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Abstract

People report less variability within in-groups than within out-groups when they make their ratings on traits on which the in-group has a higher central tendency than the out-group. Simon, B. (1992a, 1992b) proposed that this effect is motivated by the need to protect a positive social identity. The present research tested the necessity of the social identity motive by using participants who were not members of any of the target groups that they judged. In Study 1 (N = 60), psychology undergraduate students reported significantly less intragroup variability on positive traits among a group of fashion designers that won a fashion competition than among a group that lost. Study 2 (N = 75) found a reverse effect on negative traits and confirmed the mediating role of perceived central tendency. These results demonstrate that the social identity motive is not necessary to explain the effect of central tendency on ratings of intragroup variability, and that the effect is more general than previously reported.

KEYWORDS: intragroup variability; in-group homogeneity; out-group homogeneity; stereotype; social identity

The Central Tendency of a Social Group can Affect Ratings of its Intragroup Variability in the Absence of Social Identity Concerns

A comprehensive and sophisticated account of social stereotypes requires the consideration of both *central tendency* and *intragroup variability* (e.g., Park & Judd, 1990). Central tendency refers to the extent to which the average member of a group possesses a trait. Intragroup variability refers to extent to which individual members of a group vary in the extent to which they possess a trait. To illustrate, people may perceive men to have a higher central tendency than women on the trait "aggressive", indicating that this trait is stereotypical of men. In addition, people may perceive men to be less variable than women in the extent to which they are aggressive. Again, this perception of relative intragroup homogeneity contributes to a stereotypical perception of men as being "all the same".

Importantly, central tendency has been found to affect ratings of intragroup variability. For example, people report significantly less variability within in-groups than within out-groups when they make their ratings on traits on which the in-group has a significantly higher central tendency than the out-group (i.e., in-group stereotypical traits; Brown & Wootton Millward, 1993; Castano & Yzerbyt, 1998, Studies 1 & 2; Kelly 1989; Pickett & Brewer, 2001; Rubin & Badea, 2007, Studies 1 & 2; Simon, 1992a; Simon & Pettigrew, 1990). To illustrate, psychology students have been found to rate psychologists as being significantly less variable than social workers on the traits *rigorous* and *theoretically trained*, because psychologists have a significantly higher central tendency than social workers on these in-group stereotypical traits (Castano & Yzerbyt, 1998).

There are two primary explanations for the effect of central tendency on ratings of intragroup variability. First, Simon (1992a, p. 412; 1992b, p. 15) proposed that traits that distinguish between the central tendencies of groups acquire a diagnostic value, and, following Tversky (1977, pp. 342-343), stimuli that share diagnostic features appear more similar to one another than stimuli that do not share those features. Second, Simon (1992a, pp. 407-408; 1992b, p. 13) proposed that people are motivated to perceive relatively less intragroup variability on traits that are stereotypical of their in-groups in order to protect a positive social identity for themselves (Tajfel & Turner, 1979). Perceiving in-group homogeneity on in-group stereotypical traits may strengthen the in-group's claim to those traits, although as we have pointed out previously, this strategy may only lead to a positive social identity when the stereotypical traits are positive, rather than negative (Rubin & Badea, 2007, p. 32).

Overview of the Present Research

The main aim of the present research was to test whether the social identity motive is necessary for a group's central tendency to affect ratings of its intragroup variability. All previous research that has demonstrated this effect has involved participants who were members of one of the two social groups that they were asked to judge. Hence, people may have rated their own group as being less variable on stereotypical traits in order to protect or enhance their own social identity (Simon, 1992a, 1992b). In the present research, we used target groups that did not include participants as group members in order to preclude the influence of the social identity motive (see Guinote, Judd, & Brauer, 2002, Study 2, for a similar approach investigating the effect of group power on ratings of intragroup variability). We took this step in order to investigate whether the social identity motive is necessary for central tendency to affect ratings of intragroup variability. Evidence of an effect occurring when participants are not members of any of the target groups would indicate that the social identity motive is not necessary, and that the effect is more general than previously reported.

We also made a series of important changes to the standard research paradigm for investigating the effect of central tendency on perceived intragroup variability. First, we tested the external validity of the effect by using an innovative method of manipulating

central tendency. Specifically, we experimentally manipulated group performance in an intergroup competition in order to produce a winning group and a losing group. We then asked participants to make ratings of intragroup variability on traits that had either a positive or negative valence. We assumed that winning groups would be perceived to have a higher central tendency than losing groups on positive traits and vice versa on negative traits. In other words, people should perceive positive traits to be stereotypical of winning groups and negative traits to be stereotypical of losing groups. Based on this assumption, we predicted that people would rate winning groups as being less variable than losing groups on positive traits and more variable than losing groups on negative traits.

Second, previous research has assumed that people rate groups as being both less variable on stereotypical traits and more variable on counterstereotypical traits. However, the omission of appropriate control conditions has prevented a clear test of this assumption. In the present research, we included a control condition in which participants rated the intragroup variability of a group that occupied a middle position in the group performance rankings. Comparisons between this middle-placed group and the winning and losing groups allowed us to determine whether differences in reported intragroup variability were due to changes in the perceived variability of winning groups or losing groups or both groups.

Third, eight of the nine studies that have found an effect of central tendency on ratings of intragroup variability have used a repeated measures design in which individual research participants have provided ratings of both of the target groups under consideration (Brown & Wootton Millward, 1993; Castano & Yzerbyt, 1998, Study 2; Kelly 1989; Pickett & Brewer, 2001; Rubin & Badea, 2007, Studies 1 & 2; Simon, 1992a; Simon & Pettigrew, 1990; for an exception, see Castano & Yzyerbyt, 1998, Study 1). This approach may have led to artefactual results because (a) it may have cued participants to their researchers' expectations of different ratings of intragroup variability for each target group, and (b) it allowed participants to make relative adjustments to their judgements of each group prior to providing their ratings. In the present research, we eliminated this potential source of demand characteristics by using a between-subjects design in which participants in each condition rated the intragroup variability of only one target group.

Study 1

In Study 1, we experimentally manipulated the performance of a fictitious group of fashion designers in an intergroup competition in order to create winning, middle-placed, and losing groups. We then asked psychology undergraduate students to rate the intragroup variability of one of these groups on a series of positive traits. If the social identity motive is *not* necessary for central tendency to affect ratings of intragroup variability, then participants should rate winning groups as having significantly less intragroup variability than middle-placed groups, and middle-placed groups as having significantly less intragroup variability than losing groups. However, if the social identity motive *is* necessary, then there should be no significant difference in the perceived intragroup variability of any of the groups, because participants are not affiliated with any of the groups.

Method

Participants. Participants were 60 female undergraduate students who were enrolled in first- and second-year psychology courses at a French university. Participants had a mean age of 20.42 years (SD = 3.26). Twenty participants were randomly assigned to each of the three group performance conditions.

Procedure. All materials were presented in the French language. Participants completed the study on an individual basis.

Participants were asked to consider five groups of fashion designers who had ostensibly taken part in a fashion competition. Participants were told that each group of designers contained four people and was named after a colour: red, green, yellow, orange,

and violet. In the winning condition, the red group occupied the first place in the performance ranking of the fashion competition. In the middle-placed condition, the red group occupied the third position among the five groups. Finally, in the losing condition, the red group occupied the last place in the ranking.

Participants then viewed four portrait photographs that showed one of four young women wearing a red t-shirt who ostensibly belonged to the red group. Each woman was identified by a code (R1, R2, R3, & R4). Four statements that were ostensibly made by each woman were provided underneath each photograph. These statements indicated (a) the item of clothing that the woman had created during the fashion competition (e.g., jacket), (b) their favourite fashion designer (e.g., Jean Paul Gaultier), (c) their favourite material (e.g., leather), and (d) their feeling about the competition (e.g., "It was a very important competition").[1]

Participants then completed two measures of perceived intragroup variability: a measure of perceived intragroup similarity followed by a measure of perceived intragroup dispersion. For the measure of perceived intergroup similarity, participants drew a cross on a 100 mm horizontal line to indicate the similarity between the red group members in relation to a trait that was listed above the line. Each line was anchored *Not at all* at the left end and *Extremely* at the right end. Participants made ratings on eight 100 mm lines for eight traits (creative, hard-working, perspicacious, inspired, intuitive, original, resourceful, & flexible). A pretest that we conducted with 56 undergraduate psychology students confirmed that the traits were perceived to be socially desirable (*p*s < .01) and possessed by creative people (*p*s < .05).

Participants then completed a measure of intragroup dispersion. We presented participants with the same set of eight 100 mm lines and traits and asked them to draw two slash marks on each line to indicate how much of each trait the two most extreme members of the red group possessed.

Finally, participants completed a group performance manipulation check. Participants responded to three statements on a 9-point scale (1 = *Not at all*, 9 = *Completely*). The three statements were as follows: "The red group of designers won the fashion competition", "the red group of designers occupied the last place in the competition" (reverse-scored), and "the red group of designers got the best performance in the fashion competition".

Results

Manipulation check. After reverse-scoring the negatively-worded item, the three-item manipulation check had good internal reliability (α = .94), and so we computed an average score to create an index of perceived group performance. We performed a one-way ANOVA on this index, with condition as the independent variable. There was a significant effect of condition, $F(2, 57) = 127.91$, $p < .01$, $\eta^2 = .82$. We followed this omnibus test with a series of three Least Significant Difference (LSD) post hoc tests. As predicted, participants perceived the winning group to have a significantly better performance ($M = 8.22$, $SD = 1.27$) than either the middle-placed group ($M = 5.33$, $SD = 1.46$, $p < .01$) or the losing group ($M = 1.53$, $SD = 1.23$, $p < .01$) and the middle-placed group to have a significantly better performance than the losing group ($p < .01$).

Perceived intragroup similarity. Ratings of intragroup similarity on the eight traits formed a reliable index (α = .74), and so we computed an index of the average perceived intragroup similarity across the eight traits. We performed a one-way ANOVA on this index, with condition as the independent variable. There was a significant effect of condition, $F(2, 57) = 5.49$, $p < .01$, $\eta^2 = .16$. As predicted, participants reported significantly higher intragroup similarity within the winning group ($M = 6.43$, $SD = 1.22$) than within either the middle-placed group ($M = 5.71$, $SD = .81$, $p = .04$) or the losing group ($M = 5.34$, $SD = 1.07$, $p < .01$). There was no significant difference in participants' ratings of the middle-placed and losing groups ($p = .27$).

Perceived intragroup dispersion. We subtracted the value for the left-hand slash mark from the value from the right-hand slash mark in order to obtain the distance between the two slash marks. The larger this range value, the greater the perceived intragroup dispersion. Ratings of intragroup dispersion (range) from the eight traits formed a reliable index (α = .63), and so we computed an index of the average perceived intragroup dispersion across the eight traits. We performed a one-way ANOVA on this index, with condition as the independent variable. There was a significant effect of condition, $F(2, 57) = 3.51$, $p = .04$, $\eta^2 = .11$. As predicted, participants reported significantly less intragroup dispersion within the winning group ($M = 2.46$, $SD = .91$) than within the middle-placed group ($M = 3.30$, $SD = .98$, $p = .01$), and the difference between the winning group and the losing group ($M = 3.04$, $SD = 1.19$) was approaching the conventional level for statistical significance ($p = .08$). There was no significant difference in participants' ratings of the middle-placed and losing groups ($p = .43$).

Discussion

We found that participants rated members of a winning group as being more similar to one another and less dispersed on positive traits than members of either a middle-placed group or a losing group. These results parallel the results of previous research that has found that people rate in-groups as being less variable than out-groups on in-group stereotypical traits. However, in contrast to this previous research, the participants in the present research were not members of any of the target groups that they rated. Hence, Study 1 provides the first evidence that the effect of central tendency on ratings of intragroup variability can occur in the absence of social identity concerns.

Surprisingly, although participants rated the winning group as being significantly less variable than the middle-placed group, they did not rate the losing group as being significantly more variable than the middle-placed group. We investigated the generalizability of this asymmetry in Study 2.

Study 2

Study 1's results may have been caused by a general tendency for people to rate winning groups as being less variable than losing groups on all types of trait, not just positive traits. Alternatively, Study 1's results may be limited to positive traits and may not generalize to negative traits. Contrary to these possibilities, we assumed that group performance interacts with trait valence to determine perceived central tendency, and that perceived central tendency then influences ratings of intragroup variability. We provided a more direct test of each of these assumptions in Study 2.

First, we measured perceived intragroup variability on negative traits as well as positive traits. We predicted that participants would rate winning groups as being significantly less variable on positive traits and losing groups as being significantly less variable on negative traits. Evidence supporting this prediction would confirm our assumption that group performance (winning/losing) interacts with trait valence (positive/negative) to predict ratings of intragroup variability.

Second, we measured perceived central tendency and investigated its role as a potential mediator of the effect of group performance on ratings of intragroup variability. Significant mediation evidence would confirm our assumption that differences in perceived central tendency explain differences in ratings of intragroup variability.

Method

Participants. Participants were 75 undergraduate students who were enrolled in second-year psychology courses at a French university. The sample consisted of 16 men and 58 women (1 missing response) who had a mean age of 20.95 years ($SD = 4.37$). Participants were randomly assigned to each of the three group performance conditions: winning group ($n = 26$), middle-placed group ($n = 23$), and losing group ($n = 26$).

Procedure. The procedure for Study 2 was similar to that for Study 1 with the following key exceptions. Participants completed the study in groups of 10 to 12 people. Participants made their ratings of intragroup similarity and dispersion on four positive traits (inspired, original, intuitive, & resourceful) and four negative traits (disorganised, absentminded, bizarre, & scattered). The previously reported pretest established that these traits were all perceived to be either socially desirable or undesirable (*p*s < .01) and possessed by creative people (*p*s < .01). The eight traits were presented in a single random order.

Participants also provided ratings of central tendency. Participants drew a cross along each of eight horizontal 100 mm scales to indicate the extent to which they thought that the average member of the red group possessed each of the eight traits (0 = *Not at all*, 100 = *Extremely*). We positioned the measure of perceived central tendency after the measures of perceived intragroup variability, because Rubin and Badea (2007) demonstrated that ratings of central tendency that are made prior to ratings of intragroup variability can nullify the effect that we were investigating.

Results

Ratings of intragroup similarity, intragroup dispersion, and centrality tendency all formed reliable indices on the four positive traits (αs = .71, .67, & .83 respectively) and the four negative traits (αs = .70, .83, & .80 respectively), and so we created indices based on mean scores as in Study 1.

Perceived intragroup similarity. We conducted a 3 (condition: winning group/middle-placed group/losing group) x 2 (trait valence: positive/negative) mixed-model ANOVA on ratings of intragroup similarity, with repeated measures on the last factor. There were significant main effects of condition, $F(2, 72) = 3.93$, $p = .02$, $\eta_p^2 = .10$, and trait valence, $F(1, 72) = 153.52$, $p < .01$, $\eta_p^2 = .68$. There was also a significant two-way interaction between condition and trait valence, $F(2, 72) = 13.29$, $p < .01$, $\eta_p^2 = .27$. We decomposed this two-way interaction by analysing the simple main effects of condition at each level of trait valence. The simple main effect of condition was significant on both positive traits, $F(2, 72) = 6.34$, $p < .01$, $\eta_p^2 = .15$, and negative traits, $F(2, 72) = 10.94$, $p < .01$, $\eta_p^2 = .23$. Consistent with Study 1, on positive traits, participants reported significantly greater intragroup similarity within the winning group ($M = 6.85$, $SD = 1.44$) than within either the middle-placed group ($M = 6.01$, $SD = 1.23$, $p = .05$) or the losing group ($M = 5.43$, $SD = 1.61$, $p < .01$), and there was no significant difference in ratings of the middle-placed and losing groups ($p = .17$). As predicted, the reverse pattern of results occurred on negative traits. Here, participants reported significantly less intragroup similarity within the winning group ($M = 2.81$, $SD = 1.59$) and middle-placed group ($M = 2.17$, $SD = 1.12$) than within the losing group ($M = 4.15$, $SD = 1.75$, *p*s < .01), and there was no significant difference in ratings of the winning and middle-placed groups ($p = .15$).

Perceived intragroup dispersion. We conducted a 3 (condition: winning group/middle-placed group/losing group) x 2 (trait valence: positive/negative) mixed-model ANOVA on ratings of intragroup dispersion, with repeated measures on the last factor. There were no significant main effects of either condition ($p = .12$) or trait valence ($p = .79$). However, the two-way interaction between condition and trait valence was approaching the conventional level for statistical significance, $F(2, 71) = 2.98$, $p = .06$, $\eta_p^2 = .08$.[2] Again, we decomposed this two-way interaction by analysing the simple main effects of condition at each level of trait valence. The simple main effect of condition was significant on positive traits, $F(2, 71) = 8.88$, $p < .01$, $\eta_p^2 = .20$, but not on negative traits, $F(2, 71) = .06$, $p = .95$, $\eta_p^2 < .01$. Consequently, we only used LSD post hoc tests to investigate differences between the three conditions on positive traits. Here, consistent with predictions, participants reported significantly less intragroup dispersion within the winning group ($M = 2.21$, $SD = 1.11$) than within either the middle-placed group ($M = 3.53$, $SD = 1.05$, $p < .01$) or the losing group ($M =$

3.43, *SD* = 1.51, $p < .01$). There was no significant difference in ratings of the middle-placed and losing groups ($p = .77$).

Investigating the Mediating Effect of Perceived Central Tendency. We examined the previously untested hypothesis that perceived central tendency mediates the effect of central tendency on ratings of intragroup variability. We began by investigating whether participants' ratings of central tendency followed a similar pattern as their ratings of intragroup similarity and dispersion. We conducted a 3 (condition: winning group/middle-placed group/losing group) x 2 (trait valence: positive/negative) mixed-model ANOVA on ratings of central tendency, with repeated measures on the last factor. There was no main effect of condition ($p = .33$), but there was a significant main effect of trait valence, $F(1, 72) = 119.44$, $p < .01$, $\eta_p^2 = .62$. There was also a significant two-way interaction between condition and trait valence, $F(2, 72) = 7.75$, $p < .01$, $\eta_p^2 = .18$. We decomposed this two-way interaction by analysing the simple main effects of condition at each level of trait valence. The simple main effect of condition was significant on positive traits, $F(2, 72) = 14.63$, $p < .01$, $\eta_p^2 = .19$, but not on negative traits, $F(2, 72) = 2.24$, $p = .11$, $\eta_p^2 = .06$. LSD post hoc tests revealed that participants rated the average members of the winning group ($M = 6.45$, $SD = 1.28$) and the middle-placed group ($M = 6.02$, $SD = 1.31$) as possessing positive traits to a significantly greater extent than the average member of the losing group ($M = 4.99$, $SD = 1.41$, ps $< .01$), and there was no significant different in ratings of the average members of the winning and middle-placed groups ($p = .27$). Hence, although the specific pattern of significant differences was not identical, the overall trend of ratings of central tendency on positive traits was the same as that for ratings of intragroup variability on positive traits: Participants perceived the winning group to have a higher central tendency on positive traits and to be less variable on positive traits compared to the losing group.

Next, we regressed ratings of intragroup variability on positive traits onto ratings of central tendency on positive traits. Ratings of central tendency significantly predicted ratings of intragroup similarity, $\beta = .50$, $p < .01$, but not ratings of intragroup dispersion, $\beta = -.19$, $p = .10$. Hence, perceived central tendency only represented a potential mediator in relation to ratings of intragroup similarity on positive traits.

Finally, we regressed ratings of intragroup similarity on positive traits onto (a) ratings of central tendency on positive traits and (b) condition (contrast coded: winning group: +1, middle-placed group: 0, losing group: -1). Ratings of intragroup similarity were significantly predicted by ratings of central tendency ($\beta = .42$, $p < .01$), but only marginally significantly predicted by condition ($\beta = .21$, $p = .06$). Sobel's (1982) test indicated that this mediation effect was significant, $Z = 2.74$, $p < .01$. Hence, consistent with predictions, perceived central tendency fully mediated the effect of group performance on ratings of intragroup similarity on positive traits.

Discussion

Consistent with Study 1, participants reported significantly less intragroup variability in the winning group on positive traits. Importantly, participants also reported significantly less intragroup similarity in the losing group on negative traits. This pattern of results cannot be explained in terms of the independent effects of either group performance or trait valence. Instead, it suggests that group performance interacted with trait valence to determine perceptions of central tendency, and that these perceptions then influenced ratings of intragroup variability. Consistent with this interpretation, perceived central tendency fully mediated the effect of group performance on ratings of intragroup similarity on positive traits.

Study 2 also corroborated Study 1's findings that although participants reported relatively less variability within a group that had a high central tendency, they did not report relative more variability within a group that had a low central tendency. We found this

pattern of results on both positive and negative traits. Hence, it appears to be related to group central tendencies rather than group performance or trait valence per se.

Notably, group performance had no significant main effect on ratings of intragroup dispersion or central tendency on negative traits. This inconsistency between positive and negative traits may have occurred because of the larger standard deviations on negative traits ($SD_{\text{similarity}} = 1.72$, $SD_{\text{dispersion}} = 1.98$, $SD_{\text{central tendency}} = 1.66$) than on positive traits ($SD_{\text{similarity}} = 1.54$, $SD_{\text{dispersion}} = 1.37$, $SD_{\text{central tendency}} = 1.46$). Future research should use a different set of negative traits in order to deal with this problem.

General Discussion

In two studies, we asked psychology undergraduate students to rate the intragroup variability of a group of fashion designers that had won or lost a fashion competition. In Study 1, participants rated members of a winning group as being less variable than members of a losing group on positive traits. Study 2 replicated these results and found a reverse effect on negative traits: Winning groups were rated as being more variable than losing group on negative traits.

The present results parallel the results of previous research that has found that people rate in-groups as being less variable than out-groups on in-group stereotypical traits. In both cases, participants rated groups as being less variable on traits when the groups had a relatively high central tendency on those traits. However, unlike previous research, the participants in the present research were not members of any of the social groups that they rated. Although the target group of fashion designers was an out-group for our psychology undergraduate participants, this in-group/out-group categorization was not confounded with comparisons of perceived intragroup variability between the winning and losing groups. Consequently, participants had no vested interest in rating either of these target groups as being particularly homogeneous or heterogeneous. The fact that central tendency significantly affected ratings of intragroup variability under these conditions has two major implications. First, the effect is more general than previously reported: It can occur when people are members of one of the target groups *and* when they are not. Second, the social identity motive is not *necessary* for the effect to occur. In other words, we now know that some instances of the effect are not caused by the need to protect a positive social identity.

The present research had a number of methodological strengths that allowed us to rule out some alternative explanations and draw further novel conclusions about the effect of central tendency on perceived intragroup variability. First, we demonstrated the external validity of the effect by using a novel research paradigm in which we manipulated central tendency via an interaction between group performance and trait valence. Second, we used a between-subjects design in order to reduce the possibility that participants would be cued to our expectation of different judgements for different target groups.

Third, we corroborated our key results using two different measures of intragroup variability: intragroup similarity and intragroup dispersion. Notably, the results from the dispersion measure were less consistent with our predictions than those from the similarity measure (for evidence of a similar discrepancy, see Rubin & Badea, 2007, p. 37). One explanation for this discrepancy relates to the different emphases on groups and individuals that are involved in responding to each type of measure. Measures of intragroup similarity require participants to consider the group as a whole, whereas measures of intragroup dispersion require participants to consider atypical individuals within the group (Boldry, Gaertner, & Quinn, 2007, p. 5). Consequently, measures of intragroup similarity are likely to be more reactive to group-level information such as central tendency.

Fourth, we included a control condition in our research design in order to investigate the previously untested assumption that people rate groups as being both less variable on stereotypical traits and more variable on counterstereotypical traits. Contrary to this

assumption, we found that although participants rated groups with a high central tendency as being relatively homogeneous, they did not rate groups with a low central tendency as being relatively heterogeneous. This asymmetrical pattern of results is surprising, and we are unclear about its cause. It may be related to problems with our manipulation of group performance, which did not differentiate clearly between the winning and middle-placed groups. Alternatively, it may be due to an asymmetry in the correspondence between central tendency and intragroup variability: Although people may equate intragroup homogeneity with trait possession (Rubin & Badea, 2007), they may not necessarily equate intragroup heterogeneity with trait nonpossession. Future research in this area should compare ratings of intragroup variability on stereotypical, nonstereotypical, and counterstreotypical traits in order to investigate this asymmetry further.

Finally, in Study 2, we investigated the previously untested assumption that perceptions of central tendency mediate the effect of central tendency on ratings of intragroup variability. Consistent with this assumption, we obtained significant mediation evidence in relation to the intragroup similarity measure on positive traits. Further research is required in order to confirm the generalizability of this result to other measures and traits.

The present findings relate to research that has found that people perceive low status groups as being less variable than high status groups (e.g., Brown & Smith, 1989; Cabecinhas & Amâncio, 1999; Lorenzi-Cioldi, Deux, & Dafflon, 1998). If it is assumed that our manipulation of group performance also affected perceived group status, then Study 2's results imply that this tendency is more specific than previously reported, because it is moderated by trait valence: Although people may perceive low status groups to be less variable than high status groups on negative traits, they are likely to perceive low status groups to be more variable than high status groups on positive traits. Future research should investigate the generalizability of this potential moderating effect using different manipulations and measures of group status.

The key finding of the present research is that the motive for a positive social identity is not *necessary* in order to explain the effect of central tendency on ratings of intragroup variability. The present research does not indicate whether or not the social identity motive is *sufficient* to produce an effect when participants are members of target groups. Furthermore, the present research does not provide any direct verification of Simon's (1992a, 1992b) diagnosticity explanation. Future research should address these issues in order to provide a clearer understanding of the relationship between central tendency and intragroup variability.

References

Boldry, J. G., Gaertner, L., & Quinn, J. (2007). Measuring the measures: A meta-analytic investigation of the measures of outgroup homogeneity. *Group Processes and Intergroup Relations, 10, 157*-178.

Brown, R., & Smith, A. (1989). Perceptions of and by minority groups: The case of women in academia. *European Journal of Social Psychology*, 19, 61-75.

Brown, R., & Wootton-Millward, L. (1993). Perceptions of group homogeneity during group formation and change. *Social Cognition, 11,* 126-149.

Cabecinhas, R., & Amâncio, L. (1999). Asymmetries in the perception of other as a function of social position and context. *Swiss Journal of Psychology*, *58,* 40-50.

Castano, E., & Yzerbyt, V. Y. (1998). The highs and lows of group homogeneity. *Behavioural Processes, 42,* 219-238.

Guinote, A., Judd, C. M., & Brauer, M. (2002). Effects of power on perceived and objective group variability: Evidence that more powerful groups are more variable. *Journal of Personality and Social Psychology, 82,* 708-721.

Kelly, C. A. (1989). Political identity and perceived intragroup homogeneity. *British Journal of Social Psychology*, *28,* 239-250.

Lorenzi-Cioldi, F., Deaux, K., & Dafflon, A. -C. (1998). Group homogeneity as a function of relative social status. *Swiss Journal of Psychology, 57,* 255-273.

Park, B., & Judd, C. M. (1990). Measures and models of perceived group variability. *Journal of Personality and Social Psychology, 59,* 173-191.

Pickett, C. L., & Brewer, M. B. (2001). Assimilation and differentiation needs as motivational determinants of perceived in-group and out-group homogeneity. *Journal of Experimental Social Psychology, 37,* 341-348.

Rubin, M., & Badea, C. (2007). Why do people perceive in-group homogeneity on in-group traits and out-group homogeneity on out-group traits? *Personality and Social Psychology Bulletin, 33,* 31-42.

Simon, B. (1992a). Intragroup differentiation in terms of ingroup and outgroup attributes. *European Journal of Social Psychology*, *22,* 407-413.

Simon, B. (1992b). The perception of ingroup and outgroup homogeneity: Reintroducing the intergroup context. *European Review of Social Psychology, 3,* 1-30.

Simon, B., & Pettigrew, T. F. (1990). Social identity and perceived group homogeneity: Evidence for the in-group homogeneity effect. *European Journal of Social Psychology, 20,* 269-286.

Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), *Sociological methodology* (pp. 290-312). San Francisco: Jossey-Bass.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-47). Monterey, CA: Brooks-Cole.

Tversky, A. (1977). Features of similarity. *Psychological Review, 84,* 327-352.

Footnotes

1. After viewing the photographs, participants in Study 1 completed a recall task in which they attempted to match individual members of the red group with their statements (as per Lorenzi-Cioldi, Deux, & Dafflon, 1998). This who-said-what task provided a measure of intragroup variability that did not produce any significant results (*p*s > .50). For the sake of brevity, we do not report any further information about this measure. Participants in Study 2 did not complete this who-said-what measure.

2. One participant did not provide any ratings of intragroup dispersion in Study 2.