Journal of Experimental Social Psychology 46 (2010) 375–381

Contents lists available at ScienceDirect

Journal of Experimental Social Psychology

journal homepage: www.elsevier.com/locate/jesp

Report

Anticipated cooperation vs. competition moderates interpersonal projection

Claudia Toma *, Vincent Yzerbyt, Olivier Corneille

Université Catholique de Louvain, Louvain-la-Neuve, Belgium

ARTICLE INFO

Article history:
Received 24 April 2009
Revised 14 October 2009
Available online 10 November 2009

Keywords:
Interpersonal projection
Interdependence
Self-representation
Multi-level analysis

ABSTRACT

Two experiments investigated the impact of anticipated interdependence on people's projection of their characteristics onto an unknown target. After participants had rated themselves on a list of personality traits, they were led to expect a situation of cooperation or competition with another participant and rated this participant on the same list of traits. In both experiments, projection of self-attributed traits was stronger under cooperation than competition. This effect was independent of trait valence, whether defined a priori (Experiment 1) or as an idiosyncratic measure (Experiment 2). Experiment 2 also revealed that the moderation of interpersonal projection by interdependence was not driven by changes in participants' self-representation. These findings suggest that the anticipated interdependence context influences the way we perceive similarity with unknown others. We discuss possible cognitive and motivational mechanisms underlying this effect.

Introduction

People have a strong tendency to use information about their self when making predictions about the behavior and personality of others (Marks & Miller, 1987). Research confirms that people perceive high consensus for their behavior (Ross, Greene, & House, 1977) and believe that others are like themselves (Katz & Allport, 1931; Krueger, 1998a) and behave like they do even in different situations and roles (Van Boven, Dunning, & Loewenstein, 2000). Social projection is known as "a process or a set of processes by which people expect others to be similar to themselves" (Robbins & Krueger, 2005, p. 32). This egocentric tendency is a robust and powerful phenomenon that can heavily bias social judgments about others.

Social projection has received considerable attention over the last decade. Yet, its boundary conditions have been relatively understudied. Most of the research examined the role of the target characteristics as a moderator of social projection. For instance, it has been shown that projection is stronger for ingroup than for outgroup members (Cadinu & Rothbart, 1996; Clement & Krueger, 2002; Krueger & Zeiger, 1993) and for targets already sharing a certain degree of similarity (see the similarity contingency model of social inference: Ames, 2004a, 2004b). The current research moves beyond the traditional focus on target characteristics to develop our understanding about the role of self-other interdependence in social projection.

More specifically, we predicted social projection to be stronger under conditions of interpersonal cooperation than competition. Our hypothesis received indirect support in a recent intergroup study conducted by Riketta and Sacramento (2008). These authors showed that people are more likely to project their personality traits toward an outgroup that is cooperating rather than competing with the ingroup. However, we do not know yet if the same effect would be observed when anticipated interdependence is manipulated at the interpersonal rather than intergroup level. First, research on the discontinuity effect (e.g., Schopler & Insko, 1992) invites caution about equating intergroup and interpersonal effects, especially when competitive relationships are involved. Secondly, and perhaps even more importantly, people are known to anticipate more variability among individuals than among groups (e.g., Gidron, Koehler, & Tversky, 1993) and this may constrain social projective effects when they are observed at the interpersonal level. Third, intergroup projection is likely to involve judgments about the ingroup as an intermediate step between self and outgroup judgments. There is little reason to expect such an intermediate judgment to play a role in the context of interpersonal projection.

This being said, there are also reasons to believe that interdependence may play a role in interpersonal projection. Research has documented that whether one cooperates or competes with a target person is an important determinant of the direction of comparison and social judgments. Comparison is a key mechanism in social judgment and classically involves one of two processes: assimilation or contrast (see Biernat, Manis, & Kobrynowicz, 1997). Stapel and Koomen (2005) have shown that, when confronted with a relevant comparison target, participants assimilate

* Corresponding author. Address: Université Catholique de Louvain, Place du Cardinal Mercier 10, B-1348 Louvain-la-Neuve, Belgium. Fax: +32 (0) 10 47 37 74.
E-mail address: claudia.toma@uclouvain.be (Claudia Toma).

0022-1031/$ - see front matter © 2009 Elsevier Inc. All rights reserved.
doi:10.1016/j.jesp.2009.11.005

their self-perception toward the target when expecting cooperation but contrast their self-perception away from the target when expecting competition. In line with this line of work, we expected more projection under conditions of cooperation than competition. Of note, however, past research took the other person as the point of reference. The focus was thus the distance of the self from the target person. In the present work, and building upon the tradition of work on social projection, our prediction concerned the extent to which participants would see the other person as being similar to them.

The egocentric comparison model of social prediction (Mussweiler, 2003) is also relevant to our current hypothesis. This model proposes that, in order to predict the behavior and the personality traits of others, people relate self-knowledge to the target through a comparison process. Two processes should be distinguished here as a function of the nature of the interdependence. In a context of cooperation, people may engage a process of similarity testing, yielding target judgments that are consistent with the self. In a context of competition, people may rely on a process of dissimilarity testing, leading to target judgments that are inconsistent with the self. Similar to other models of social judgment (Dunning & Hayes, 1996; Smith & Zarate, 1992), this model conceptualizes social projection as a flexible comparison process in which the self is the primary representational basis for projection, even under conditions of distinctiveness (e.g., competition).

Overview of the studies

In the present research, we conducted two studies that manipulated anticipated interdependence (cooperation vs. competition) between the self and an unknown target person and we examined people's projection of their personality traits onto the target. As already noted, we predicted more social projection under conditions of interpersonal cooperation than competition. We also extended prior work on the role of interdependence in social judgments in four significant ways:

First, we asked participants to judge a target person on whom they received no information. Although social projection is generally conceptualized as a comparison process, we believe that projection may also occur when no comparison information is provided about a target. As a matter of fact, it may actually be even easier for people to project their own traits onto an unknown than a known target. Of particular relevance here is Krueger's (2007) suggestion that social projection corresponds to a heuristic use of the self in conditions of judgment uncertainty. Clearly enough, judgments should be more uncertain when no information at all is conveyed about a target. Hence, it remains to be explained why we expect more social projection when cooperating than when competing with an unknown target? One possibility here is that people are more inclined to rely on a heuristic processing when facing a non-problematic (i.e., cooperative) than a problematic (i.e., competitive) situation. If so, social projection may be facilitated in cooperation, and this should occur even when no comparative information is communicated about the target. Another possibility is that people expect to benefit more from increased self-other similarity in situations of cooperation than competition. We will come back to these two accounts in the general discussion.

Besides the absence of comparative information about the target, a second distinctive feature of the current experiments is that we asked participants to ascribe not only positive but also negative personality traits onto the target person (Stathi & Crisp, 2008). Because general evaluative tendencies can produce positive or negative correlation between trait ratings independent of social projection (Otten & Wentura, 2001), we controlled for valence in these studies. If social projection is found to be stronger in cooperation than competition, then this effect would not be confounded with evaluative tendencies. The valence of traits was defined a priori in Experiment 1, and we secured idiosyncratic measures of valence in Experiment 2.

A third distinctive feature of the current experiments is that the personality traits that participants were asked to ascribe to themselves and the target were selected so as to be unrelated to competition and cooperation. This ensured that our findings would not be due to Naïve theories linking cooperative and competitive settings to specific behavioral tendencies (e.g., being aggressive in a competitive context).

Finally, the second experiment reported here addresses the possibility that increased social projection under conditions of cooperation results from a change in self-representation after participants learned about the nature of the interdependence between them and the target.

Experiment 1

Method

Participants and design

A total of 47 participants (22 males) were approached on campus. They were invited to take part in a study on spontaneous impression formation in exchange for 3 EUR, and randomly assigned to a cooperation or competition condition.

Procedure

On the first page of the questionnaire, participants rated themselves on a list of 16 personality traits (8 positive and 8 negative). These traits were borrowed from Riketta and Sacramento (2008) who pretested them to be unrelated to cooperation and competition. Participants had to indicate the extent to which each of the traits (e.g., progressive, silent, creative) characterized them on a 9-point rating scale ranging from 1 (=not at all) to 9 (=very much).

On the second page, participants read a scenario in which they had to imagine being employed in a new software company where they would have to team up with an unknown Person A (the target). They learned that the top manager of this company would offer a bonus trip to the Caribbean if they managed to sell more than 10,000 copies of computer software during the first 6 months. The relation with the target was presented as either cooperative or competitive. In the cooperation condition, participants were told that it was possible that both they and Person A win the trip, so that they should help each other in order to sell, together, the 10,000 copies of the computer software. In the competition condition, participants were told that only one of them could win the trip, so that they had to outperform Person A in being the first to sell the 10,000 copies of the computer software.

On the third page of their questionnaire, participants were asked to rate the target on the same list of traits that they had used to rate the self.

Finally, as a manipulation check, participants judged if the relationship between themselves and the target was cooperative or competitive. Seven participants who were wrong were excluded from analyses.

When all tasks had been completed, participants were debriefed, thanked, and dismissed.

Results

Because the ratings of personality traits were nested within participants the data were analyzed by means of multilevel modeling. The traits were our level-1 variable whereas condition was our level-2 variable. The analysis used the ratings of the target as our criterion and self-ratings and valence of traits as predictors at level-1.

In Experiment 1, the valence of traits was coded positive or negative on the basis of Riketta and Sacramento's (2008) study. The anticipated interdependence (cooperation *vs.* competition) was included as a moderator variable at level-2.

Our hypothesis is that the variation of the level-1 slopes (i.e. the relation between self- and target ratings) is influenced by our level-2 variable (anticipated interdependence). In other words, we predicted the presence of a significant cross-level interaction between self-ratings and the anticipated interdependence. To test our prediction, we implemented the following models:

Level-1 Model:

$$\text{Target} = P0 + P1 \times \text{Self} + P2 \times \text{Valence} + E$$

Level-2 Model:

$$P0 = B00 + B01 \times \text{Interdependence} + R0$$

$$P1 = B10 + B11 \times \text{Interdependence} + R1$$

$$P2 = B20 + R2$$

with *P*0, *B*00, *B*10, *B*20 as intercepts; *P*1, *P*2, *B*01, *B*11 as regression weights; and *E*, *R*0, *R*1, *R*2 as residuals. Condition was coded −1 for competition and +1 for cooperation. We coded valence −1 for negative traits and +1 for positive traits. *B*01 refers to the extent to which the target is judged differently in cooperation than in competition. *B*10 denotes the extent to which the self is used to judge the target. The critical parameter for our hypothesis is *B*11 because it denotes the extent to which the tendency of the self-ratings to predict the target ratings (i.e. *P*1) varies as a function of anticipated interdependence. *B*20 refers to the extent to which the valence affects target ratings. Self-ratings were centered at the mean of each participant's ratings. It is important to note that parameters in this model (especially *B*10 and *B*11) reflect self-target covariance, not correspondence. The method of estimation is restricted maximum likelihood and the covariance matrix is unstructured. This also applies to the subsequent models.

As predicted, the relation between self- and target ratings (self-target projection) depended positively on the anticipated interdependence manipulation, $B = .17$, $SE = .05$, $t = 3.26$, $p < .001$. The effect of self-ratings on target ratings was positive and significant under cooperation, $B = .30$, $SE = .07$, $t = 3.86$, $p < .001$, but non-significant under competition, $B = -.04$, $SE = .07$, $t < 1$[1]. In other words, participants projected their personality traits onto the target more when they anticipated cooperation than when they anticipated competition (see Fig. 1).

We conducted additional analyses to test for the interaction between the self-ratings and the valence of traits at level-1. We estimated the following models:

Level-1 Model:

$$\text{Target} = P0 + P1 \times \text{Self} + P2 \times \text{Valence} + P3 \times \text{Self} \times \text{Valence} + E$$

Level-2 Model:

$$P0 = B00 + B01 \times \text{Interdependence} + R0$$

$$P1 = B10 + B11 \times \text{Interdependence} + R1$$

$$P2 = B20 + R2$$

$$P3 = B30 + B31 \times \text{Interdependence} + R3$$

[1] We also computed an index of correspondence that captures the mean square difference between the self and the target-ratings for all traits. We analyzed the impact of anticipated interdependence on the correspondence index and we found the mean square difference to be smaller in cooperation than in competition. This also applies to Experiment 2.

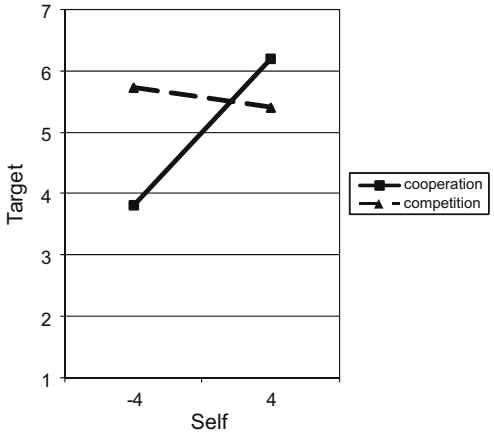

Fig. 1. Relation between self-ratings and target ratings by anticipated interdependence, controlling for trait valence.

with *P*0, *B*00 *B*10, *B*20, *B*30 as intercepts; *P*1, *P*2, *P*3, *B*01, *B*11, *B*31 as regression weights; and *E*, *R*0, *R*1, *R*2, *R*3 as residuals.

Again, the anticipated interdependence moderated the impact of self-ratings on target ratings, $B = .17$, $SE = .05$, $t = 3.37$, $p < .001$. Introducing valence as a moderator did not significantly affect the impact of self-ratings ($B = .01$, $SE = .03$, $t < 1$) nor the interaction between self-ratings and anticipated interdependence ($B = .03$, $SE = .03$, $t < 1$).

Discussion

Together, the results of Experiment 1 suggest that participants projected their view of themselves onto the target as a function of the anticipated interdependence. They judged a target on which they receive no information as more similar to themselves when they anticipated cooperation rather than competition. In competition, participants did not infer any similarity between themselves and the unknown target. Rikettta and Sacaramento (2008) found that the perceived intergroup cooperation leads to more outgroup projection than the perceived intergroup competition. Our study is consistent with this research and extends the role of interdependence in projection from the intergroup to the interpersonal level.

What is also important about these results is that projection of self-ratings onto the target occurred regardless of the valence of the traits. Contrary to Stathi and Crisp (2008) who found projection mainly on positive traits, we found that if projection occurs more in cooperation than in competition, this is the case for both positive and negative traits.

Experiment 2

We conducted a second experiment in order to further investigate the role of interdependence in social projection. The first aim of Experiment 2 was to replicate Experiment 1 using a different manipulation for the anticipated interdependence and using an idiosyncratic measure of traits valence. Since the self-concept is predominantly positive (Alicke, 1985; Baumeister, 1998) and given that the self serves as an evaluative basis (Gramzow & Gaertner, 2005), the valence of the traits could vary as a function of their attribution to the self (Krueger, 1998b; Sinha & Krueger, 1998). If a person *X* rates her/himself as very sociable and a person *Y* rates her/himself as not very sociable, then sociability may likely be seen as more positive by person *X* than by person *Y*. Of note, if self-ratings and the perceived valence of the traits co-vary, the interaction between self-ratings and anticipated interdependence is not adjusted for valence simply by controlling for trait valence (see

Yzerbyt, Muller, & Judd, 2004). Therefore, in Experiment 2, we took care to control for both trait valence and the interaction between trait valence and anticipated interdependence.

The second aim of this Experiment 2 was to examine whether a change in participants' self-representation accounts for the stronger projection observed in the cooperation condition compared to the competition condition. In Experiment 1, self-ratings were measured before the introduction of the manipulation of interdependence. It is possible that the interdependence manipulation changed participants' self- representation. It could be that participants projected their changed self (after the manipulation) to the same extent in cooperation and competition. This means that the latter change, rather than the nature of the interdependence context, may be directly responsible for our findings. Several studies have shown that the self is a flexible and context-dependent knowledge structure (i.e., cognitive schema) that serves adaptive and self-regulatory functions (Baumeister, 1998; Higgins, 1996; Markus & Wurf, 1987). Individuals can reorganize the structure of their self-representations in response to situational demands (Markus & Kunda, 1986) or age-related challenges (Greve & Wentura, 2003). For example, research reveals that college students respond to different conditions of feedback by dynamically adjusting the content and structure of their self-representations (Markus & Kunda, 1986). These studies stress the fact that people can hold both general and contextual self-representations (Caspi & Roberts, 2001; Markus & Kunda, 1986).

In order to examine this issue, we used self-ratings collected before and after the manipulation of interdependence to predict target ratings in Experiment 2. If both self1 and self2 predict target ratings more under cooperation than competition, then this finding would rule out the idea that the pattern observed in Experiment 1 was solely due to a change in participants' self-view in response to the interdependence context.

Method

Participants and design

Forty-three participants (22 males) were approached on campus and invited to take part in a study on spontaneous impression formation in exchange for 3 EUR.

Procedure

The procedure and materials were very similar to those of Experiment 1. We used the same 16 personality traits. However, in order to examine the generality of our findings, we manipulated anticipated interdependence with a different scenario. This time participants were asked to rate themselves on the list of traits, and then they imagined being contestants in the first phase of a TV quiz in which they could win 25,000 Euros. An unknown Person A (the target) was presented as being another contestant. The relation with the target was presented as either cooperative or competitive. In the cooperation condition, participants were told that it was possible that they and Person A could both win the money if they managed to collectively respond correctly to a maximum of questions. Their interest was thus to help each other to move up to the second phase of the show. In the competition condition, participants were told that only one of them could win the money. They had to outperform Person A in responding to the questions so as to being the one who could move up to the second phase of the game. Next, participants were again asked to rate themselves and the target on the same list of traits. Finally, participants were invited to judge the valence of each personality trait, using a 9-point response scale anchored with *rather negative* to *rather positive*. As in Experiment 1, participants also indicated if the relationship between them and the target was cooperative or competitive. They were then debriefed, thanked, and dismissed.

Results and discussion

As in Experiment 1, our hypothesis predicts that the relation between the self- and the target ratings is influenced by a level-2 variable (anticipated interdependence) and that this effect emerges for both positive and negative traits. We therefore examined whether projection occurred regardless of trait valence. We also relied on trait valence as an idiosyncratic measure. We estimated the following model:

Level-1 Model:

$$\text{Target} = P0 + P1 \times \text{Self} + P2 \times \text{Valence} + P3 \times \text{Self} \times \text{Valence} + E$$

Level-2 Model:

$$P0 = B00 + B01 \times \text{Interdependence} + R0$$

$$P1 = B10 + B11 \times \text{Interdependence} + R1$$

$$P2 = B20 + B22 \times \text{Interdependence} + R2$$

$$P3 = B30 + B33 \times \text{Interdependence} + R3$$

with $P0$, $B00$, $B10$, $B20$, $B30$ as intercepts; $P1$, $P2$, $P3$, $B01$, $B11$, $B22$, $B33$ as regression weights; and E, $R0$, $R1$, $R2$, $R3$ as residuals. We coded condition −1 for competition and +1 for cooperation. The critical parameter is again $B11$, which denotes the extent to which projection of the self to the target (i.e., $P1$) varies as a function of interdependence. Parameters $P3$ and $B33$ denote the extent to which projection depends on the valence of the traits. The self-ratings and valence were centered at the mean of each participant's ratings. We used self-ratings before (self1) and after (self2) the manipulation of interdependence in our multilevel model. Regarding self1, we expected to replicate the findings of Experiment 1. Specifically, we expected that self-ratings would be more strongly related to target ratings in cooperation than in competition. We examined the exact same question with self2.

As predicted, the relation between self1 and target ratings (self-target projection) depended on the anticipated interdependence manipulation, $B = .10$, $SE = .05$, $t = 2.34$, $p < .05$, after controlling for the main effect of valence as well as for the self1 by valence interaction (Yzerbyt et al., 2004). The relation between self1 ratings and target ratings was positive and significant under cooperation, $B = .21$, $SE = .06$, $t = 3.41$, $p < .01$, and non-significant under competition, $B = .001$, $SE = .06$, $t < 1$. In other words, participants projected their personality traits into the target when they anticipated cooperation but not when they anticipated competition (see Fig. 2). Valence did not affect self1 ratings projection ($B = -.01$, $SE = .01$, $t < 1$), nor the interaction between self1 ratings and interdependence ($B = .01$, $SE = .01$, $t < 1$).

We then tested for the role of self2 (after the manipulation of anticipated interdependence). Here too, the relation between self2 and target ratings depended on the anticipated interdependence, $B = .14$, $SE = .05$, $t = 2.54$, $p < .01$, even after controlling for valence and the self2 by valence interaction. This time, however, the relation between self2 ratings and target ratings was positive and significant under cooperation, $B = .42$, $SE = .08$, $t = 5.32$, $p < .001$, and positive and marginally significant under competition, $B = .13$, $SE = .07$, $t = 1.70$, $p = .09$. Valence did not affect self2 ratings projection ($B = -.001$, $SE = .01$, $t < 1$), nor the interaction between self2 ratings and anticipated interdependence ($B = .01$, $SE = .01$, $t = 1.25$, $p = .21$).

Discussion

Both self1 and self2 ratings predicted target ratings more in cooperation than in competition. Self2 ratings were more strongly associated with target ratings than self1 ratings, indicating that participants changed their self-representation somewhat after

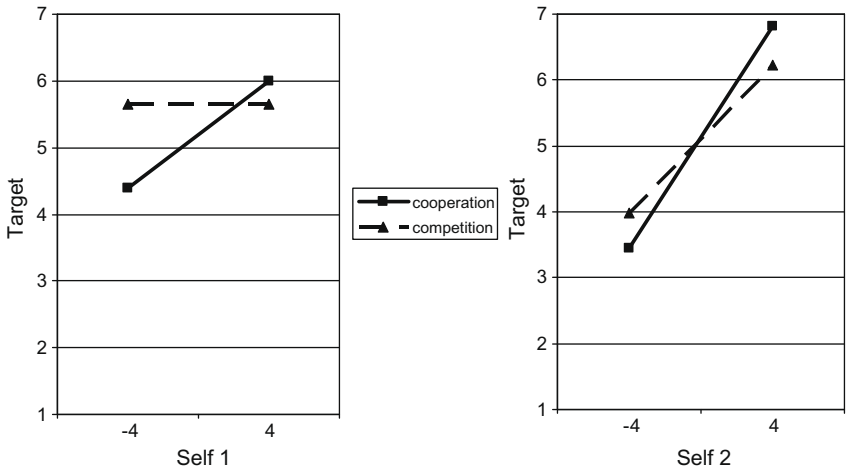

Fig. 2. Relation between self-ratings before the manipulation of anticipated interdependence (self1)/after the manipulation of anticipated interdependence (self2) and target ratings by anticipated interdependence when controlling for trait valence.

the manipulation. However, despite this change the predicted interaction self2 ratings and interdependence was significant showing that although participants saw themselves differently after the interdependence manipulation, this does not explain why people projected more in cooperation than in competition. Of importance too, the valence of the traits did not affect projection even when we relied on an idiosyncratic measure.

General discussion

In two experiments, projection of self-attributed traits into an unknown target person was found to be stronger under conditions of anticipated cooperation than anticipated competition. Our data thus confirm our prediction that perceived self-other interdependence moderates interpersonal projection. Research conducted in the context of outgroup projection had already shown that perceived intergroup interdependence moderates projection (Riketta & Sacramento, 2008) and that positive ingroup–outgroup contacts increase outgroup projection (Stathi & Crisp, 2008). The current experiments extend this work to the interpersonal level. Additionally, by having participants rate themselves and the target on both positive and negative traits, we were able to show that the observed projection was independent of the valence of the traits and the positivity of the self-view (Alicke, 1985; Baumeister, 1998). This was particularly clear for the second experiment, which involved an idiosyncratic measure of trait valence. As a third important message, Experiment 2 also revealed that this moderation of projective tendencies by interdependence was not driven by changes in self-representation. That is, the predicted moderation was observed whether we used self-ratings that were collected before or after the interdependence manipulation took place. Hence, our data make clear that changes in self-representation cannot account for the higher level of projection in a context of anticipated cooperation than competition.

Interestingly, competition did not lead to contrastive judgments. As a matter of fact, some level of social projection was observed under condition of competition in Experiment 2, at least when considering the self2 measure. This is consistent with intergroup studies showing contrastive judgments only for familiar outgroups of strong personal relevance (Mullen, Dovidio, Johnson, & Copper, 1992; Riketta & Sacramento, 2008). For example, in a paradigm similar to the one used here, Riketta and Sacrameto (2008) found negative correlation between self and outgroup ratings in competition when using real groups but *positive* correlations when using abstract (i.e., team A) groups.

The latter findings may suggest that when available information exists about a target person or a target outgroup, people relate their self-view to this information, resulting in either assimilation or contrast effects (Mussweiler, 2003). However, when little or no information is provided about the target, people may well be forced to rely on their self-view and project it onto the target. The latter interpretation is consistent with the present findings and with what Riketta and Sacramento (2008) found in the context of intergroup studies.

A tricky issue concerns the type of information and processing that participants relied on when reporting a judgment about a competing target. Although we can only speculate on this, we surmise that participants in both cooperation and competition used information about the self to judge the target. The lower level of projection observed in competition may imply that participants in this condition underestimated self-target similarity, as suggested by research on Naïve realism and perception of exaggerated stances in conflict (Robinson, Keltner, Ward, & Ross, 1995).

Finally, it remains to be explained why people expect an unknown target to be more similar to the self when anticipating cooperation than competition. One possibility is that projection corresponds to a heuristic process (Krueger, 2007), which is more likely to be used in cooperative contexts than when negative interdependence is elicited *vis-à-vis* a target. In other words, the negative perspective elicited by competition may motivate participants to think more thoroughly about the accuracy of their appraisal of the target. If this were the case, then participants may withhold their judgment more under conditions of competition than cooperation. This means that they may be more prone to select the midpoint of the scales (leading to less variability and reducing correlations between self and target judgments) in competition condition. As it turns out, complementary analyses we conducted do not support this interpretation.

Another possibility is that participants hold Naïve theories implying that partner similarity comes along with benefits in cooperation. In the present research, participants may have estimated that self-other similarity was more conducive to success in cooperative than competitive contexts. This may have increased projective tendencies in the cooperative condition. Preliminary evidence collected in our laboratory would seem consistent with this account. In a pilot study that examined participants' Naïve theories, we found that self-other similarity was believed to increase

personal success more in conditions of positive than negative interdependence. Further research should examine if and to what extent such Naïve theories may contribute to the effects observed here.

Conclusions

Past interpersonal research has examined the consequences of interdependence on the way we judge others. In particular, people have been found to make more dispositional inferences about others in competitive contexts (Ruscher & Fiske, 1990) and to like cooperative partners more than competitive ones (e.g., Ruscher & Fiske, 1993). Surprisingly, however, no research to date has examined whether interdependence influences projective tendencies about unknown targets. The present research contributes to a more complete picture of interpersonal effects of cooperation and competition by showing that cooperation leads to more self-other perceived similarity than competition. Specifically, in cooperation people not only perceive the self as being closer to a known target (Stapel & Koomen, 2005) but, as the present research demonstrates, in cooperation an unknown target can be also perceived as more similar to the self. This implies that people expecting cooperation with unknown persons make similarity judgments that further encourage cooperative interactions. The levels of cooperation and competition that characterize our everyday relationships are often externally and sometimes arbitrarily imposed. Yet, the interdependence context may dramatically influence the way we will perceive others.

Appendix A

A.1. Experiment 1

A.1.1. Test for the moderating role of anticipated interdependence on target projection

$$\begin{aligned}\text{Target} = {} & 5.28 + 0.13 \times \text{Self} - 0.28 \times \text{Interdependence} + 1.03 \\ & \times \text{Valence} + 0.17 \times \text{Self} \times \text{Interdependence}\end{aligned}$$

A.1.2. Test for the moderating role of valence on target projection

$$\begin{aligned}\text{Target} = {} & 5.27 + 0.13 \times \text{Self} - 0.30 \times \text{Interdependence} + 1.02 \\ & \times \text{Valence} + 0.01 \times \text{Self} \times \text{Valence} + 0.18 \times \text{Self} \\ & \times \text{Interdependence} + 0.03 \times \text{Self} \times \text{Valence} \\ & \times \text{Interdependence}\end{aligned}$$

A.2. Experiment 2

A.2.1. Test for the moderating role of anticipated interdependence on target projection (using self1)

$$\begin{aligned}\text{Target} = {} & 5.42 + 0.11 \times \text{Self1} - 0.23 \times \text{Interdependence} + 0.34 \\ & \times \text{Valence} - 0.01 \times \text{Self1} \times \text{Valence} + 0.10 \times \text{Self1} \\ & \times \text{Interdependence} + 0.13 \times \text{Valence} \times \text{Interdependence} \\ & + 0.01 \times \text{Self1} \times \text{Valence} \times \text{Interdependence}\end{aligned}$$

A.2.2. Test for the moderating role of anticipated interdependence on target projection (using self2)

$$\begin{aligned}\text{Target} = {} & 5.40 + 0.28 \times \text{Self2} - 0.27 \times \text{Interdependence} + 0.22 \\ & \times \text{Valence} - 0.01 \times \text{Self2} \times \text{Valence} + 0.14 \times \text{Self2} \\ & \times \text{Interdependence} + 0.08 \times \text{Valence} \times \text{Interdependence} \\ & + 0.01 \times \text{Self2} \times \text{Valence} \times \text{Interdependence}\end{aligned}$$

A.2.3. Test for the moderating role of anticipated interdependence on self representation change

$$\begin{aligned}\text{Self2} = {} & -0.04 + 0.56 \times \text{Self1} + 0.05 \times \text{Interdependence} + 0.31 \\ & \times \text{Valence} - 0.01 \times \text{Self1} \times \text{Valence} + 0.04 \times \text{Self1} \\ & \times \text{Interdependence} - 0.004 \times \text{Valence} \times \text{Interdependence} \\ & - 0.01 \times \text{Self1} \times \text{Valence} \times \text{Interdependence}\end{aligned}$$

References

Alicke, M. D. (1985). Global self-evaluations as determined by the desirability and controllability of trait adjectives. *Journal of Personality and Social Psychology, 49*, 1621–1630.

Ames, D. (2004a). Inside the mind-reader's toolkit: Projection and stereotyping in mental state inference. *Journal of Personality and Social Psychology, 87*, 340–353.

Ames, D. (2004b). Strategies for social inference: A similarity contingency model of projection and stereotyping in attitude prevalence estimates. *Journal of Personality and Social Psychology, 87*, 573–585.

Baumeister, R. R. (1998). The self (4th ed.. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.). *The handbook of social psychology* (Vol. 1, pp. 680–740). New York: McGraw-Hill.

Biernat, M., Manis, M., & Kobrynowicz, D. (1997). Simultaneous assimilation and contrast effects in judgments of self and other. *Journal of Personality and Social Psychology, 73*, 254–269.

Cadinu, M. R., & Rothbart, M. (1996). Self-anchoring and differentiation processes in the minimal group setting. *Journal of Personality and Social Psychology, 70*, 661–677.

Caspi, A., & Roberts, B. W. (2001). Personality development across the life course: The argument for change and continuity. *Psychological Inquiry, 12*, 49–66.

Clement, R. W., & Krueger, J. (2002). Social categorization moderates social projection. *Journal of Experimental Social Psychology, 38*, 219–231.

Dunning, D., & Hayes, A. F. (1996). Evidence of egocentric comparison in social judgment. *Journal of Personality and Social Psychology, 71*, 213–229.

Gidron, D., Koehler, D. J., & Tversky, A. (1993). Implicit quantification of personality traits. *Personality and Social Psychology Bulletin, 19*, 594–604.

Gramzow, R. H., & Gaertner, L. (2005). Self-esteem and favoritism toward novel in-groups: The self as an evaluative base. *Journal of Personality and Social Psychology, 88*, 801–815.

Greve, W., & Wentura, D. (2003). Immunizing the self: Self-concept stabilization through reality-adaptive self-definitions. *Personality and Social Psychology Bulletin, 29*, 39–50.

Higgins, E. T. (1996). The "self digest": Self-knowledge serving self regulatory functions. *Journal of Personality and Social Psychology, 71*, 1062–1083.

Katz, D., & Allport, F. (1931). *Students' attitudes*. Syracuse, NY: Craftsman.

Krueger, J. (1998a). Enhancement bias in the description of self and others. *Personality and Social Psychology Bulletin, 24*, 505–516.

Krueger, J. (1998b). On the perception of social consensus. *Advances in Experimental Social Psychology, 30*, 163–240.

Krueger, J. I. (2007). From social projection to social behavior. *European Review of Social Psychology, 18*, 1–35.

Krueger, J., & Zeiger, J. S. (1993). Social categorization and the truly false consensus. *Journal of Personality and Social Psychology, 65*, 670–680.

Marks, G., & Miller, N. (1987). Ten years of research on the false-consensus effect: An empirical and theoretical review. *Psychological Bulletin, 102*, 72–90.

Markus, H. R., & Kunda, Z. (1986). Stability and malleability of the self-concept. *Journal of Personality and Social Psychology, 51*, 858–866.

Markus, H. R., & Wurf, E. (1987). The dynamic self-concept: A social psychological perspective. *Annual Review of Psychology, 38*, 299–337.

Mullen, B., Dovidio, J. F., Johnson, C., & Copper, C. (1992). Ingroup–outgroup differences in social projection. *Journal of Experimental Social Psychology, 28*, 422–440.

Mussweiler, T. (2003). When egocentrism breeds distinctness-comparison processes in social prediction: Comment on Karniol (2003). *Psychological Review, 110*, 581–584.

Otten, S., & Wentura, D. (2001). Self-anchoring and ingroup favoritism: An individual-profiles analysis. *Journal of Experimental Social Psychology, 37*, 525–532.

Riketta, M., & Sacramento, C. (2008). 'They cooperate with us, so they are like me': Perceived intergroup relationship moderates projection from self to outgroups. *Group Processes and Intergroup Relations, 11*, 115–131.

Robbins, J. M., & Krueger, J. I. (2005). Social projection to in groups and outgroups: A review and meta-analysis. *Personality and Social Psychology Review, 9*, 32–47.

Robinson, R., Keltner, D., Ward, A., & Ross, L. (1995). Actual versus assumed differences in construal: "Naive realism" in intergroup perception and conflict. *Journal of Personality and Social Psychology, 68*, 404–417.

Ross, L., Greene, D., & House, P. (1977). The false consensus phenomenon: An attributional bias in self-perception and social-perception processes. *Journal of Experimental Social Psychology, 13*, 279–301.

Ruscher, J. B., & Fiske, S. T. (1990). Interpersonal competition can cause individuating processes. *Journal of Personality and Social Psychology, 58*, 832–843.

Ruscher, J. B., & Fiske, S. T. (1993). Negative interdependence and prejudice: Whence the affect? In D. M. Mackie & D. L. Hamilton (Eds.), *Affect, cognition, and stereotyping: Interactive processes in group perception* (pp. 239–268). San Diego, CA: Academic Press.

Schopler, J., & Insko, C. A. (1992). The discontinuity effect in interpersonal and intergroup relations: Generality and mediation. In W. Stroebe & M. Hewstone (Eds.), *European Review of Social Psychology* (pp. 121–151). New York: John Wiley.

Sinha, R. R., & Krueger, J. (1998). Idiographic self-evaluation and bias. *Journal of Research in Personality, 32*, 131–155.

Smith, E. R., & Zarate, M. A. (1992). Exemplar-based model of social judgment. *Psychological Review, 99*, 3–21.

Stapel, D. A., & Koomen, W. (2005). Cooperation, competition and the effects of others on me. *Journal of Personality and Social Psychology, 88*, 1029–1038.

Stathi, S., & Crisp, R. J. (2008). Imagining intergroup contact promotes projection to outgroups. *Journal of Experimental Social Psychology, 44*, 943–957.

Van Boven, L., Dunning, D., & Loewenstein, G. (2000). Egocentric empathy gaps between owners and buyers: Misperceptions of the endowment effect. *Journal of Personality and Social Psychology, 79*, 66–76.

Yzerbyt, V. Y., Muller, D., & Judd, C. M. (2004). Adjusting researchers' approach to adjustment: On the use of covariates when testing interactions. *Journal of Experimental Social Psychology, 40*, 423–431.