


Of Nice and Mean: The Personal Relevance of Others' Competence Drives Perceptions of Warmth

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Abstract

Past research shows that when forming an impression of an interdependent person, perceivers are motivated to look for information relevant to their goals and interests. The present experiments examined what happens after this information-seeking stage and showed that the relevance of the target's attributes for one's goals and interests drives warmth impressions. Using both a scenario (Experiment 1) and realistic methodologies (Experiment 3), we showed that when the perceiver had to collaborate with a target, the more competent the target, the more perceivers anticipated success and the more the target came across as warm. By contrast, in a competition setting, the competence of the target negatively affected prospects of success and impressions of warmth. Experiment 2 further showed that the target's competence drove warmth impressions only when perceivers attached a great value to the success of the task, suggesting that these inferences have a motivational underpinning.

Keywords

impression formation, warmth and competence, interdependence, motivated perception, social perception

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Interdependence is at the heart of social life. For better or worse, our goals and interests always combine with those of others and their satisfaction often hangs on other's attributes, abilities, and goodwill. It thus comes as no surprise that interdependence exerts a considerable impact on how we make sense of others. Outcome dependency, that is, the fact that the outcome of a person depends on another person, received a lot of attention in the rich literature on impression formation (for a review, see Fiske & Neuberg, 1990). On a psychological level, this construct is often conceived as a situation of control deprivation (Fiske, 1993). For instance, facing a new encounter (Berscheid, Graziano, Monson, & Dermer, 1976), depending on a collaborator or a competitor for an important reward (Ruscher & Fiske, 1990; Vonk, 1998), or being confronted to powerful people (Fiske & Dépret, 1996) are all outcome dependent situations where the sense of control and predictability is jeopardized, inducing a feeling of uncertainty.

A substantial number of studies revealed that people devote special effort and care when it comes to forming an impression of the person on whom they depend, for instance, by paying more attention to individualizing (Neuberg & Fiske, 1987) or unexpected information (Erber & Fiske, 1984). All this energy is invested to build a more accurate picture of the target because this better allows

anticipating whether the other person will affect self-interest. To put it another way, the outcome dependent person acts as a “motivated tactician” who processes in priority the information with the greatest personal relevance to restore the control threatened by the dependent nature of the relationship (Fiske, 1992).

But how do people picture the target once this information-gathering stage is finished? More specifically, what is the content of observers' impression once they have extracted the crucial information about the attributes that will likely affect their goals and interests? Complementing previous work on the effect of outcome dependency on impression formation, the present research comprises three studies showing that interdependence shapes our impression of the interdependent person on the warmth dimension by imbuing attributes that are unrelated to warmth with a positive or a negative personal meaning.

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The Personal Relevance of Other's Warmth and Competence

Over the last 15 years, the literature on social perception and impression formation showed that two fundamental dimensions, often called warmth and competence, organize the content of people's impressions (Abele & Wojciszke, 2014; Fiske, Cuddy, Glick, & Xu, 2002; for a recent review, see Yzerbyt, 2016). Whereas competence is often seen to comprise aspects of skills and assertiveness, warmth is best understood as including characteristics of morality and sociability (Abele, Cuddy, Judd, & Yzerbyt, 2008). Moreover, a substantial amount of evidence suggests that warmth enjoys a privileged status relative to competence (Fiske, 2015). When forming an impression, people are generally more interested in another person's or group's warmth than in any other kind of information (Ames & Bianchi, 2008; Wojciszke & Abele, 2008), with a special focus on the moral component of the warmth dimension (Goodwin, Piazza, & Rozin, 2014; Leach, Ellemers, & Barreto, 2007). Relative to competence, warmth-related information is also processed faster (Abele & Bruckmüller, 2011; Willis & Todorov, 2006), weights more in global impression (De Bruin & van Lange, 2000; Wojciszke & Abele, 2008), and is considered more important in people's accounts (Abele & Wojciszke, 2014).

This primacy of warmth over competence presumably results from the functional nature of social perception, that is, perceivers' tendency to give priority to information with direct or potential implications for their goals and interests (Fiske, 1992). Warmth attributes are primary in the perception of others because they are relevant to the satisfaction of nonspecific, basic, and chronic goals such as social acceptance, well-being, or integrity (Montoya & Horton, 2014). Moreover, they reflect the target's intentions toward the self and thereby inform perceivers whether they can securely approach the target or whether, on the contrary, avoidance or even competition is the behavior of choice (Fiske et al., 2002). The functional meaning of warmth has been nicely captured by the concept of "other-profitability" proposed by Peeters (1992). According to this author, warmth traits are "other-profitable" in the sense that they unconditionally benefit the people interacting with the holder of the characteristic (i.e., interacting with a nice person is almost by definition likable) while remaining ambivalent for the self (i.e., one could be exploited by others for being too nice).

The functional meaning of competence is rather different. Mirroring the other-profitability of warmth traits, Peeters (1992) theorized competence traits as "self-profitable": They unconditionally benefit the holder of the characteristic (i.e., whatever one's goal, one's competence always helps) but remain ambiguous for others (i.e., the characteristic can be used to help or to hurt?). Not surprisingly, mirroring the primacy of warmth in other-perception, competence is generally predominant in self-perception (Abele & Wojciszke, 2014; Wojciszke & Abele, 2008). Still, in some

circumstances, competence may also acquire a high degree of relevance in the perception of others. This is the case when the competence of others is the very aim of the perception, such as when the perceiver is a recruiter mandated to evaluate the suitability of applicants for a job (Cuddy, Glick, & Beninger, 2011). Even more interesting are situations in which the competence of the other becomes prevalent because it crucially affects the goals and interests of the perceiver himself. Interdependence is highly relevant here insofar it implies that the goals and interests of several people are dependent of one another. As a matter of fact, when the interdependence context implies that the perceiver's interest is linked to another person's competence, the typical primacy of warmth over competence effect turns into a primacy of competence over warmth effect (Abele & Wojciszke, 2014). For instance, research suggests that the supervisors' competence is more important in a business organization than in a bureaucratic organization because in a business organization, employees' professional advancements depend mainly upon supervisor's competence whereas they are regulated by preexisting formal criteria in bureaucratic organization (Wojciszke & Abele, 2008).

To sum up, by default, when the perceiver has no specific goal in mind, warmth is primary in other-perception because it is inherently "other-profitable" (Peeters, 1992). However, competence may take precedence as soon as the perceiver's specific goals are likely to be affected by the target's competence, such as in task-interdependence contexts (Wojciszke & Abele, 2008). Thus, the personal relevance of other's warmth and competence is key to understanding how perceivers *motivationally process* information about others. The present research builds upon this lesson to address a new and complementary question: What is the *content* of the impression formed once the perceivers gain information that is likely to affect their goals and interest?

The Perception of Goal-Relevant Others

Echoing early theorists (James, 1890; Lewin, 1935), research on motivated social cognition shows that peoples' attitudes toward objects depend on the objects' usefulness for their goals. For instance, goal-relevant objects are seen more positively than goal-irrelevant objects and the same object can be seen more positively when a goal related to this object is activated (Ferguson & Bargh, 2004; Moors, De Houwer, & Eelen, 2004). Next to objects, recent evidence reveals that goals also shape the evaluation of people. For example, one's feelings toward friends happen to be more positive or negative depending on whether they facilitate or hinder the achievement of one's personal goals (Fitzsimons & Shah, 2008). Thus, the global evaluation of others is contingent upon their impact on one's goals and interests. But the critical question remains: On which dimension does this evaluation rely?

Our main contention is that perceived warmth should be sensitive to how the target affects perceiver's goals and interests, even in the absence of relevant warmth cues. This conjecture draws directly from a reinterpretation of Peeters' (1992) concept of "other-profitability." Peeters (1992) theorized that target's warmth is inherently beneficial for the perceiver. We propose to reverse this reasoning. We argue that the target should be perceived as warm to the extent that he or she benefits the perceiver, even in the absence of any warmth-related information. This inference is all the more likely given that, contrary to competence judgments that are often tied to external and relatively objective indicators such as social status or task-performance, warmth judgments are less constrained by reality, more subjective (Tausch, Kenworthy, & Hewstone, 2007; Yzerbyt & Cambon, 2017), and thus should be especially prone to egocentric biases.

A first, albeit indirect, argument consistent with this conjecture is that people who are likely to foster one's goals generally elicit liking and the corresponding approach-avoidance response. For instance, research on close relationships shows that the way people feel about their romantic partner is positively shaped by the extent to which this partner recognizes and facilitates their progress toward significant goals (Gere, Schimmack, Pinkus, & Lockwood, 2011). Although these studies did not gauge partner's warmth directly, the constructs used to investigate the effect of partner's goal-relevance can clearly be interpreted as pertaining to warmth (e.g., quality of partner relationship, affective well-being, conflict, etc.). Other work shows that the goal-congruency (vs. goal-incongruency) of another person elicits approach (vs. avoidance; Fitzsimons & Fishbach, 2010; Fitzsimons & Shah, 2008). In short, liking, an attitude, and approach-avoidance, a behavioral response, in relation to others, two indicators of attraction closely related to warmth, are contingent upon others' impact on the perceiver's goals. More directly relevant to our conjecture, a second argument comes from recent research conducted by Bocian and Wojciszke (2014) showing that the evaluation of other people's morality—a subdimension of warmth—can stem from self-interest. In this work, a person showing a counternormative behavior (i.e., rule violation, cheating) was perceived to be more moral if perceivers benefited from the behavior than if they did not (see also Epley & Caruso, 2004).

The Present Research

In situations of task-interdependence, all parties involved should consider each other's competence not only as key for task success but also as highly relevant for the self, at least if task success matters. Our focus here is to better understand how task-interdependent targets are seen when perceivers learn that the target does versus does not possess the attributes that are conducive to success. Our main contention is that the implications of the target's competence for perceivers finding themselves in interdependent settings should

translate into warmth impressions. In a cooperative setting, the competence of the target should be viewed as an asset, whereas any incompetence should be viewed as an hindrance. In contrast, in a competitive setting, a competent target should be seen as a threat, whereas an incompetent target should be considered as a good prospect for success (Deutsch, 1949). We hypothesized that the warmth attributed to the target should parallel the perceiver's prospect of success.

To test these predictions, Experiment 1 relied on a scenario methodology whereby participants had to infer their chances of success and the warmth of a target presented as either competent or incompetent. They did so either in a cooperative or in a competitive context. We expected that both warmth impressions and anticipated success would be positively affected by the target's competence in the context of cooperation and negatively in the context of competition.

According to our reasoning, warmth impressions reflect the extent to which target's competence affects perceiver's goal and interest. This means that a prerequisite for the emergence of warmth impressions is that the perceiver has a personal interest in getting the task done successfully. If the perceiver is not motivated to succeed, there is no reason to regard the competence of the target as being personally relevant. In such a situation, no warmth impressions should arise as a function of target's competence, even if, arguably, the perceiver may still recognize that the competence of the target is key for task success. The aim of Experiment 2 was to provide support for the moderating role of perceiver's motivation to succeed.

Using the same methodology as Experiment 1, we manipulated both the competence of the target and perceiver's motivation to succeed either in a context of cooperation (Experiment 2A) or competition (Experiment 2B). We expected a different pattern of results for anticipated success and for warmth impressions. The competence of the target should predict the perceived chances of success positively (vs. negatively) in cooperation (vs. competition), irrespective of perceiver's motivation to succeed. By way of contrast, we assumed that target's competence should affect warmth impression positively (vs. negatively) in cooperation (vs. in competition), but only if the perceiver is motivated to succeed.

Finally, Experiment 3 replicated Experiment 1 but relied on a more ecological procedure to avoid the limitations traditionally associated with a vignette methodology. Participants were confronted firsthand with a cooperative or competitive situation involving either a competent or an incompetent target and were asked to rate this target's warmth and to predict a series of warmth-related behaviors. Indeed, we expected the warmth impressions resulting from the satisfaction of the perceiver's self-interest to go beyond the local context and to become a subjectively valid picture of the reality. In other words, we predicted that the target's (lack of) warmth would now be seen as an internal disposition.

Experiment I

In this first experiment, participants read a scenario in which two persons who do not know each other learn that they will have to work together on a long-term project. They were then asked to take the viewpoint of one of the two persons and informed that they would have to either collaborate or compete with the other person, who was presented as either competent or incompetent. Finally, participants were asked to form an impression of this other person, that is, the target. We hypothesized that the competence of the target would have a positive impact on the participants' anticipated success on the task in the context of cooperation and a negative impact in the context of competition. More crucially, the warmth of the target was expected to parallel these variations of anticipated success.

Method

Participants. We had no specific prediction regarding the effect size. Considering that scenario experiments usually deliver moderate to large effect sizes, we preferred to assume that the effect of interest would be of medium size ($R^2 = .10$) and calculated that we needed a sample of 73 participants to secure 80% power. We therefore collected data from 70 Swiss university students (44 women and 25 men; one participant did not report gender). All participants (mean age = 21.78, $SD = 1.92$) were approached individually in various libraries of the University of Lausanne.

Materials and procedure. Participants were asked to read a scenario describing a situation involving a fictitious character named Dominique. They were asked to put themselves in the shoes of Dominique and to imagine how he would react to the situation described in the scenario. The scenario revealed that Dominique just learned that he had to work on a new project for a 5-month period and that he would be allocated a reward if the project was evaluated positively by external experts. The scenario also stressed how important it was for Dominique to succeed at the task. After the presentation of this background information, the content of the scenario varied according to a 2 (type of interdependence: cooperation vs. competition) \times 2 (target's competence: high vs. low competence) between-participants design.

The first manipulated variable concerned the type of interdependence between the main character, Dominique, and another fictitious person. In the cooperation condition, Dominique learned that he would have to cooperate during the entire duration of the project with Pierre, whom he had never met. Dominique was also informed that he would receive the same reward as Pierre based on the quality of their joint work. In the competition condition, Dominique learned that they would have to work separately on their own project and that external experts would only reward the person who came up with the best project.

The second manipulated variable concerned the level of competence of the target. The scenario stated that Dominique learned that Pierre was either competent or incompetent. Specifically, Pierre's competence was manipulated by presenting three personality traits selected among a sample of six competence-related traits (competent, capable, efficient, intelligent, conscientious, and industrious) according to four different configurations (123-345-456-246). This procedure allowed to limit the impact of particular competence-related traits on the perception of the target.

After reading the vignette, participants were asked to take 2 min to write down a short text depicting Pierre in a way they thought Dominique would. This impression formation task aimed to solidify participants' impression of the target (Judd, James-Hawkins, Yzerbyt, & Kashima, 2005). Next, participants were asked to rate Pierre on four warmth traits (warm, friendly, likable and kind), six competence traits (the same as those used in the profile), and a series of filler personality traits using 7-point rating scales ranging from -3 (*not at all*) to $+3$ (*extremely*). Warmth traits ($\alpha = .91$) constituted our main dependent variable and competence traits ($\alpha = .97$) served as our manipulation check. Finally, participants had to indicate on two 7-point scales ranging from -3 (*do not agree at all*) to $+3$ (*agree completely*) how they thought Dominique considered his chances of success knowing what he knew about Pierre. Specifically, the items were "Given Dominique's impression of Pierre, Dominique may think that he will be successful" and "Dominique thinks that Pierre is an obstacle to his success" ($r = -.78$). These two items were aggregated into a single score of anticipated success.

Results

Each dependent measure was submitted to a 2 (type of interdependence: cooperation vs. competition) \times 2 (target's competence: high vs low competence) between-participants analysis of variance. We initially included participant's gender in the analyses. Because this factor had no impact and failed to qualify other effects, whether in this experiment or in the other experiments, it was discarded from all analyses.

Manipulation check. Confirming the success of our manipulation, the above ANOVA revealed only a main effect of target's competence, $F(1, 66) = 867.23, p < .001, \eta_p^2 = .92$, 95% confidence interval (CI) = [4.01, 4.59]. The competent target was perceived as more competent ($M = 2.61, SD = 0.51$) than the incompetent target ($M = -1.69, SD = 0.69$).

Anticipated success. The same ANOVA on perception of anticipated success only revealed the expected Competent \times Interdependent interaction, $F(1, 66) = 216.69, p < .001, \eta_p^2 = .77$, 95% CI = [4.20, 8.15]. As expected, the competent target led to a higher level of anticipated success ($M = 2.33, SD = 1.03$) than the incompetent target ($M = -1.72, SD = 1.13$) in cooperation, $F(1, 66) = 136.15, p < .001,$

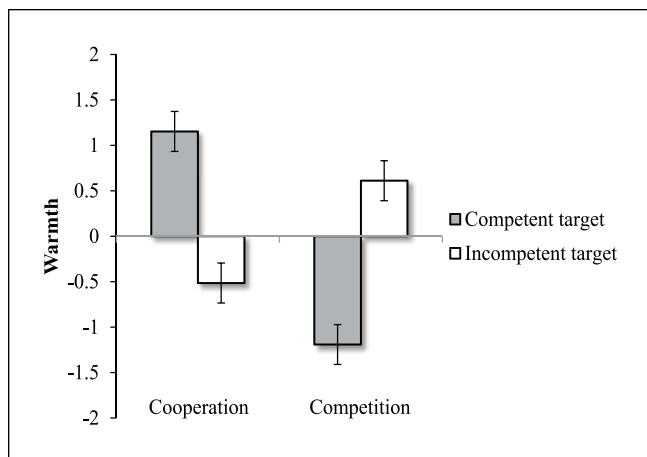


Figure 1. Perceptions of warmth as a function of type of interdependence (cooperation vs. competition) and target's competence (competent vs. incompetent) in Experiment 1. Note. Error bars depict standard errors.

whereas the opposite pattern emerged in competition ($M_{Competent} = -1.67$, $SD = 0.50$ and $M_{Incompetent} = 1.44$, $SD = 1.22$), $F(1, 66) = 83.36$, $p < .001$. Also, participants saw a better prospect of success for the competent target in cooperation than in competition, $F(1, 66) = 137.61$, $p < .001$, whereas the reverse was true for the incompetent target, $F(1, 66) = 82.69$, $p < .001$.

Warmth rating. The same ANOVA conducted on perceived warmth revealed a main effect of type of interdependence, $F(1, 66) = 7.45$, $p = .008$, $\eta_p^2 = .10$, 95% CI = [0.16, 1.05], such that the targets were perceived as warmer in cooperation ($M = 0.34$, $SD = 1.38$) than in competition ($M = -0.26$, $SD = 1.16$). More importantly, this effect was qualified by target's competence, $F(1, 66) = 60.49$, $p < .001$, $\eta_p^2 = .48$, 95% CI = [2.58, 4.36]. Parralleling the results for anticipating success (see Figure 1), the competent target was seen as warmer ($M = 1.15$, $SD = 1.1$) than the incompetent target ($M = -0.51$, $SD = 1.03$) in cooperation, $F(1, 66) = 27.94$, $p < .001$. In contrast, the competent target was seen as less warm ($M = -1.19$, $SD = 0.73$) than the incompetent target ($M = 0.61$, $SD = 0.71$) in competition, $F(1, 66) = 32.64$, $p < .001$. Moreover, the competent target was perceived as warmer in cooperation than in competition, $F(1, 66) = 55.21$, $p < .001$, whereas the reverse was true for the incompetent target, $F(1, 66) = 12.74$, $p = .001$.

Discussion

Experiment 1 showed that warmth perceptions paralleled the extent to which participants thought that the competence of the target was conducive to their success. In cooperation, the competence of the target predicted positively and reliably both participants' prospect of success and their perception of the target's warmth. The reverse was true in

competition. The competence of the competitive target led the perceiver to anticipate a low likelihood of task success and to see the target as relatively cold. As we see it, this pattern of results can be explained parsimoniously by the fact that the personal relevance of the competence of a target drives perceptions of this target's warmth. Orthogonal to this key interaction, results also revealed that cooperative targets were seen as warmer than competitive targets, irrespective of their competence. Arguably, this effect could be due to the fact that the typical representation of a "competitor" entails by default some level of threat, whereas a "cooperator" is typically regarded as a well-intentioned person (Deutsch, 1949).

The present findings strongly suggest that perceptions of warmth emerged because the competence of the target had a positive or negative impact on the success of the task, which, in turn, had a positive or negative value for the perceiver. Stated otherwise, Experiment 1 showed that the perception of target's warmth paralleled how perceivers anticipated their chance of success after they learned about the competence of the target. Of course, because anticipated success and perceptions of warmth were both measured, we cannot exclude the possibility that participants concluded that they were likely to succeed because they saw the target as warm. Experiment 2 is thus designed to test whether the link between anticipated success and perception of warmth can be moderated by perceiver's motivation to succeed. Observing this moderation should reinforce the argument that the impressions of warmth witnessed in Experiment 1 emerged because perceivers anticipated to succeed, in line with our motivational interpretation, and not the other way around.

Experiment 2

To highlight the motivational underpinning of the warmth impressions observed in Experiment 1, we conducted a set of two experiments in which the competence of the target was manipulated along with perceivers' motivation to succeed, either in cooperation (Experiment 2A) or in competition (Experiment 2B). Due to constraints regarding the availability of the participants, these two experiments were conducted separately. In cooperation (vs. competition), we predicted that the positive (vs. negative) impact of the competence of the target on perceptions of warmth would be stronger when perceivers are motivated to succeed. We also hypothesized that the competence of the target would influence perceivers' anticipation of success irrespective of whether they are or are not motivated to succeed.

Experiment 2A: Method

Participants. Given the findings of Experiment 1, we decided to recruit a total of 106 Swiss university students. Participants were approached individually in various libraries of

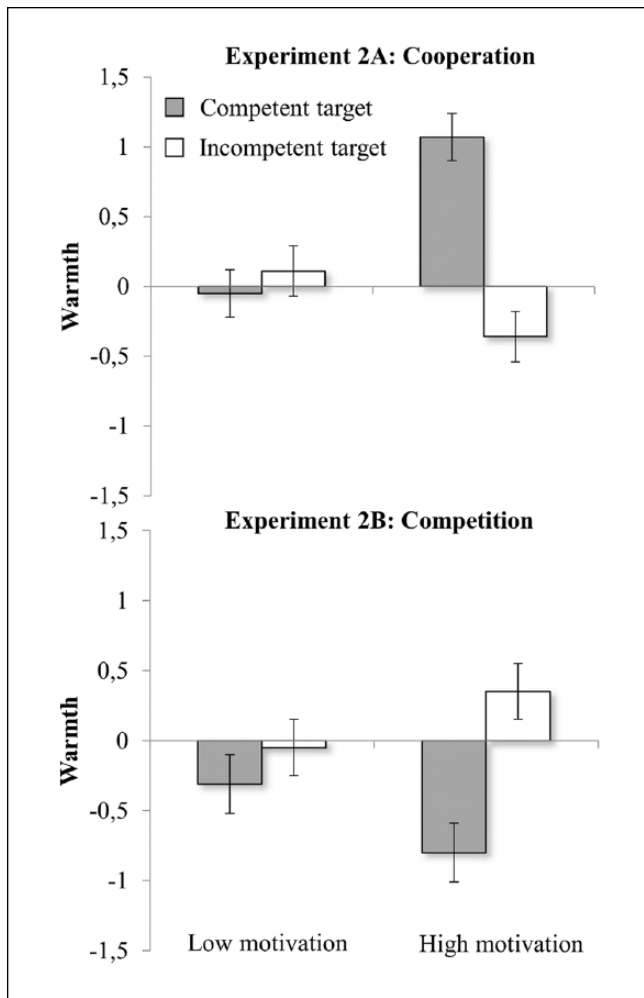


Figure 2. Perceptions of warmth as a function of target's competence (competent vs. incompetent) and perceiver's motivation to succeed (high vs. low) in cooperation (Experiment 2A, top panel) and in competition (Experiment 2B, bottom panel). Note. Error bars depict standard errors.

the University of Lausanne. The sample comprised 45 women and 46 men, with a mean age of 21.9 years ($SD = 1.91$), and 15 participants who did not report their age and gender.

Materials and procedure. As in Experiment 1, participants were asked to read a scenario, to report their first impression of the target in a short text, and to rate the target on a list of warmth and competence traits followed by two items of anticipated success. The scenario was the same as in Experiment 1 except that the cooperative context was kept constant and that perceiver's motivation to succeed was manipulated. In the *high motivation* condition, and replicating Experiment 1, participants read that "Obtaining this reward has become a central concern in Dominique's life. One of his greatest wishes is to succeed on this project." In the *low motivation* condition, participants read instead that "Obtaining this

reward leaves Dominique rather indifferent. The success of the project is not really important to him."

Experiment 2A: Results

Manipulation check. An ANOVA, using target's competence ($\alpha = .97$) and perceiver's motivation to succeed as between-participants factors, confirmed that the target was perceived to be more competent in the competent ($M = 2.49$, $SD = 0.55$) than in the incompetent condition, $M = -1.86$, $SD = 0.98$; $F(1, 102) = 913.8$, $p < .001$, $\eta_p^2 = .90$, 95% CI = [4.07, 4.64]. There was also a significant effect of perceiver's motivation to succeed, $F(1, 102) = 5.19$, $p = .025$, $\eta_p^2 = .05$. The target was seen as more competent in the low than in the high perceiver's motivation conditions ($M = 0.62$, $SD = 2.15$, and $M = 0.24$, $SD = 2.49$, respectively). Finally, the interaction between target's competence and perceiver's motivation to succeed was significant, $F(1, 102) = 10.4$, $p = .002$, $\eta_p^2 = .09$, 95% CI = [0.36, 1.50]. Whereas the incompetent target was perceived as being more incompetent when perceiver's motivation was high ($M = -2.26$, $SD = 0.55$) rather than low ($M = -1.47$, $SD = 1.16$), $F(1, 102) = 14.35$, $p < .001$, there was no difference of competence between the two competent targets as a function of perceiver's motivation to succeed ($M_{High} = 2.56$, $SD = 0.49$; $M_{Low} = 2.43$, $SD = 0.59$). Not surprisingly, the competent target was seen as more competent than the incompetent target both in the high, $F(1, 102) = 550.34$, $p < .001$, and in the low motivation to succeed conditions, $F(1, 102) = 370.85$, $p < .001$.

Anticipated success. The same ANOVA revealed a main effect of target's competence on anticipated success ($r = -.81$), $F(1, 102) = 374.38$, $p < .001$, $\eta_p^2 = .78$, 95% CI = [2.97, 3.65], but no main effect of perceiver's motivation, $F(1, 102) = 1.59$, *ns*, and no interaction effect between target's competence and perceiver's motivation, $F(1, 102) = 1.15$, *ns*. Thus, as expected, the perception of the chances of success were independent from perceiver's motivation to succeed.¹

Warmth. The same ANOVA on the warmth ratings ($\alpha = .79$) revealed a significant effect of target's competence, $F(1, 102) = 12.87$, $p < .001$, $\eta_p^2 = .11$, 95% CI = [0.28, 0.99]. The competent target was seen as warmer ($M = 0.49$, $SD = 1.16$) than the incompetent target ($M = -0.13$, $SD = 0.79$). More interestingly, the target's competence by perceiver's motivation interaction was also significant, $F(1, 102) = 20.25$, $p < .001$, $\eta_p^2 = .16$, 95% CI = [0.89, 2.29]. As expected (see Figure 2), whereas the competent target was perceived as warmer ($M = 1.07$, $SD = 0.87$) than the incompetent target ($M = -0.36$, $SD = 0.73$) in the high perceiver's motivation condition, $F(1, 102) = 32.16$, $p < .001$, there was no difference in the low perceiver's motivation condition ($M_{Competent} = -0.05$, $SD = 1.14$; $M_{Incompetent} = 0.11$, $SD = 0.80$), $F(1, 102) = 0.42$, *ns*. Also, the competent target was

seen as warmer when the perceiver was motivated to succeed than when he was not, $F(1, 102) = 21.35, p < .001$, and the reverse was true for the incompetent target, $F(1, 102) = 3.32, p = .07$.

Experiment 2B: Method

Participants. Although we calculated that 44 participants would give us 80% power to detect an effect size similar to the one observed in Experiment 2A, we decided to increase this sample size to ensure even more power. A total of 89 participants were recruited in the same way as in the two previous experiments. This sample comprised 17 men and 61 women, with a mean age of 21.54 years ($SD = 2.25$), along with 11 participants who did not report their sex and age. One female participant was dropped because of a high number of missing values, leaving 88 participants for the analyses.

Materials and procedure. Experiment 2B was similar to Experiment 2A with the exception that the context was competitive rather than cooperative.

Experiment 2B: Results

Manipulation check. An ANOVA using target's competence and perceiver's motivation to succeed as between-participants factors revealed only a significant effect of target's competence ($\alpha = .98$), $F(1, 84) = 749.06, p < .001, \eta_p^2 = .89$, 95% CI = [3.96, 4.58]. Confirming the success of our manipulation, the competent target was perceived as more competent ($M = 2.50, SD = 0.58$) than the incompetent target ($M = -1.77, SD = 0.85$).

Anticipated success. The same ANOVA on anticipated success ($r = -.56$) revealed only a main effect of competence, $F(1, 84) = 145.43, p < .001, \eta_p^2 = .63$, 95% CI = [-3.21, -2.31]. As expected, the chances of success were perceived to be higher in the incompetent ($M = 1.57, SD = 1.04$) than in the competent conditions ($M = -1.19, SD = 1.13$).

Warmth. The same analysis on the warmth scores ($\alpha = .87$) revealed a main effect of target's competence, $F(1, 84) = 13.35, p < .001, \eta_p^2 = .14$, 95% CI = [-1.16, -0.34]. The competent target was seen as colder ($M = -0.58, SD = 0.99$) than the incompetent target ($M = 0.19, SD = 0.97$). More importantly, and as hypothesized, the interaction between target's competence and perceiver's motivation to succeed was significant, $F(1, 84) = 4.37, p = .04, \eta_p^2 = .05$, 95% CI = [-1.68, -0.42]. As can be seen in Figure 2, participants attributed less warmth to the competent target ($M = -0.80, SD = 0.92$) relative to the incompetent target ($M = 0.39, SD = 0.94$) in the high perceiver's motivation condition, $F(1, 84) = 17.27, p < .001$. In contrast, no difference in warmth emerged in the low perceiver's motivation to succeed ($M_{Competent} = -0.35, SD = 1.03$ and $M_{Incompetent} = -0.02, SD =$

0.97), $F(1, 84) = 1.17, ns$. No other comparison reached significance.

Discussion

Together, these two experiments nicely replicate the findings of Experiment 1. They show that, when success matters in the eyes of the perceiver, the competence of the target has a positive impact on perceived warmth in the context of cooperation and a negative one in the context of competition. Importantly, these differences in perceived warmth vanished when perceivers did not consider success as being important. In line with research on the goal-contingency of evaluation (Bargh, Green, & Fitzsimons, 2008; Ferguson & Bargh, 2004; Fitzsimons & Shah, 2008), participants thus judged the target to be warm or cold depending on the interdependence context only when goal attainment proved sufficiently relevant for them. This confirms that interdependence does not lead to evaluate the other person's warmth in any mechanistic way based on how she or he will potentially affect perceiver's success. Rather, the level of warmth assigned to the target reflects the target's value in the eyes of the perceiver, confirming the motivational nature of the phenomenon. Taken together, Experiments 2A and 2B thus support our general hypothesis based on a reversed reading of Peeters' (1992) concept of other-profitability: Warmth ascribed to others likely reflects their potential to affect perceivers' interests over and above direct warmth-related information.

To be sure, it is important to recognize two limitations to the above experiments. First, because participants judged the target on valenced items (i.e., warmth traits), one could argue that they simply reported their perception of the quality of the relationship between the perceiver and the target (e.g., a positive relationship in cooperation with a competent target but a negative one in competition) rather than making dispositional inferences regarding the target's warmth. Second, and more importantly, because the vignette method used required participants to place themselves into another person's shoes, it could be argued that these findings only reflect participants' naive theories about the impact of target's competence on warmth judgments in impression formation. Replicating these findings in a more ecological context in which participants react on their behalf and not in reference to a vignette would go a long way to validate our hypotheses.

To address these two issues, Experiment 3 capitalized on a situation involving an actual reward for participants and in which they had to form an impression of a target whom they believed was real. Because we also wanted to collect evidence that, from the perceiver's point of view, the warmth ascribed to the target reflects the target's actual personality, participants were also asked to indicate their expectation of how the target would behave in addition to conveying warmth judgments.

Experiment 3

Method

Participants. In light of the previous experiments and the observed effect sizes, Experiment 3 relied on 114 Belgian university students, 29 men and 85 women, with a mean age of 21.78 ($SD = 3.27$).² All participants provided an informed written consent and were paid 5€ for their participation. As in Experiment 1, they were randomly assigned to one of the four conditions of a 2 (type of interdependence: cooperation vs. competition) \times 2 (target's competence: high vs. low) between-participants design.

Materials and procedure. Participants came to the lab for a study on "teleworking." The experimenter asked them to wait 5 min in the waiting room of the lab while he was allegedly giving instructions to another participant. This was done to make participants believe that there was another student participating in this experiment and that they were about to be paired with him or her, which in fact was not the case. Next, participants were seated in individual cubicles and were asked to read carefully and sign two consent forms. The first was the actual consent form of the university where the experiment was conducted, and the second was a fake form of the "Belgium Society of Organizational Psychology," the alleged funder of the experiment. In this second form, participants learned that they would be filmed and that the eight best performing participants would each win €80. This was done to bolster participant's motivation to succeed. Participants learned that, if they would win the amount, the Belgium Society of Organizational Psychology would let them donate all or part of this sum to a well-known charity organization promoting and funding cancer research. They were asked to fill the form to make a donation and to place it in an envelope so as to prevent the experimenter from seeing it.

After these preliminary steps, the main part of the experiment was run on Qualtrics and consisted in three parts. First, participants completed a Raven test and received false feedback about their performance. To control their self-perceived competence, all participants were told that they had scored slightly above the average (allegedly calculated on a large population aged between 18 and 30 years). They were then asked to pick five preferred activities from a list of 20 (Toma, Yzerbyt, & Corneille, 2012). The purpose of these two tasks (Raven task and choice of activities) was to increase the credibility of the information provided to participants about the target in subsequent steps.

The manipulation of the type of interdependence was introduced at this stage of the procedure. Specifically, participants learned that the webcam would be turned on shortly and that they would have to interact with the other participant on a collaborative (vs. competitive) task. Right before starting, participants were told that, in real teleworking situations, teleworkers often have information about the other

person and that the experimenter was interested in how the perception of this target person evolved during task completion. Participants were then given information and asked to form an impression of the target. Depending on the experimental condition (competence vs. incompetence), participants could read that the target received a high versus low score on the Raven Task. Then, they had to further solidify their impression of the target on the basis of the five activities he or she has allegedly chosen. These activities were the same in all experimental conditions: going to the cinema, listening to music, doing winter sports, spending time with family, and surfing the Internet. The purpose of this step was to provide participants with minimal information so as to make the target judgeable while remaining ambiguous with respect to the target's warmth (Yzerbyt, Schadron, Leyens, & Rocher, 1994).

After reading the information, participants had first to rate the target on 7-point scales ranging from -3 (*not at all*) to $+3$ (*extremely*) on six warmth traits (warm, friendly, sociable, altruistic, likable, and honest, $\alpha = .90$) and six competence traits (competent, intelligent, capable, efficient, clever, and assertive, $\alpha = .95$). A second dependent variable consisted in 12 behaviors pretested to be either positive or negative on the warmth dimension and neutral on the competence dimension (Table 1).³ Both traits and behaviors were presented in a random order. Then, participants had to answer a series of questions again on 7-point scales. The first question was about their current emotional state (Do you feel stressed?). The second concerned their implication in the task that was about to start (Would you say that you will do your best?).⁴ The next three questions measured anticipated success (the two items from Experiment 1 along with another item: What do you think are your chances of success? ($\alpha = .86$)). Participants were then asked to guess the donation given by the target and to write the amount down on the same form as the one they had completed at the beginning of the session. Finally, participants were debriefed, thanked for their participation, and dismissed.

It is worth noting that, during the debriefing, no participant expressed any doubt about the cover story and many of them reported being intimidated or excited at the idea of meeting the other person, being filmed during the interaction, and working on a performance task evaluated by the experimenter. These reactions suggest that participants were genuinely caught up in the situation and speaks to the ecological validity of the paradigm.

Results

Manipulation checks. An ANOVA on competence scores using target's competence and type of interdependence as between-participants factors revealed only a significant effect of competence, $F(1, 110) = 99.42$, $p < .001$, $\eta_p^2 = .48$, 95% CI = [1.28, 1.91], confirming the success of the manipulation of the target's competence ($M_{Competent} = 1.80$,

Table 1. Warmth-Related Behaviors Used in Experiment 3.

Behavior	Warmth		Competence	
	M	SD	M	SD
High warmth				
That is the kind of person who smiles to strangers on the street to make their day more pleasant.	2.33	0.86	0.52	0.75
This person accepted to wake up at 5:00 in the morning to drive a friend to the airport.	2.19	0.87	0.52	0.98
This person brought some fruits at work to share with colleagues.	2.14	0.73	0.62	1.50
This is someone who easily makes new friends.	2.05	0.67	0.90	0.79
This is the kind of person who cares about other’s well-being.	2.05	0.50	0.52	0.98
This person thinks that people are fundamentally well-intentioned.	1.90	0.94	-0.08	1.08
Low warmth				
This person does not always make himself or herself available for others even if they need help.	-0.71	1.15	0.10	0.89
This person left a party because he or she thought that people there were too superficial. ^a	-0.75	1.55	0.50	1.32
The person does not really care about what others are doing.	-0.80	1.11	-0.05	1.05
This person sometimes says irritating or even rude things to other people.	-0.90	0.83	-0.19	1.17
This person did not like it when a passerby asked for direction.	-1.52	0.87	-0.57	0.93
This is the kind of person who thinks that he or she has no business in others’ misfortune.	-1.62	0.86	0.24	1.00

^aBehavior deleted from the analyses.

$SD = 0.86$ and $M_{Incompetent} = 0.21, SD = 0.82$).

Anticipated success. The same analysis conducted on anticipated success revealed a significant effect of interdependence, $F(1, 110) = 34.61, p < .001, \eta_p^2 = .24, 95\% CI = [0.69, 1.40]$. Participants were more optimistic with regard to their future success in cooperation ($M = 2.24, SD = 0.96$) than in competition ($M = 1.15, SD = 1.13$). More importantly, the expected competence by interdependence interaction was significant, $F(1, 110) = 26.47, p < .001, \eta_p^2 = .19, 95\% CI = [1.13, 2.54]$. In the cooperative context, participants anticipated higher chances of success when the target was competent rather than incompetent ($M_{Competent} = 2.59, SD = 0.75$ and $M_{Incompetent} = 1.79, SD = 1.03, F(1, 110) = 10.21, p = .002$, whereas the opposite was true in the competitive context ($M_{Competent} = .63, SD = 1.09$, and $M_{Incompetent} = 1.66, SD = .91; F(1, 110) = 16.68, p < .001$). Also, the competent target led to a better prospect of success in cooperation than in competition, $F(1, 110) = 64.22, p < .001$, whereas no difference was found between the two incompetent targets.

Warmth ratings. The same ANOVA was conducted on perceived warmth and revealed that neither the main effects of competence nor interdependence reached significance, $F_s(1, 110) = 0.17$ and $0.78, ns$, respectively. In line with predictions, the data confirmed the presence of the competence by interdependence interaction, $F(1, 110) = 8.76, p = .004, \eta_p^2 = .07, 95\% CI = [0.32, 1.61]$. As can be seen in Figure 3, in cooperation, the competent target was seen as warmer ($M = 1.28, SD = 0.87$) than the incompetent target ($M = 0.75, SD = 0.75; F(1, 110) = 5.24, p = .024$, whereas the reverse pattern was found in competition ($M_{Competent} = 0.58, SD = 1.01$ and $M_{Incompetent} = 1.02, SD = 0.80; F(1, 110) = 3.59, p = .061$). Paralleling anticipated success, the competent target

was seen as warmer in cooperation than in competition, $F(1, 110) = 9.74, p = .002$, but no difference emerged for the incompetent targets.

Warm behavior ascription. We computed an aggregate score comprising the 11 warmth-related behaviors ($\alpha = .84$, one negative warmth item was deleted due to its detrimental impact on reliability). Again, the predicted interaction was significant, $F(1, 110) = 4.35, p = .039, \eta_p^2 = .04, 95\% CI = [0.03, 1.15]$. This time, the paired comparisons between competent and incompetent targets did not reach significance, whether for cooperation or for competition, $F(1, 110) < 2.31, ns$, although the means were in the expected direction. Specifically, the competent target ($M = 1.27, SD = 0.71$) was perceived as warmer than the incompetent target in cooperation ($M = 0.98, SD = 0.81$), whereas the reverse was true in competition ($M_{Competent} = 0.84, SD = 0.82$, and $M_{Incompetent} = 1.14, SD = 0.68$). Conversely, and replicating the pattern observed for the other dependent variables, participants ascribed significantly more warm behaviors to the competent target in cooperation than in competition, $F(1, 110) = 4.86, p = .03$, whereas no difference was found for the incompetent targets.

Donation. We computed donation scores by subtracting the estimated donation of the target from the donation the participant provided at the beginning of the experiment. Thus, positive (negative) scores indicate that participants imagined the target as more (less) generous than themselves. We submitted these scores of relative generosity to the same analysis as before. The interaction between target’s competence and interdependence was close to significance, $F(1, 110) = 3.51, p = .064, \eta_p^2 = .03, 95\% CI = [-0.41, 14.37]$ (see Note 2). Paired comparisons showed that, in cooperation, participants

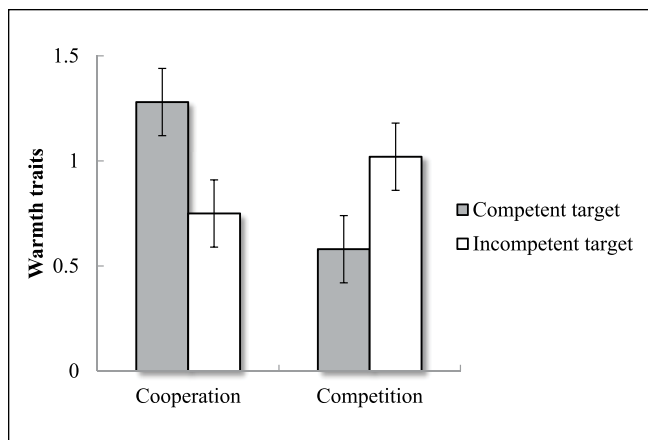


Figure 3. Impression of warmth as a function of interdependence (cooperation vs. competition) and target's competence (competent vs. incompetent) in Experiment 3. Note. Error bars depict standard errors.

imagined the relative generosity of the target to be higher in the competent ($M = 3.53$, $SD = 7.91$) than in the incompetent condition ($M = -1.56$, $SD = 8.5$), $F(1, 110) = 3.70$, $p = .057$. In competition, and although the means were in the predicted direction, the difference between competent ($M = 2.25$, $SD = 11.82$) and incompetent targets ($M = 4.14$, $SD = 10.94$) failed to reach significance, $F(1, 110) = .52$, *ns*. Conversely, the incompetent target was perceived as more generous in competition than in cooperation, $F(1, 110) = 4.44$, $p = .037$, whereas no difference emerged between the two competent targets.

Discussion

Experiment 3 successfully replicated the results from Experiment 1. Importantly, we garnered strong support in a situation involving a tangible reward and in which participants expected to interact with a real person. We observed the predicted interaction between target's competence and interdependence on warmth with a variety of response formats, including a classical traits attribution task, a behavior attribution task, and a behavioral prediction task. It is important to emphasize that, for the two latter tasks, participants knew that the prosocial behaviors were not intended to benefit them personally. This suggests that participants did not convey answers suggesting warmth strictly as a function of the hypothesized pleasantness of the relationship that they personally would experience with the target. Taken together, these results are entirely in line with our hypothesis that warmth impressions reflect the personal relevance of target's competence and that these impressions can be considered as authentic dispositional attributions about the target.

General Discussion

A substantial body of evidence shows that, in interdependence relationships, perceivers are pragmatically motivated

to look for information relevant to their goals and well-being (Fiske, 1992; Hilton & Darley, 1991). Complementing these efforts devoted to the impression formation stage, the present article focused on the resulting content of the impression. What kind of impression emerges when social perceivers have been confronted with the attributes of a person on whom they depend. We hypothesized that impressions of warmth would reflect the extent to which the attributes of the interdependent target are beneficial or not for the perceiver. This hypothesis rests on the idea that perceivers actively engaged in goal pursuit generate evaluations of objects and people based on goal-congruency. As a consequence, targets are seen more or less positively depending on whether they facilitate or hinder the attainment of perceiver's goal (Ferguson & Bargh, 2004; Fitzsimons & Shah, 2008; James, 1890; Lewin, 1935). The "selfish goal principle" (Bargh et al., 2008) directly resonates with the contention that warmth impressions reflect the profitability of the target for the perceiver (Peeters, 1992).

Three experiments provide consistent support to our hypothesis that the personal relevance of the competence of others drives impressions of warmth. Experiment 1 showed that, when the perceiver had to collaborate with a target, the more the target came across as competent, the more the perceiver thought that his or her chances of success were high and the more he or she attributed warmth to the target. The opposite pattern was found in competition, that is, the more the target was presented as competent, the less the perceiver expected to succeed and the less the target was attributed warmth. In other words, impressions of warmth emerged to the extent that the perceiver could benefit from the attributes of the target, whether the latter displayed competence or incompetence. In line with the notion that this effect has a motivational underpinning, Experiment 2 showed that the contingency of warmth impressions on target's competence vanished when success did not matter anymore in the eyes of the perceiver. Interestingly, the (in)competence of the target was always acknowledged as a key factor toward task success, whether the perceiver was or was not motivated to succeed. At the same time, however, targets' competence drove impressions of warmth only when the perceiver was motivated to succeed.

To address the limitations inherent to the vignette method used in Experiments 1 and 2, Experiment 3 relied on a realistic setting in which participants were personally involved and where the monetary incentives were highly attractive. The findings nicely replicated the pattern observed in Experiment 1. As such, they go a long way to support the viability of our hypotheses. Importantly, participants' reactions confirm that the ascription of warmth is not a superficial way to approach the interaction. Instead, the setting encouraged participants to make rather strong dispositional attributions that materialized both in general expectations of conduct and in specific behavioral predictions such as donation. The dependent measures used in

this experiment suggest that perceivers were indeed tempted to go beyond the strict contingencies of the current situation by making inferences about the deep nature of the personality of the target.

It is interesting to note the nuances between the message from the present experiments and the lessons found in the work on the fundamental dimensions of social perception in general and the stereotype content model (SCM) in particular (for a review, see Fiske, 2015). In fact, the abundant literature on the SCM builds upon the assumption that two dimensions, namely, competence and warmth, organize the social universe. Research shows that the ascription of competence, that is, skills and assertiveness, derives from the position of social target on structural aspects or power and resources. In contrast, warmth, that is, sociability and morality, builds upon the nature of the interdependence between the parties (Kervyn, Fiske, & Yzerbyt, 2015). Whereas warmth is associated with a cooperative relation, it is denied in the case of a competitive relation. At some level, the structural aspects characterizing the targets and the impressions formed about them correspond to the two faces of the same coin. Warmth is attributed to the target through a process of correspondent inference. As a result, the position of the target on the cooperation/competition structure translates into benevolent/malevolent intentions. Thus, in essence, the competitiveness of the target comes across as resulting from free choice on the part of the target rather than from the presence of structural constraint.

The present experiments depart from this situation in that participants were aware that the nature of the interdependence was imposed upon them. As such, this constraint leaves no room for a dispositional attribution of the kind observed in “freely” chosen relations. In a situation where the interdependence appears as clearly situational, and in the absence of any other evidence concerning the target, the information about competence is likely to combine with interdependence, leading to the emergence of the interaction pattern observed in our studies. One distinct feature of the impressions observed here is that they are likely to play a very important role in the first stages of an interaction. With time, and in light of the costs and benefits linked to the interactions, people’s initial views about a given target may then evolve into the kind of impressions proposed by the SCM. As much as this, the present findings send a useful warning regarding the potential outcomes of some configurations.

In light of the above discussion, it is clear that the present research enriches and sheds new light on the research about the relationship between the two fundamental dimensions of social judgment. These two dimensions are often theorized as orthogonal (Abele et al., 2008; Fiske et al., 2002) but their relationship may change depending on the situation. For instance, the number of targets involved in the judgment situation would seem to influence the relationship between the so-called Big Two (for a review, see Kervyn, Yzerbyt, & Judd, 2010). When one target is considered at a time, the two

dimensions tend to covary positively (Rosenberg, Nelson, & Vivekananthan, 1968), a phenomenon called the “halo effect.” By contrast, they are often negatively related when two targets are evaluated simultaneously, a phenomenon called the compensation effect (Judd et al., 2005; Yzerbyt, Provost, & Corneille, 2005). Research on the compensation effect also identifies a series of moderators, such as the presence or absence of conflict and the status differences between the targets (Cambon, Yzerbyt, & Yakimova, 2014), and mediators, such as the motivation to appear nondiscriminatory (Yzerbyt & Cambon, 2017). The present research reveals that the relationship between the Big Two may also depend on additional contextual and motivational factors. As a matter of fact, our experiments not only show that warmth and competence were related positively in cooperation and negatively in competition, but also that the strength of these relationships varied according to the subjective involvement of the perceiver.

The findings accumulated in the present article certainly extend our understanding on how the interplay between motivation and relational context contribute to the impression we form of another person. However, a limitation of our work is that the observed phenomenon was evidenced mainly by way of a vignette method and that only Experiment 3 rested on a more ecological setting. In the light of significant amount of research documenting how motivation affects social perception (Fiske, 1993), we believe that the motivational nature of the phenomenon identified in the present research leaves very little room for doubt. However, we deem it important to replicate the present findings in future research with alternative methods.

Importantly, our findings also suggest interesting avenues for future research. A first possibility concerns the investigation of the strength and consequences of the impression formed in the context that we set up. Is it the case that people’s inferences are solid enough that they orient their future behaviors? The self-fulfilling nature of perceivers’ inferences should be investigated in experimental and natural contexts to examine the scope of the present conclusions in a number of relevant settings. One could hypothesize three possible answers. First, it could be that a follow-up interaction remains unaffected by this first impression, questioning the idea that a strong dispositional attribution emerges based on the relevance of target’s attributes for the perceiver. At the other extreme, it could be that perceivers would have some difficulty departing from their initially created impression. A third outcome may reveal more persistence of coldness rather than warmth impression, in line with the negativity bias often reported in the literature (Reeder & Brewer, 1979). In any event, such an endeavor would further inform the question of whether the impressions evidenced in the present experiments truly pave the way to a dispositional bias.

A second fascinating extension of our efforts has to do with the metaperception consequences of the kind of context examined here. What are the beliefs that participants

think their interaction partner holds about them? Indeed, when the interdependent competent partner is seen as warm, does this go hand in hand with a metaperception that the partner sees the participants as warm as well? Do participants think that they are seen as competent or, on the contrary, do they tend to believe that they are less competent? It may be the case that this derogatory self-view is what feeds the need to see the partner as kind and well-meaning. These are open but indeed exciting questions to explore.

Last but not least, it appears that some of the conditions that we examined in the present series of experiments bear close resemblance to situations encountered in the intergroup contact literature. Actually, participants were confronted with a situation whereby they had to cooperate (as opposed to compete) with a competent partner. This is not unlike what happens when group members need to collaborate with members of another group in the context of, for instance, a jigsaw classroom procedure. In that context, members of the different groups bring in different pieces of information to the problem-solving situation, making them “competent.” We see many similarities and would like to suggest that the positive feelings about the outgroup members that may develop in such settings are likely to be promoted by the same mechanisms than the ones examined here. Future work should definitely allow us to clarify the heuristic value of linking these two literatures with each other.

Authors' note

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Notes

1. The unexpected difference of perceived competence between the two incompetent targets (high vs. low perceiver's motivation conditions) did not affect the anticipated success variable.
2. One female participant was deleted because her donation score deviated more than 3 *SDs* from the mean score of the condition. Its suppression did not change the overall pattern of results, except a slight change for the Competence \times Interdependence interaction on donation score, $F(1, 111) = 4.39, p = .038$, before suppression.
3. In this pretest, we first created 36 behaviors (29 warmth-related and 7 neutral behaviors) inspired from previous research on the Big Two (Judd, James-Hawkins, Yzerbyt, & Kashima, 2005). Participants ($N = 21$) were asked to judge each of these

behaviors on warmth and competence. The two ratings questions were “How warm and kind do you think the person who did this behavior is?” and “How competent and intelligent do you think the person who did this behavior is?” Responses were given on a 7-point scale. We kept 12 behaviors that were either positive or negative on warmth and, at the same time, as neutral as possible on competence (Table 1).

4. No differences emerged between experimental conditions for these two items. The item regarding stress scored around the middle of the scale (between $M = 3.93$ and $M = 4.07$ on a scale from 1 to 7) and the item regarding implication, which was phrased as a proxy of subjective goal value, scored reasonably high on average (between $M = 5.53$ and $M = 6.00$), suggesting that we successfully led participants to attach some importance to the task at hand.

Supplemental Material

Supplemental material is available online with this article.

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