treat an outgroup member less positively than an ingroup member and that any effect for higher prejudice individuals would run in the opposite direction. Accordingly, we planned to test our predictions in terms of the intergroup/intragroup contrast within the various cells of the design. To allow the possibility of nonverbal communication, we also modified the procedure so that participants audiotaped rather than wrote down their answers to the second personal information sheet in what constituted the controlled interaction.

Method

Participants

Participants were 159 White Canadians (81 men, 78 women) who were recruited from introductory psychology classes to take part in the study in exchange for partial course credit. Participants had all previously completed a mass testing survey and had indicated being White and 40 years old or younger. The mass testing survey included the same scales as in Study 1 (MRS, $M = 4.09, SD = 1.35, \alpha = .77$; PSJCS, $M = 6.29, SD = 1.60, \alpha = .78$). Participants were randomly assigned to one of the eight conditions created by the 2 (perspective: own vs. partner) $\times$ 2 (focus: self vs. partner) $\times$ 2 (partner’s ethnicity: ingroup vs. outgroup member) design. Participant ages ranged from 17 to 26 years ($M = 19.29, SD = 1.84$).

Procedure

The procedure was the same as that followed in Study 1 except for two modifications. First, participants responded on audiotape rather than in writing when answering the second, more extensive, set of personal questions. Participants were given up to 5 min to record their answers and were left alone to do the recording. An additional question from Aron et al.’s (1997) procedure was included (“If a crystal ball could tell you the truth about yourself, your life, the future, or anything else, what would you want to know? Why?”), such that there were three in all. Second, the ostensible partner’s ethnicity was experimentally manipulated to be White or Aboriginal Canadian. This was accomplished by varying the partner’s answer to the relevant demographic question on the first brief personal information sheet.

Intimacy-Building Behavior

As in Study 1, three White independent coders (two women, one man) reviewed participants’ answers to the second set of personal questions and made judgments about the intimacy-building behaviors that were exhibited. The coders made the same judgments as in Study 1, with three modifications. First, because of complications introduced by the manipulation of the ostensible partner’s ethnicity (to which coders were blind), prejudice ratings were not included. Second, as the audiotape procedure allowed us to assess the time that participants spent giving their answers, the total time that they spent speaking was included in the intimacy-building behavior index. Finally, coders made their judgments with respect to the entire set of answers rather than question by question. Once again, coders’ judgments were standardized and averaged together ($\alpha = .96$).

Results

Three participants who did not follow instructions for the audiotaping procedure were excluded from analyses. Six participants who expressed strong suspicion about whether the ostensible other participant was really present were also excluded, such that the final sample included 150 participants (74 men, 76 women).

Intimacy-building behavior was analyzed in multiple regression with prejudice (centered), perspective (own = −1, partner’s = 1), focus (self = −1, partner = 1), partner’s ethnicity (ingroup member = −1, outgroup member = 1), and all interactions between these variables as predictors. As preliminary analyses revealed no effects for any of the covariates used in Study 1 ($r < 1$), they were not retained. Predicted values for effects involving prejudice were computed at one standard deviation below and above the mean. The analysis yielded a Prejudice $\times$ Perspective $\times$ Partner’s Ethnicity interaction, $b = 0.15, \beta = .28, t(134) = 3.19, p < .005$. The predicted values are presented in the top panel of Table 2.

Simple effects analyses were conducted to identify the circumstances in which participants discriminated against an outgroup member by treating him or her less positively than an ingroup member. Specifically, the three-way interaction was probed by testing the simple effect of the partner’s ethnicity for lower and higher prejudice individuals instructed to stay within their own perspective or adopt their partner’s perspective. These analyses

Only two coders timed the duration of participants’ comments. Valid duration data were not available for 24 participants for whom the tape recorder was accidentally set to the voice-activated function.
revealed that although lower prejudice individuals operating within their own perspective did not treat an outgroup member any differently than they treated an ingroup member (b = −0.06, t < 1), these individuals treated the outgroup member less positively than an ingroup member when they were trying to adopt their partner’s perspective, b = −0.23, t(134) = 1.96, p = .05. Higher prejudice individuals exhibited a different pattern, treating an outgroup member less positively than an ingroup member when operating within their own perspective, b = −0.32, t(134) = 2.73, p < .01, but more positively than an ingroup member when they were trying to adopt their partner’s perspective, b = 0.31, t(134) = 2.45, p < .025. This pattern reflects a two-way Prejudice × Partner’s Ethnicity interaction that was significant for those trying to adopt their partner’s perspective, b = 0.20, t(134) = 2.96, p < .005, but not for those staying within their own perspective, b = −0.10, t(134) = 1.53, ns. A Perspective × Partner’s Ethnicity interaction that was qualified by the three-way interaction was also evident. The absence of any effects for the focus manipulation indicated that other-focused perspective taking and evaluative concern had similar behavioral effects.

Discussion

The results of this study were once again consistent with our hypothesis that perspective taking exerts a disruptive effect on intergroup interaction behavior. In line with predictions, in the own-perspective conditions higher but not lower prejudice individuals treated an outgroup member less positively than an ingroup member, and the opposite was true in the partner’s-perspective conditions. The fact that the behavior disruption pattern obtained in Study 1 was evident even with the more sensitive intergroup-intragroup-contrast measure reinforces an interpretation of the data in terms of individuals’ unique reactions to intergroup interaction. Moreover, the strong results of this study clearly demonstrate that the findings from Study 1 extend to contexts involving nonverbal as well as verbal communication.

Study 3

In Study 3, we sought to examine the phenomenology behind the behavior disruption effect obtained in Studies 1 and 2. The findings of these studies suggest that the effect is quite robust and generally arises when individuals try to take an outgroup member’s perspective during intergroup interaction. However, it is unclear how behavior disruption relates to the effort that individuals expend during intergroup interaction. Because it seems likely that the more positive behavior evidenced by higher prejudice individuals reflects greater effort, questions here center primarily on the experience of lower prejudice individuals.

It is possible that the negative behavioral effect evidenced by lower prejudice individuals reflects an ironic consequence of their thinking too much: According to the enhanced mindfulness account, uncertainty stemming from considering multiple perspectives and concern with avoiding doing something wrong leads them to censor and inhibit positive behavior as well. Alternatively, according to the divergent effort account, the negative behavioral effect reflects that these individuals’ sense that they will be contrasted with the negative stereotype of their group—such that their positive feelings and intentions are clearly apparent—detracts from their feeling that they need to work to be understood. In line with this possibility, several previous studies have found that lower prejudice individuals perceive that they convey especially positive signals about their personal qualities and intentions to outgroup as compared with ingroup members, although these perceptions are not corroborated by their interaction partners (Vorauer, 2005; Vorauer & Kumhyr, 2001).

To test the viability of these two accounts, we had participants complete the Stroop color-naming task to assess resource depletion immediately after they had engaged in the controlled exchange. Previous research has revealed that greater self-regulatory effort during intergroup interaction is connected to worse subsequent performance on the Stroop task, which requires executive attentional capacity (Richeson & Shelton, 2003; Richeson & Trawalter, 2005). With this task, then, we were able to examine the amount of self-regulatory effort that accompanied the behavior disruption effect and enhance our understanding of the phenomenology behind it. In particular, the enhanced mindfulness account would be supported if taking the outgroup member’s perspective was associated with resource depletion regardless of prejudice level, whereas the divergent effort account would be supported if higher levels of prejudice were associated with greater depletion after taking the outgroup’s perspective.

We examined one additional issue in this study. In light of earlier findings (Vorauer & Turpie, 2004) and recent research revealing that White individuals’ behavioral reactions to anticipated intergroup interaction depend on the topics they expect to discuss (Goff et al., 2008), we considered it likely that the positive effect of perspective taking on higher prejudice individuals’ intergroup interaction behavior is contingent on the circumstances being favorable. In particular, despite any increased effort they devote to communicating, higher prejudice individuals might have trouble conveying positive signals on topics that are difficult or sensitive in an intergroup context. To test whether the behavioral effects of perspective taking were moderated by topic difficulty, we assessed intimacy-building behavior across four questions that varied in their intergroup sensitivity and presented them in counterbalanced order. The experimental design was otherwise the same as in Study 2, except that we reverted to a written as opposed to audiotaped exchange.

Table 2
Predicted Values for Intimacy-Building Behavior as a Function of Prejudice, Perspective, and Partner’s Ethnicity (Studies 2 and 3)

<table>
<thead>
<tr>
<th>Prejudice</th>
<th>Own perspective</th>
<th>Other’s perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ingroup</td>
<td>Outgroup</td>
</tr>
<tr>
<td>Study 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>0.14</td>
<td>0.01</td>
</tr>
<tr>
<td>Higher</td>
<td>0.24</td>
<td>−0.39*</td>
</tr>
<tr>
<td>Study 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>−0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>Higher</td>
<td>0.05</td>
<td>0.04</td>
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</tbody>
</table>

Note. Asterisks denote a simple effect for other’s ethnicity at p ≤ .05.

Table 2
Predicted Values for Intimacy-Building Behavior as a Function of Prejudice, Perspective, and Partner’s Ethnicity (Studies 2 and 3)
Method

Participants

Participants were 168 White Canadians (91 men, 77 women), who were recruited from introductory psychology classes to take part in the study in exchange for partial course credit. Participants had all previously completed a mass testing survey and had indicated being White and 40 years old or younger. The mass testing survey included the same scales as in Studies 1 and 2 (MRS, $M = 4.09, SD = 1.44, \alpha = .81$; PSCS, $M = 6.33, SD = 1.48, \alpha = .77$). Participants were randomly assigned to one of the eight conditions created by the 2 (perspective: own vs. partner’s) $\times$ 2 (focus: self vs. partner) $\times$ 2 (partner’s ethnicity: ingroup vs. outgroup member) design. Participant ages ranged from 17 to 26 years ($M = 18.55, SD = 1.33$).

Procedure

The procedure was the same as that followed in Study 2 except for a few modifications. As in Study 1, participants wrote their answers to the second, more extensive, set of personal questions and made judgments about the intimacy-building behaviors that were exhibited when they were trying to adopt their partner’s perspective, treated the outgroup member less positively than an ingroup member by treating him or her less positively than an ingroup member by treating him or her less positively than an ingroup member. This pattern reflects a two-way Prejudice $\times$ Partner’s Ethnicity interaction, $b = 0.05, t(146) = 2.35, p < .025$. The predicted values for effects involving prejudice were computed at one standard deviation below and above the mean.

Intimacy-Building Behavior

The analysis of intimacy-building behavior across all four questions yielded a Prejudice $\times$ Perspective $\times$ Partner’s Ethnicity interaction, $b = 0.05, t(146) = 2.01, p < .05$. For higher prejudice individuals, neither of the contrasts was significant, own perspective ($b = -0.01, t < 1$), and other perspective, $b = 0.07, t(146) = 1.29, ns$. This pattern reflects a two-way Prejudice $\times$ Partner’s Ethnicity interaction that was significant for those trying to adopt their partner’s perspective, $b = 0.08, t(146) = 2.51, p = .01$, but not for those staying within their own perspective ($b = -0.02, t < 1$). There was also a main effect for sex, $b = 0.24, \beta = .33, t(146) = 4.32, p < .001$. Once again, the absence of any effects for the focus manipulation indicated that other-focused perspective taking and evaluative concern had similar behavioral effects.

We then turned to corollary analyses examining whether the behavioral effects of perspective taking were moderated by topic sensitivity. Underscoring the reliability of the overall pattern, analyses of indices computed across the sensitive and general topics each yielded a significant Prejudice $\times$ Perspective $\times$ Partner’s Ethnicity interaction, $b = 0.05, \beta = .17, t(146) = 2.03, p < .05$.
Simple effects analyses probing these interactions revealed that the negative effect of perspective taking on lower prejudice individuals’ intergroup interaction behavior was more clearly evident for the sensitive topics, \( b = -0.14, t(146) = 2.14, p < .05 \), than the general ones, \( b = -0.09, t(146) = 1.37, ns \). More important, the positive effect of perspective taking on higher prejudice individuals’ intergroup interaction behavior was evident for the general topics, \( b = 0.10, t(145) = 1.64, p = .05 \) (one-tailed), but not the more sensitive ones \( (b = 0.05, t < 1) \). As it is unlikely that higher prejudice individuals’ motivation varied across questions, the absence of an overall positive effect for these individuals in this study appears to reflect ability constraints attached to the particular questions that were used rather than low effort. The Stroop interference data speak directly to the self-regulatory effort that higher and lower prejudice individuals expended during the exchange.

### Stroop Interference

The analysis of Stroop interference scores yielded a Prejudice \( \times \) Perspective \( \times \) Partner’s Ethnicity interaction, \( b = 7.85, \beta = .18, t(146) = 2.11, p < .05 \). The predicted values, which are presented in Table 3, were consistent with the divergent effort rather than the enhanced mindfulness account. Specifically, simple effects analyses revealed that although lower prejudice individuals operating within their own perspective did not evidence different levels of Stroop interference depending on the ethnicity of their partner \( (b = 3.05, t < 1) \), they did evidence significantly less interference with an Aboriginal as compared with White partner when they were trying to adopt his or her perspective, \( b = -19.78, t(146) = 1.97, p = .05 \). In contrast, although higher prejudice individuals operating within their own perspective did not evidence different levels of Stroop interference depending on the ethnicity of their partner \( (b = -1.18, t < 1) \), they did evidence significantly more interference with an Aboriginal as compared with White other participant when they were trying to adopt his or her perspective, \( b = 20.18, t(146) = 2.00, p < .05 \). This pattern reflects a two-way Prejudice \( \times \) Partner’s Ethnicity interaction that was significant for those trying to adopt their partner’s perspective, \( b = 14.61, t(146) = 2.50, p = .01 \), but not for those staying within their own perspective \( (b = -1.10, t < 1) \).

### Mediation

In view of the parallel patterns of results obtained on the two dependent measures, we explored whether the effects that we obtained on intimacy-building behavior were mediated by participants’ Stroop interference scores. However, there was no significant relation between the measures, \( r(161) = .03, ns \).

### Discussion

The overall connection between perspective taking and behavior disruption that was evident in Studies 1 and 2 was replicated in this study. Once again, across the entire behavior sample, lower prejudice individuals treated an outgroup member less positively than an ingroup member in the partner’s-perspective but not the own-perspective conditions. Moreover, although neither of the specific contrasts across the entire behavior sample for higher prejudice individuals reached statistical significance, corollary analyses revealed that these individuals did show a positive behavioral effect in their answers to the more general (i.e., less sensitive) questions. In view of this finding, it seems likely that the weaker results obtained across the entire behavior sample here as compared with those in the previous studies were a function of the higher number of difficult topics that were provided. Consistent with previous research (Vorauer & Turpie, 2004), then, the present findings suggest that the positive effect for higher prejudice individuals depends on the circumstances (e.g., conversation topic) being right.

The results from the Stroop task, which, like behavior, showed effects for the perspective but not the focus manipulation, were illuminating. In line with predictions, higher prejudice individuals showed greater Stroop interference following intergroup as compared with intragroup interaction in the partner’s-perspective, but not the own-perspective, conditions. Lower prejudice individuals instead showed less Stroop interference following intergroup as compared with intragroup interaction in the partner’s-perspective, but not the own-perspective, conditions. This interference pattern clearly fits with the divergent effort account, in that it suggests that the perspective-taking instructions prompted higher prejudice individuals to work harder and lower prejudice individuals to work less hard in intergroup interaction. Conceivably higher prejudice individuals were depleted because they were trying to avoid being viewed negatively by the outgroup member, whereas lower prejudice individuals were at ease in the belief that he or she would see them in a favorable light.

The finding that higher but not lower prejudice individuals showed evidence of depletion following an intergroup exchange is consistent with previous research (Richeson & Shelton, 2003). The specificity of this pattern to the partner’s-perspective conditions in the present study builds on work highlighting the role of prejudice concerns in depletion effects (Richeson & Trawalter, 2005), suggesting that it is a focus on outgroup members’ perspective rather than personal standards that is most exhausting for higher prejudice individuals.

In sum, the Stroop results from the present study provide a window into lower and higher prejudice individuals’ experience of perspective taking in intergroup interaction, suggesting that rather than trying too hard lower prejudice individuals did not try hard...
enough. However, it was rather surprising that the effects on intimacy-building behavior were not mediated by participants’ Stroop interference scores. Perhaps depletion was most closely tied to individuals’ efforts to inhibit inappropriate behaviors and prevent negative outcomes (Trawalter & Richeson, 2006), which were difficult to capture in the context of the controlled written exchanges involved in this study. We assess this possibility in our next study, which involved face-to-face interaction and greater ability to assess negative behavior.

**Study 4**

Study 4 was designed to build on and extend the findings of Studies 1 to 3 in three main ways. First, Studies 1 to 3 examined the effects of a rather cognitive form of other-focused perspective taking involving efforts to accurately understand an outgroup member’s inner thoughts and feelings. We sought to demonstrate that behavior disruption is also triggered by more affective forms of other-focused perspective taking involving emotional reactions to an outgroup member’s feelings and experiences. Thus, in the present study we used a perspective-taking manipulation closely modeled on Batson et al.’s (1997) widely used procedure, which emphasizes emotional responses.

Second, we tested the effects of perspective taking in the context of real face-to-face intergroup exchanges between White and Aboriginal Canadians, expecting to replicate the results obtained in Studies 1 to 3 with ostensible interactions. In the ostensible interaction paradigm, the exchanges are real to participants: They experience the direct exchange of quite personal information at a one-on-one level with another student whom they believe is also present in the study. Thus the potential for evaluation, the main factor of interest, is clearly instantiated and psychological realism is high.

Nonetheless, one important benefit of examining real face-to-face intergroup exchanges was that the effect of White individuals’ mind-set on their Aboriginal interaction partner—which is ultimately the key outcome of interest—could be examined. Previous research demonstrates that in intergroup exchanges minority group members are hesitant to link their experiences to the personal qualities (e.g., prejudice) or behavior of their interaction partner (Vorauer & Kumhyr, 2001). Thus, we anticipated that the effects would center on Aboriginal individuals’ general affective reactions rather than their judgments of their White interaction partner or his or her behavior. We expected that their affective reactions would be consistent with the behavior disruption effect found in Studies 1 to 3. Specifically, we hypothesized that Aboriginal individuals paired with a lower prejudice White partner would report less positive affect if their partner engaged in perspective taking during the discussion and that the opposite pattern would be evident for Aboriginal individuals paired with a higher prejudice White partner.

Third, we included measures designed to follow up on the results from Study 3 supporting the divergent effort account for behavior disruption, whereby perspective taking prompts higher prejudice White individuals to work to avoid being viewed negatively by the outgroup member and leaves lower prejudice White individuals at ease in the belief that they will be seen in a favorable light. Participants’ comments in an open-ended thought-listing task that they completed after the interaction were coded for spontaneous references to efforts to regulate their behavior during the conversation. We anticipated that the perspective-taking manipulation would lead lower prejudice White individuals to make fewer spontaneous references to having managed their behavior during the interaction and higher prejudice White individuals to make more references to having done so.

According to our analysis, the divergent levels of effort that perspective-taking instructions lead lower and higher prejudice White individuals to exert during intergroup interaction stem from divergent metaperceptions they form about how the outgroup member will see them. We therefore had participants complete measures directly assessing their metaperceptions about how warmly they were regarded by the outgroup member. They also completed measures assessing how positively they felt toward the outgroup member, so that we could compare their beliefs about how they were viewed with the outgroup member’s actual impressions. We expected that engaging in perspective taking would lead lower prejudice White individuals to perceive that they were viewed more positively and higher prejudice White individuals to perceive that they were viewed more negatively by their Aboriginal interaction partner and that these metaperceptions would not be corroborated by their partner’s actual impressions. Ideally, metaperceptions would be assessed early in the interaction, as they are thought to guide subsequent behavior. However, as reporting metaperceptions ahead of time would have triggered perspective taking in all individuals and thus interfered with our ability to test its effect, we administered these measures after the interaction had concluded. We also assessed the extent to which participants felt similar to their partner on an exploratory basis.

**Method**

**Participants**

Participants were 42 same-sex pairs of university students (28 women, 14 men), each including 1 White and 1 Aboriginal Canadian, who completed the study in exchange for partial credit in introductory psychology or $15. Pair members were previously unacquainted and were assigned to pairs on the basis of scheduling convenience. White participants had all previously completed a mass testing survey and had indicated being White and 40 years old or younger. The mass testing survey included the same scales as in Studies 1 to 3 (MRS, $M = 4.04$, $SD = 1.30$, $\alpha = .81$; PSCS, $M = 6.61$, $SD = 1.26$, $\alpha = .75$). Aboriginal participants had either indicated their ethnicity in the mass testing survey or responded to a recruitment notice directed toward Aboriginal students; thus, mass testing data (including age) were not available for all Aboriginal participants. Participants were randomly assigned to the perspective taking or observational mind-set condition.

**Procedure**

Pairs of participants arrived in the laboratory for a study that would involve “having a get-acquainted discussion with another student.” Pair members were assigned to wait for the experimenter in different locations, received instructions on an individual basis, and were kept separate from one another at all times except for the discussion and debriefing. The experimenter was a woman and had a mixed Asian and European ethnic background. As in Studies 1 to
3, the experimenter told participants that the researchers were interested in how perceptions in first meeting situations are affected by the kind of information that is exchanged between two people. In this study, however, she also informed them that the researchers were particularly interested in first meeting situations involving members of different ethnic groups and specified whether they were paired with a White or Aboriginal Canadian partner.

After both participants had signed the consent form, the White participant received the mind-set manipulation. The experimenter explained that she would soon be bringing in their partner for the discussion, and that she would give them a list of possible discussion topics once they were together. She then indicated that she needed to explain one more thing before the discussion and proceeded to deliver instructions designed to induce either an observational or perspective-taking mind-set during the discussion. The manipulation was modeled on previous perspective-taking research (e.g., Batson et al., 1997; Dovidio et al., 2004). Specifically, those in the observational condition were told:

After the discussion you will be asked to answer a number of questions about it. We have found that people are better able to answer these questions if they try to take an objective perspective toward the other participant during the discussion. Try not to get caught up in how he/she feels. Just remain objective and detached. So please do everything you can during the discussion be objective.

Those in the perspective-taking condition were told:

After the discussion you will be asked to answer a number of questions about it. We have found that people are better able to answer these questions if they try to imagine how the other participant feels about the events and experiences he/she describes and to imagine how these events and experiences have affected his/her life. Try to feel the full impact of the experiences that he/she has had and how he/she feels as a result. So please do everything you can during the discussion to imagine how the other participant feels.

The experimenter then brought the Aboriginal participant in and informed them that they had 15 min for their conversation. She gave participants the list of possible discussion topics, which included positive and negative academic and social experiences, opinions about social issues (capital punishment and euthanasia), career goals, employment experiences, and relationships with family members. Participants were informed that they could spend as much or as little time on each topic as they liked, but that they should go through them in order. They were left alone but the discussion was audiotaped with their knowledge (each participant wore a lapel microphone). They were asked to open the door of their room if they were finished before the 15 min time limit. Once the discussion was over, participants were separated to complete the dependent measures. The experimenter assured participants of the confidentiality of their questionnaire responses. Unless otherwise indicated, participants responded to all items using 7-point scales on which higher numbers reflected greater endorsement. Participants were thanked and thoroughly debriefed at the end of the study.

Dependent Measures

Manipulation checks for White participants. The first manipulation check was administered at the very beginning of White participants’ questionnaire, where they completed an open-ended thought-listing question that asked them to describe the main thoughts that were on their mind during their discussion with their Aboriginal partner. Later, two White female coders read participants’ answers and counted the number of references to trying to take their partner’s perspective, understand his or her feelings, or empathize with him or her. As the two coders’ judgments were highly correlated, $r(40) = .88$, $p < .001$, they were standardized and averaged together to form a perspective-taking index. A second manipulation check was administered at the end of their questionnaire, where they were asked whether they remembered receiving specific instructions about what they should do during the discussion. They were provided with four response options (“I received no such instructions,” “I was told to remain objective and detached,” “I was told to imagine how the other participant felt,” and “I do not remember”).

Affective reactions. All participants were presented with a list of words describing different feelings and emotions and were asked to indicate the extent to which they experienced each feeling during their discussion with their partner. Seventeen items referring to different types of positive affect and to negative other-directed affect were included. A principal-axis factor analysis across the whole sample with varimax rotation on these items yielded five factors with eigenvalues exceeding 1, accounting for 67.68% of the variance. Each item retained loaded on only one factor (our loading criterion was .40 or higher). The first factor, which we label empathy, included sympathetic, compassionate, tender, and moved. The second factor, which we label happy, included happy and excited. The third factor, which we label friendly, included friendly, interested, and optimistic. The fourth factor included only upset at the other participant. Finally, the fifth factor, which we label hostile, included hostile and resentful. Notably, whereas the second factor appeared to reflect general positive affect, the other factors involved more other- or outward-directed feelings about their partner or the discussion.

Metaperceptions and impressions. All participants’ beliefs about how warmly they were regarded by their partner were assessed with two measures. The first asked them to indicate the extent to which they thought that their partner felt a bond or sense of connection with them. The second was a six-item metaperceptual version of Coyne’s (1976) desire for future interaction scale ($\alpha = .88$): Participants indicated how much they thought that their partner desired future interaction with them (e.g., “Would the other participant like to meet you outside the experiment?”, “Would the other participant consider admitting you to his/her circle of friends?”). Because participants’ responses to these two measures were highly correlated, $r(75) = .70$, $p < .001$, they were combined together to create an overall index of metaperceived warmth. Participants also completed parallel items addressing how warmly they regarded their partner ($\alpha = .89$, for desire for future interaction), which were combined together, $r(82) = .70$, $p < .001$, to create an overall index of warmth toward their partner.

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4 The order and number of measures presented differed across White participants (open-ended thought listing, affective reactions, impressions and perceived similarity, metaperceptions, closed-ended manipulation check) and Aboriginal participants (metaperceptions, impressions and perceived similarity, affective reactions).
Perceived similarity. All participants’ feelings of similarity to their partner were assessed with five items adapted from the Perceived Homophily Measure (McCroskey, Richmond, & Daly, 1975). Participants rated the extent to which they were similar to their partner in terms of behavior, thinking, personal qualities, attitudes, and values (α = .85).

White participants’ intimacy-building behavior. Three White female coders made judgments about the intimacy-building behaviors that White participants exhibited during the discussion. The coders made the same judgments as in Study 1, except that by virtue of the audiotaping procedure we were also able to include the total time that they spent speaking in the behavior index, as in Study 2. We were also able to code negative and ambiguous or difficult-to-read other-directed remarks, which were both reverse-scored. These comments were much more frequent here than in the previous studies, presumably because of the back-and-forth nature of the exchange and concomitant greater difficulty of controlling behavior. Coders’ judgments, which were made with respect to the entire discussion rather than question by question, were standardized and averaged together (α = .86).

White participants’ self-regulatory effort. Two new White coders (one man, one woman) reviewed White participants’ open-ended thought listing responses and counted the number of spontaneous references they made to efforts to regulate their own behavior during the conversation (i.e., references to something that they were trying to accomplish or avoid in the discussion or to managing their behavior in some way). Such references (e.g., “I hope I’m not offending her,” “Trying to keep the conversation moving,” “Hoping I wasn’t talking about myself too much”) were reasonably frequent (M = 1.20, SD = 1.55). Coders’ judgments were highly correlated, r(40) = .90, p < .001, and thus were standardized and averaged together.

Results

One male pair in the perspective-taking condition in which the White participant failed the manipulation check was excluded from analyses. All dependent measures were analyzed in multiple regression with White participants’ level of prejudice (centered), White participants’ mind-set condition (observational = −1, perspective taking = 1), and the interaction between these variables as predictors. Sex (male = −1, female = 1) was included as a covariate, as preliminary analyses revealed effects for this variable. Predicted values for effects involving prejudice were computed at one standard deviation below and above the mean.

White Participants’ Reactions

Manipulation check. The analysis of the number of times White participants reported taking their Aboriginal partner’s perspective in the open-ended thought-listing question yielded a main effect for mind-set whereby those in the perspective-taking condition reported doing so more frequently (Ŷ = 0.31) than did those in the observational condition (Ŷ = −0.32), b = 0.32, β = .33, t(40) = 2.08, p < .05. As indicated previously, all participants but one passed the manipulation check at the end of the questionnaire asking them to recall the instructions they were given right before the discussion.

Perceived similarity and affective reactions. The analysis of White participants’ feelings of similarity to their Aboriginal partner yielded a significant main effect for mind-set, b = 0.37, β = .37, t(40) = 2.37, p < .025, whereby those in the perspective-taking condition perceived greater similarity (Ŷ = 5.13) than did those in the observational condition (Ŷ = 4.39). The analysis of White participants’ hostile affect yielded a main effect for prejudice, whereby higher prejudice participants felt more hostile (Ŷ = 1.40) than did lower prejudice participants, Ŷ = 0.99, b = 0.16, β = .44, t(36) = 2.84, p < .01. There were no other significant effects on White participants’ affective reactions involving prejudice or mind-set. The lack of effects on empathic affect may reflect that the items were not well-suited to a get-acquainted discussion between individuals who were not prompted to share significant personal hardships.

Aboriginal Participants’ Reactions

Happy affect. The analysis of Aboriginal participants’ happy affect yielded a significant Prejudice × Mind-Set interaction, b = 0.35, β = .35, t(35) = 2.45, p < .025. Simple effects analyses revealed that Aboriginal participants paired with a lower prejudice White partner felt less happy if their partner adopted a perspective-taking mind-set (Ŷ = 4.23) as compared with an observational mind-set (Ŷ = 5.21) during the discussion, b = −0.49, t(35) = 2.01, p = .05. The pattern for Aboriginal participants paired with a higher prejudice partner was in the opposite direction but not significant, b = 0.40, t(35) = 1.57, p < .13, Ŷs = 5.55 and 4.75 for the perspective-taking and observational conditions, respectively. Further analyses revealed that Aboriginal participants’ happy affect was not significantly related to their White partner’s level of prejudice in the observational condition, b = −0.19, t(35) = 1.05, ns, but that there was a positive relation in the perspective-taking condition, b = 0.52, t(35) = 2.33, p < .05. There was also a main effect for sex whereby participants in female pairs were happier, b = 1.08, β = .42, t(39) = 2.95, p < .001.

Other-directed reactions. The analyses of Aboriginal participants’ more other-directed affective reactions (i.e., empathic, friendly, upset at other, and hostile affect) and explicit judgments of their White partner (i.e., metaperceptions about how warmly they were regarded by their partner, feelings of warmth toward their partner, and perceived similarity) all yielded no significant effects involving prejudice or mind-set.

White Participants’ Intimacy-Building Behavior

The analysis of White participants’ intimacy-building behavior yielded a significant main effect for mind-set, b = 0.16, β = .36, t(35) = 2.15, p < .05. In line with the disruption pattern, simple effects analyses revealed that White participants’ level of prejudice as positively related to their behavior in the perspective-taking condition, b = 0.24, t(35) = 1.99, p = .05, Ŷs = −0.31 and 0.29 for lower and higher prejudice participants, respectively. In the observational condition there was no significant relation, b = −0.09, t(35) = 1.01, ns, Ŷs = 0.14 and −0.09 for lower and higher prejudice participants, respectively. The simple effects of perspective taking for lower and higher prejudice individuals were in the predicted direction but not significant, b = −0.23, t(35) = 1.80, p = .08, and b = 0.19, t(35) = 1.40, ns, respectively.
Potential Mediators

White participants’ metaperceptions. In all regression analyses of White participants’ metaperceptions regarding how warmly they were regarded by their Aboriginal partner, we included their Aboriginal partner’s feelings of warmth toward them (which were not affected by the predictors) as a covariate to control for variability in their behavior and index any positive or negative bias in their beliefs about how they were evaluated. That is, to what extent did White participants believe that they were seen more negatively or positively than was warranted by their Aboriginal partner’s actual impressions? The analysis yielded a significant Prejudice × Mind-Set interaction, $b = -0.21$, $\beta = -.37$, $t(28) = 2.41$, $p < .05$. Simple effects analyses revealed that higher prejudice White participants believed that they were regarded less positively by their Aboriginal partner if they adopted a perspective-taking mind-set ($\bar{Y} = 3.68$) as compared with an observational mind-set ($\bar{Y} = 4.42$) during the discussion, $b = -0.37$, $t(28) = 2.39$, $p < .025$. The pattern for lower prejudice White participants was in the opposite direction but not significant, respective $\bar{Y}s$ of 4.64 and 4.34, $b = 0.15$, $t(28) = 1.02$, ns. Further simple effects analyses revealed that White participants’ metaperceptions were not significantly related to their level of prejudice in the observational condition ($b = 0.03$, $t < 1$), but that there was a negative relation in the perspective-taking condition, $b = -0.29$, $t(28) = 2.21$, $p < .05$. There was also a main effect for their Aboriginal partner’s impressions, $b = 0.28$, $\beta = .49$, $t(28) = 3.16$, $p < .005$, and a main effect for prejudice that was qualified by the interaction.

White participants’ self-regulatory effort. The analysis of White participants’ self-regulatory effort yielded a significant Prejudice × Mind-Set interaction, $b = 0.27$, $\beta = .34$, $t(36) = 2.10$, $p < .05$. Further simple effects analyses revealed that lower prejudice White participants were less apt to report expending effort during the interaction if they adopted a perspective-taking mind-set ($\bar{Y} = 0.34$) as compared with an observational mind-set ($\bar{Y} = 0.34$) during the discussion, $b = -0.44$, $t(36) = 2.09$, $p < .05$. The pattern for higher prejudice White participants was in the opposite direction but not significant, respective $\bar{Y}s$ of 0.40 and –0.10, $b = 0.25$, $t(36) = 1.06$, ns. Further analyses revealed that White participants’ level of prejudice was not related to their reports of effort exerted in the observational condition, $b = -0.17$, $t(36) = 1.10$, $p > .05$, but that there tended to be a positive relation in the perspective-taking condition, $b = 0.36$, $t(36) = 1.82$, $p < .08$.

Mediation analyses. We began by assessing the relation of the key potential mediator, White participants’ self-regulatory effort, to the outcome variables, White participants’ behavior and Aboriginal participants’ happy affect. Neither correlation was significant. However, we suspected that the self-regulation measure might be more sensitive to prevention-focused efforts. Such efforts are more depleted than promotion-focused ones (Trawalter & Richeson, 2006) and, if they are more difficult to achieve, they may be more available to conscious awareness for self-report (see, e.g., Martin & Tesser, 1989). Indeed, perusal of White participants’ thought-listing comments revealed that many of their remarks centered on trying not to offend their Aboriginal partner and to keep the conversation going (i.e., not letting it die). Thus, we examined relations with a prevention-focused subset of the behaviors that were most closely related to these objectives (i.e., negative other-directed remarks [reverse-scored], prejudice conveyed [reverse-scored], and time spent talking). Self-regulatory effort was significantly correlated with this index, $r(37) = .40$, $p = .01$. The remaining behaviors could be classified as promotion focused, as they centered on the positive goals of conveying warm feelings and enhancing intimacy (i.e., positive other-directed comments, liking, felt similarity, attentiveness, and responsiveness communicated, and extent of self-disclosure). Self-regulatory effort was not significantly correlated with this index, $r(37) = .04$, $p > .50$.

We then tested whether the Prejudice × Mind-Set interaction that was evident on the prevention-focused behavior index, $b = 0.27$, $\beta = -.49$, $t(35) = 3.25$, $p < .005$, was mediated by self-regulatory effort by following the recommendations of Shrout and Bolger (2002), who suggest using bootstrapping procedures to compute a confidence interval around the indirect effect (i.e., the path through the mediator). If zero falls outside this interval, mediation can be said to be present. We used the Statistical Package for the Social Sciences (SPSS) macros that Preacher and Hayes (2004) provide for this procedure. The Prejudice × Mind-Set interaction was the independent variable, the prevention-focused behavior index was the dependent variable, and self-regulatory effort was the mediator; all other terms from the original regression analyses were included as covariates. Results of this procedure revealed a 95% confidence interval ranging from 0.003 to 0.323. The fact that zero fell outside this interval indicates a mediation effect significant at $p < .05$. As expected, the direct effect of self-regulatory effort on prevention-focused behavior index was positive, $b = 0.21$, $t(35) = 1.99$, $p = .05$. A parallel test conducted on the promotion-focused behavior index yielded no evidence of mediation, with a confidence interval ranging from –0.109 to 0.046.

In view of our hypothesis that the divergent levels of effort that perspective taking prompts in lower and higher prejudice White individuals ultimately stem from divergent metaperceptions, we examined the correlation between these variables. As expected, more positive metaperceptions were linked with less effort, $r(32) = -.35$, $p < .05$. However, further analyses indicated that metaperceptions did not mediate the link between perspective taking and effort. Moreover, White participants’ metaperceptions were not significantly related to their behavior or their Aboriginal partner’s happy affect. Thus, only the most proximal mediator of the influence of perspective taking on behavior had a significant effect.

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5 Overlap between the time spent speaking and self-disclosure measures was only moderate ($r = .51$), which is not surprising given that it was quite possible for participants to speak (e.g., about a question, the experiment, or any form of “small talk”) without revealing anything personal about themselves. To get a cleaner measure of minimal content talk designed to prevent lulls in the conversation, we recomputed the prevention-focused behavior index using the time measure regressed on self-disclosure (i.e., covarying out self-disclosure). The results using this new index (and an alternative in which positive other-directed remarks were also covaried out of time) were virtually identical. Ambiguous or difficult-to-read other-directed remarks were not included in either index, as they were difficult to classify as prevention or promotion focused.
Discussion

The results of this study extended the findings of Studies 1 to 3 by examining actual face-to-face intergroup exchanges, incorporating the same emotion-focused perspective-taking manipulation used in previous work documenting salutary effects of perspective taking on intergroup attitudes and judgments, and assessing the impact of White individuals’ perspective-taking efforts on the affective state of their Aboriginal interaction partners. In line with predictions, Aboriginal individuals paired with a lower prejudice White partner reported feeling less happy if their partner tried to take their perspective rather than remain objective during the discussion; for Aboriginal individuals paired with a higher prejudice White partner, the effect of perspective taking was in the opposite direction but not significant. Notably, Aboriginal individuals’ general positive feelings were affected by their partner’s mind-set, but their other-directed affective reactions and judgments of their partner were not. This pattern of results is consistent with previous research demonstrating that in intergroup exchanges minority group members are hesitant to link their experiences to the personal qualities or behavior of their interaction partner (Vorauer & Kumhyr, 2001).

The findings obtained for White participants’ spontaneous references to having exerted self-regulatory effort during the interaction build on those obtained for the Stroop task resource depletion measure in Study 3. Once again we found evidence that perspective taking leads lower and higher prejudice White individuals to exert divergent levels of effort in intergroup interaction. In particular, lower prejudice White individuals made fewer references to having tried to manage their behavior if they were in the perspective-taking as compared with observational condition.

Notably, there was some evidence that these divergent levels of effort exerted mediated the behavioral effects of perspective taking. We were able to conduct a more sensitive mediation test in this study than in Study 3, in which we did not find evidence of mediation, by virtue of the more prevention-oriented behaviors that we could assess in face-to-face interaction. These included trying to avoid offending the Aboriginal partner and to prevent lulls in the conversation: The fact that individuals had to respond to ongoing comments from their partner and did not have much time to compose their answers appeared to introduce more of a challenge in terms of behavior management than the ostensible interaction paradigm used in Study 3, as suggested by the considerably higher level of negative other-directed remarks that were evident here. Although we believe that the divergent levels of effort that perspective taking triggers in lower and higher prejudice individuals involve both prevention and promotion, our effort measures were likely more sensitive to the prevention side. If so, our finding that they were more closely connected to behaviors of this type is not surprising.

Consistent with the divergent metaperceptions account for the behavior disruption effect, we found that perspective taking led higher prejudice White individuals to perceive that they were viewed more negatively by their Aboriginal interaction partner; for lower prejudice White individuals, the effect of perspective taking was in the opposite direction but not significant. Also as expected, for White participants more positive metaperceptions were significantly correlated with lower self-reported effort: It seemed that the more that White participants thought that their Aboriginal partner liked them, the less they felt that they had to try to behave positively during the interaction. However, we did not obtain evidence that these metaperceptions mediated the behavior disruption effect. Arguably, we put all of our mediational hypotheses to a stringent test by measuring them (by necessity) only after the discussion was over. For example, higher prejudice White individuals’ responses on the metaperception measure were likely contaminated by efforts they made during the exchange to be viewed positively rather than negatively. In any event, the most proximal mediator of the influence of perspective taking on behavior—effort—did have a significant effect.

As in Study 3, the evidence for positive effects of perspective taking on higher prejudice White individuals’ behavior—as indexed by their Aboriginal partner’s feelings—was weaker than the evidence for negative effects on lower prejudice White individuals’ behavior. The greater challenge introduced by the face-to-face interaction that was involved in this study may have generally detracted from individuals’ ability to convey positive signals, similar to how difficult conversation topics can exert a negative effect (Goff et al., 2008).

Meta-Analysis

In an effort to determine the overall reliability of the various simple effects on the behavior index, we conducted a meta-analysis across the four studies according to Rosenthal’s (1991) procedures. Prejudice and perspective were the predictors; in Studies 2 and 3 the interactions of the predictors with partner ethnicity rather than their main effects were tested. All of the effects examined were highly significant ($p < .01$). These included the negative effect of perspective for lower prejudice individuals ($z = 3.27$), the positive effect of perspective for higher prejudice individuals ($z = 3.81$), the negative effect of prejudice within the own-perspective or observational condition ($z = 2.73$), and the positive effect of prejudice within the partner-perspective condition ($z = 4.62$).

General Discussion

Taken together, the results of these four studies clearly indicate that perspective taking exerts a disruptive effect on intergroup interaction behavior. When individuals tried to take an outgroup member’s perspective and understand his or her inner thoughts and feelings, their behavior became incongruent with their intergroup attitudes. This was true when the perspective taking involved trying to understand how the outgroup member felt about him- or herself as well as when it involved trying to appreciate how the outgroup member had been affected by different events and experiences in his or her life. The most consistent component of the behavior disruption pattern involved lower prejudice individuals: Whereas these participants did not show bias in their behavior when they stayed within their own perspective, they treated an outgroup member less positively than an ingroup member when they engaged in perspective taking. Perhaps even more striking was the finding that lower prejudice individuals who engaged in perspective taking during intergroup interaction actually led their interaction partner to feel less happy than those who tried to maintain a more objective stance. The effects for higher prejudice...
individuals were more variable across studies, yet overall perspective taking had a positive effect on their behavior.

This behavior disruption pattern parallels the findings obtained for evaluative concern in previous research (Vorauer & Turpie, 2004). In the present studies, however, behavior disruption was evident for both other-focused perspective taking and evaluative concern. There were a number of theoretical reasons to suspect that self-focus rather than perspective taking might be the active ingredient of evaluative concern in terms of accounting for its behavior-disrupting effect and that other-focused perspective taking might therefore exert a more positive influence consistent with the benefits it has been shown to have for intergroup judgments and attitudes. However, our findings highlighting the critical role played by perspective taking indicate that this is not the case. In addition to demonstrating the ironic and rather counterintuitive negative consequences of perspective taking for intergroup interaction behavior, the results clarify the mechanism underlying the previously demonstrated behavioral effects of evaluative concern.

The findings from the self-regulatory effort and metaperception measures included in Studies 3 and 4 shed light on the phenomenology behind the behavior disruption pattern and were more consistent with the divergent effort than the enhanced mindfulness account. In Study 3, perspective taking led higher prejudice individuals to show greater evidence and lower prejudice individuals to show less evidence of resource depletion following intergroup as compared with intragroup interaction. In Study 4, individuals’ spontaneous references to having tried to manage their behavior during their interaction with an outgroup member followed a similar pattern. Thus, it seems that trying to take an outgroup member’s perspective prompted higher prejudice individuals to work harder and lower prejudice individuals to work less hard in intergroup interaction. The results of Study 4 tentatively suggested that the behavioral effects of perspective taking were mediated by effort exerted during the interaction. In particular, it appeared that perspective taking had a negative impact on lower prejudice individuals’ behavior because it led them to be complacent during the interaction, not feeling that they had to exert much effort to convey positive regard to the outgroup member.

Along these lines, the Study 4 findings for metaperceptions were consistent with the possibility that taking the perspective of an outgroup member leads lower prejudice individuals to feel comfortable in the assumption that they will be contrasted with the stereotype of their group and higher prejudice individuals to seek to avoid being assimilated to it. However, although more positive metaperceptions were associated with exerting less effort, we did not obtain evidence that metaperceptions mediated the effects of perspective taking on effort or behavior. Notably, our test of the role of metaperceptions was stringent, in that we measured metaperceptions only after the interaction was over. It would have been more theoretically appropriate to collect this measure before the interaction, prior to assessing individuals’ behavior, but doing so would have induced perspective taking and interfered with our ability to test the effects of our experimental manipulation. Thus, although at present it is difficult to identify a viable alternative account for the effects of perspective taking on the effort that lower and higher prejudice individuals devote to managing their behavior in intergroup interaction, additional research will be necessary to more clearly delineate the role of metaperceptions here.

Limitations and Future Directions

The present four studies have numerous strengths, such as the inclusion of an intragroup control condition in several of the designs and the measurement of implicit, behavioral, and evaluative outcomes. Moreover, the key findings were replicated across different kinds of perspective-taking manipulations, across research paradigms that varied in terms of whether the focus on intergroup issues was explicit, and across ostensible and real face-to-face interactions.

But the present studies also have some limitations. It will be important for future work to examine the generalizability of the behavior disruption effect documented here to other interaction contexts and other kinds of perspective-taking manipulations. In particular, the present studies involved relatively nonthreatening get-acquainted discussions. The behavioral effects of perspective taking might be different in interaction contexts in which contentious intergroup issues are discussed or in which significant hardships are disclosed because of variation in how difficult individuals find it to convey positive signals and greater salience of their meta-stereotypes. In addition, the extent to which the present results generalize to other intergroup relationships should be examined. For example, behavior disruption might be attenuated in relationships not involving as great a status difference or as negative meta-stereotypes as is the case for White and Aboriginal Canadians. Research should also examine how members of lower status groups are affected by perspective taking in intergroup interaction.

Conclusions and Implications

The present studies reveal how perspective taking can backfire in intergroup interaction by triggering less positive behavior toward outgroup members. Outside of interaction, perspective taking can enhance individuals’ appreciation of obstacles and difficulties experienced by outgroup members. Yet within interaction even explicitly other-focused perspective-taking efforts appear to readily turn egocentric, with negative consequences for lower prejudice individuals’ behavior.

The findings also illuminate the phenomenology behind the negative effect of perspective taking on lower prejudice individuals’ behavior during intergroup interaction. Although it is intuitively compelling to view this effect as a cost of thinking too much or trying too hard, the current results instead indicate that complacency is at the heart of the problem. It appears that when lower prejudice individuals take an outgroup member’s perspective, they may be overly comfortable in the assumption that they will be viewed positively. This then suggests that lower prejudice individuals need to exert more effort to clearly communicate their positive feelings to outgroup members.

Notably, alongside the negative effects for lower prejudice individuals, the results suggested that perspective taking can have positive effects on higher prejudice individuals’ interaction behavior, particularly when the circumstances are favorable (e.g., nonthreatening). These results would seem to provide hope for positive behavior change for interventions directed specifically at higher prejudice individuals, although possible long-term costs to their willingness to engage in intergroup interaction of the concomitant resource depletion and negative metaperceptions need to be taken into account (see Vorauer, 2006).
Overall, the current findings indicate that caution is warranted in recommending perspective taking as a strategy for improving intergroup relations, suggesting that it is more reliably helpful outside of intergroup interaction situations than within them. Inside intergroup interaction, it may often be more beneficial for individuals to stay within their own perspective, learning about an outgroup member directly by asking questions rather than indirectly through their own imaginings.

References


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