

# Selective Attention to In- and Out-Group Members Systematically Influences Intergroup Bias

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## Abstract

We analyzed whether attending to versus ignoring in- and out-group members systematically influences intergroup bias. In two studies ( $N = 187$ ), we manipulated attention by asking participants to count the appearance of in-group (or out-group) members in the presence of out-group (or in-group) distractors. Prior to and during the counting task, we assessed intergroup bias by having participants rate the group members on a liking scale. The results show that the change in intergroup bias from baseline to experimental ratings depended on the attention focus. Whereas counting in-group members (while ignoring the out-group) increased intergroup bias, counting out-group members (while ignoring the in-group) decreased intergroup bias. Thus, we provide evidence that consequences of goal-directed interactions with in- and out-group stimuli (i.e., exposure and selection) systematically influence intergroup bias. We propose that in future research these processes should be considered in addition to social-motivational factors in the analysis of intergroup bias.

## Keywords

selective attention, intergroup bias, distractor devaluation effect, mere exposure

Purposefully relating to others requires selection processes (cf. Allport, 1989) in the sense that we attend to relevant individuals and ignore irrelevant ones. Such selection processes have been shown to influence evaluations of abstract stimuli and faces (e.g., Raymond, Fenske, & Tavassoli, 2003; Raymond, Fenske, & Westoby, 2005; reviewed by Fenske & Raymond, 2006). The focus of the present research is to explore whether selection processes influence evaluations of in-group and out-group members. More specifically, we investigate how attending to versus ignoring in-group and out-group members influences the evaluative discrepancy between in-group and out-group members (i.e., intergroup bias; Hewstone, Rubin, & Willis, 2002).

Intergroup bias—the favoring of in-group members over out-group members—is an important social phenomenon studied intensively in intergroup relations research (reviewed by Hewstone et al., 2002; Rubin & Hewstone, 1998). The favoring of in-group members over out-group members has been argued to go beyond objective evidence and can be seen as unfair and unjustified (Brewer & Brown, 1998; Fiske, 1998; Turner & Reynolds, 2001). Theories of intergroup bias mostly focus on social-motivational factors: Intergroup bias has been explained by the motivation to promote or maintain a positive social identity (Social Identity Theory; Tajfel & Turner, 1979), to fulfill needs of assimilation and differentiation (Optimal Distinctiveness Theory; Brewer, 1991), to reduce uncertainty (Subjective Uncertainty Reduction Theory; Hogg, 2000), or to promote or

maintain certain intergroup hierarchies (Social Dominance Theory; Sidanius & Pratto, 1999). All of these approaches have in common a desire or need to be fulfilled by a certain evaluation, cognition, or action. In the current research, we present a cognitive mechanism that influences intergroup bias: exposure and selection processes as a consequence of goal-directed interactions with in- and out-group members.

## Positive Evaluative Consequences of Mere Exposure

Simple unreinforced exposure to a stimulus leads to more positive evaluations compared to similar novel stimuli (i.e., mere exposure effect; Zajonc, 1968; reviewed by Bornstein, 1989; Zajonc, 2001). It has previously been argued that mere exposure may have positive consequences for intergroup attitudes (Bornstein, 1993) and such positive effects of mere exposure on evaluations of out-group members have been demonstrated

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in the laboratory previously (Zebrowitz, White, & Wieneke, 2008). Thus, *mere* exposure seems to have positive evaluative consequences for the exposed stimuli. However, in our everyday lives, are we only merely exposed to different people? Most of our daily activities are driven by certain goals. Looking for a friend in a group of people involves searching through a crowd and ignoring other people present. Trying to listen to a friend in a subway involves ignoring the nearby voices of others. Thus, we are not merely exposed to other people, we follow our current goals and this involves selection processes: we attend to one person while ignoring another or initiate responses to one person while not responding to another. Such selection processes can have negative evaluative consequences for the stimuli being ignored (i.e., *distractor devaluation*).

### Negative Evaluative Consequences for Distractors (Distractor Devaluation)

Research on the evaluative consequences of selective attention has shown that the relationship between exposure and evaluations is more complicated than the mere exposure effect may suggest. For example, in studies by Raymond et al. (2003), participants saw visual patterns and indicated the location of a target in the presence of a distractor. After each selection, participants evaluated one of the previously presented stimuli (target or distractor) or a stimulus not presented previously (novel). The authors found that distractors were evaluated more negatively than targets and novels—*distractor devaluation* occurred. Thus, whereas unreinforced perception of a stimulus results in more positive evaluations of this stimulus (i.e., mere exposure effect), perceptually available but ignored stimuli elicit the opposite evaluative consequence: evaluations become more negative (Goolsby et al., 2009; Griffiths & Mitchell, 2008; Kiss et al., 2007; Raymond et al., 2005; Veling, Holland, & van Knippenberg, 2007).

Visual selection is one aspect of interacting with external stimuli. Another aspect is response selection, which has also been shown to influence evaluations. Participants in a study by Fenske, Raymond, Kessler, Westoby, and Tipper (2005) had to enact responses to different face stimuli. However, on encountering a certain cue they had to withhold a response to the presented face. Subsequent ratings indicated more negative evaluations of those faces associated with response stopping compared to those not associated with response stopping. Thus, similar to the distractors in visual search tasks, distracting stimuli in go/no-go tasks (i.e., those that should not be responded to) are also devalued (Buttaccio & Hahn, 2010; Doallo et al., 2012; Fenske et al., 2005; Frischen, Ferrey, Burt, Pistchik, & Fenske, 2012; Kiss, Raymond, Westoby, Nobre, & Eimer, 2008; see also Veling, Holland, & van Knippenberg, 2008, for positive stimuli and Martiny-Huenger, Gollwitzer, & Oettingen, 2014, for interfering stimuli in a flanker task). We will refer to both effects as distractor devaluation.

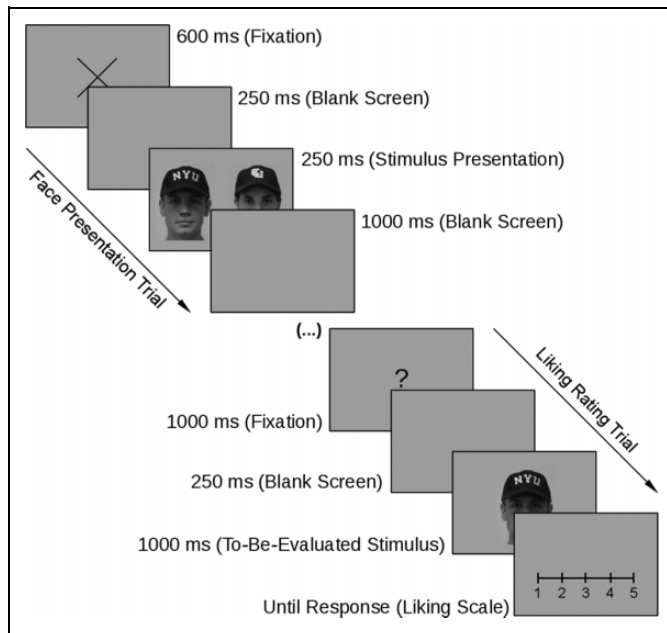
Taken together and applied to interacting with people, mere exposure and distractor devaluation research indicates

that attending to (and responding to) some people and ignoring (and withholding a response to) others have separable evaluative consequences. Attended to (and responded to) people should receive more positive evaluations due to mere exposure. However, ignored people and those associated with response suppression should undergo the opposite effect; evaluations should become more negative (i.e., distractor devaluation). As we spend much of our time in the company of other people and many of our interactions with other people are goal driven, exposure and selection processes are important processes whose influence on intergroup bias needs to be investigated.

### The Present Research

In the present two studies, we tested whether a task involving attentional and response selection processes in response to pictures of in-group and out-group members influences the evaluative discrepancy between in-group and out-group members (i.e., intergroup bias). In a serial presentation of paired stimulus faces (identifiable as in- or out-group members), participants were asked to count the appearance of target-group members (i.e., either in- or out-group members). We expected such a counting task to involve both visual selection and response selection processes: Target-group members were visually selected and the mental responses (i.e., increasing the target count by one) had to be initiated. Distractor group members had to be ignored and the prepared response (i.e., increasing the target count by one) had to be suppressed. Liking ratings of the presented group member faces were assessed prior to the counting task (baseline ratings) and while carrying out the counting task (experimental ratings).

In line with our previous prediction on the separable consequences of attending/responding to and ignoring/response suppression and assuming that baseline ratings show an intergroup bias with more positive evaluations of in-group members compared to out-group members, we predicted that counting in-group members (while ignoring out-group distractors) should increase intergroup bias (i.e., target in-group members receive more positive ratings and distractor out-group members receive more negative ratings). However, counting out-group members (while ignoring in-group distractors) should decrease intergroup bias (i.e., distractor in-group members receive more negative ratings and target out-group members receive more positive ratings). We tested this interaction hypothesis in two conceptually similar studies. Study 1 was conducted at a university in the United States with students from two in-town universities as in-group and out-group stimulus faces. Study 2 provides a replication of Study 1 in Germany including several methodological changes and improvements. In Study 2, we measured in-group identification (i.e., the sense of belonging to one's in-group) to evaluate the impact of this motivational component on the evaluative consequences of exposure and selection processes.



**Figure 1.** Sequence of events of one face-presentation trials followed by one liking rating trial in Study 1.

## Study 1

### Method

#### Participants and Design

Ninety-one (59 female) students of New York University with age ranging from 18 to 25 ( $M = 19.57$ ,  $SD = 1.45$ ) participated in return for course credit for an introductory psychology class. Three participants were identified as extreme outliers (Tukey, 1977) on the counting task with error rates (i.e., percentage of incorrect counting trials) of 75.00%, 79.17%, and 100.00% as compared to the total-sample mean error rate of 16.33% ( $SD = 17.67%$ ) and were therefore excluded from the analyses.

The study followed a  $2 \times 2 \times 2$  mixed-model design with the between-participants factor Focus (count in-group vs. count out-group) and the within-participant factors Rating (baseline vs. experimental) and Group (in-group vs. out-group). The dependent variables were mean liking ratings of in-group and out-group member faces for each block on a 5-point Likert-type scale ranging from 1 (*less likable*) to 5 (*very likable*).

#### Material and Procedure

**Face stimuli.** Twelve stimulus pictures showed Caucasian, college-aged male (6) and female (6) faces with neutral expressions. The images were in gray scale and purpose made for this study. All faces were wearing baseball caps showing the emblem of New York University (NYU), the emblem of Columbia University (CU), or nothing (i.e., neutral blank caps; see Figure 1 for examples). As all participants were NYU students, we refer to stimulus faces wearing a NYU cap as in-group members and faces wearing a CU cap as out-group members.

The stimulus faces were assigned to the different group categories to form an in-group set of two female and two male faces (i.e., wearing NYU caps), an out-group set of two female and two male faces (i.e., wearing CU caps) and a neutral set of two female and two male faces (i.e., wearing blank caps). Different stimulus sets were created with the faces counterbalanced across the group category and participants were randomly assigned to one of the sets.

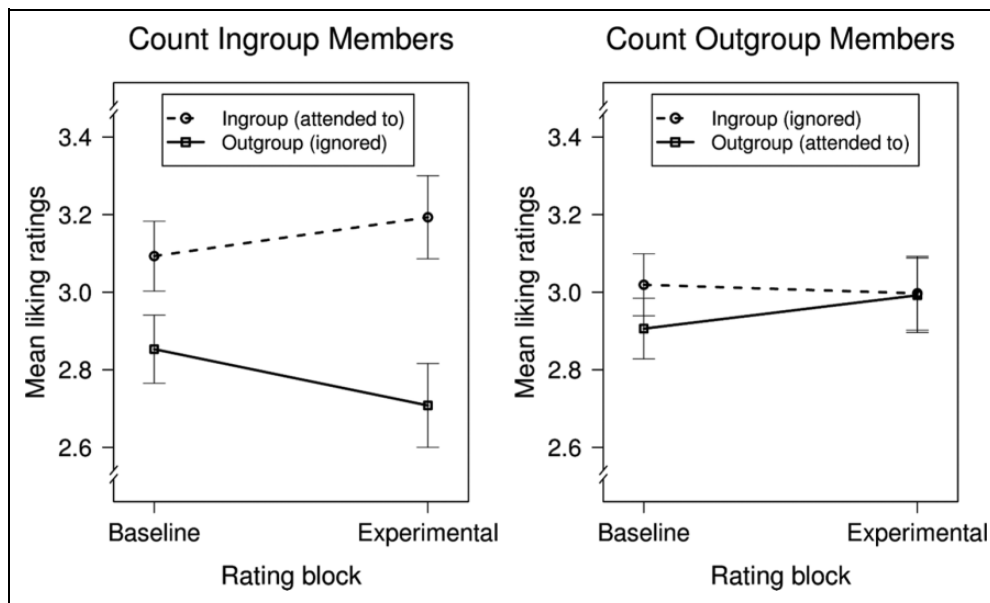
**Procedure.** Both the baseline and experimental block followed a similar procedure (see Figure 1). Each face presentation trial included two stimulus faces, including zero, one, or two target-group faces and two, one, or zero nontarget-group faces, respectively. Whereas target-group faces were either wearing in-group or out-group caps, nontarget-group faces were wearing in-group, out-group, or blank caps.

The course of events was as follows: Participants were seated individually in different computer cubicles and told that the face presentations in Block 1 (baseline) were an opportunity to familiarize themselves with the stimuli and that the experiment in general was to investigate attention processes in the presence of social cues. The participants observed 72 face presentation trials (see Figure 1; including 12 presentations of each individual stimulus face) and completed 24 liking rating trials (including two ratings of each of the four in-group, out-group, and neutral stimulus faces). The to-be-rated face was always presented in the first or second face presentation trial of the three trials immediately preceding the liking rating trial.

In Block 2, the sequence of events was identical to Block 1 but the counting task (i.e., attention/response manipulation) was added. The participants were instructed to count the number of times target-group members appeared in the face presentation trials. Depending on condition, participants either counted in-group faces (NYU) or out-group faces (CU). The participants completed 144 face presentation trials (including 24 presentations of each individual stimulus face) and 48 liking rating trials (including four ratings of each of the four in-group, out-group, and neutral stimulus faces). Ratings of neutral faces were only included to obscure the in-group–out-group category. The actual status of the “neutral” faces (faces without group sign) was intentionally made ambiguous and thus, only in-group and out-group ratings were considered in the analyses. Throughout Block 2, at an interval of 12 face presentation trials, participants were asked to enter the number of target-group members they had counted up to that point and to start counting again. Finally, participants completed a demographic questionnaire, were debriefed, and received their course credit.

## Results and Discussion

First, we checked for intergroup bias in the baseline ratings across the experimental conditions. A repeated measures analysis of variance (ANOVA) with the factors group (within: in-group vs. out-group) and focus (between: count in-group vs. count out-group) on the mean baseline face ratings showed a



**Figure 2.** Mean ratings as a function of group, rating, and focus in Study 1. Whiskers represent  $\pm 1$  standard error of the mean.

significant main effect of group,  $F(1, 86) = 5.18, p < .05$ ,  $\eta^2_p = .06$  and no Group  $\times$  Focus interaction effect,  $F(1, 86) < 1$ , not significant (ns). Thus, as expected, participants showed intergroup bias at baseline ratings; ratings of in-group members ( $M = 3.05, SD = .56$ ) were more positive compared to ratings of out-group members ( $M = 2.88, SD = .54$ ), and this bias did not differ between the two experimental conditions, which had not yet been established.

To test our interaction hypothesis regarding the effect of the attention/response focus on the change in intergroup bias from baseline to the experimental ratings, we conducted a repeated measures ANOVA with the factors rating (within: baseline vs. experimental) and focus (between: count in-group vs. count out-group) on the magnitude of the intergroup bias (difference score between in-group and out-group ratings, with higher values indicating more intergroup bias). The main effect of rating was not significant,  $F(1, 86) < 1$ , ns, but as expected the factors rating and focus showed a significant interaction effect,  $F(1, 86) = 5.31, p < .05$ ,  $\eta^2_p = .06$ . The interaction is displayed in Figure 2 and shows that the change in intergroup bias from baseline to experimental ratings differed depending on the focus of the counting task. After showing a significant intergroup bias in the baseline ratings, participants counting their in-group displayed a highly significant intergroup bias (mean difference = .49),  $t(38) = 3.15, p < .01$ , in the experimental ratings. However, this was not the case for the experimental ratings of participants counting out-group members (mean difference = .01),  $t(48) < 1$ , ns. This pattern of results is in line with our predictions: After initially reporting more positive ratings of in-group members compared to out-group members (intergroup bias), attending to in-group members while ignoring out-group members increased intergroup bias, whereas attending to out-group

members while ignoring in-group members decreased intergroup bias.

While this result pattern provides support for the hypothesis that exposure and selection processes influence intergroup bias, there are some characteristics of the first study that could be improved. First, only a few different face stimuli were repeatedly presented and rated throughout the baseline and experimental task representing a special case which may partially be responsible for the observed effect. Thus, in Study 2, we tested whether the same pattern of results would be observed when evaluations are only assessed twice for each face, once during the baseline rating and once during the experimental rating. Second, we did not control for a central variable in intergroup research: in-group identification. Thus, we cannot yet rule out that participants' in-group identification might have been affected by the attention/response manipulation and the observed change in intergroup bias was a consequence of this change in in-group identification. Finally, on methodological grounds, the repeated ratings had the consequence that liking was assessed after varying amounts of exposure which (to a certain degree) could have led to different cumulative stimulus exposure times between the experimental conditions. In the second study, the amount of exposure in between ratings was kept constant.

On the conceptual level, the second study was similar to the first, except for the inclusion of an in-group identification measure and the use of 6 times as many face stimuli (i.e., 72; randomly assigned to one of the social groups), which allowed each stimulus to be rated only twice (baseline and experimental rating). As these changes should not affect the hypothesized processes, we predicted to replicate the interaction effect between the rating blocks and the attention/response manipulation on intergroup bias found in Study 1.

## Study 2

### Method

#### Participants and Design

Ninety-six (79 female) students of University of Konstanz (Germany) with age ranging from 18 to 45 ( $M = 22.47$ ,  $SD = 5.09$ ) participated in return for course credit or four Euro monetary compensation. One participant was identified as extreme outlier (Tukey, 1977) on the counting task with an error rate (i.e., percentage of incorrect counting trials) of 81.82% as compared to the total sample mean error rate of 5.15% ( $SD = 11.56\%$ ). This participant was excluded from the analyses and replaced by a further participant invited to the experiment. Thus, a total of 96 participants were included in the analyses with 48 participants per condition.

As in the first study, Study 2 followed a  $2 \times 2 \times 2$  mixed-model design with the between-participant factor focus (count in-group vs. count out-group) and the within-participant factors rating (baseline vs. experimental) and group (in-group vs. out-group). Additionally, we assessed the quasi-experimental factor identification (high vs. low) before and after the experimental task. The dependent variables were mean liking ratings of in-group and out-group member faces per block on a 7-point Likert-type scale ranging from 1 (*less likable*) to 7 (*rather likable*) and the resulting intergroup bias defined as the difference in score between the in-group and out-group ratings.

#### Material and Procedure

**Face stimuli.** Seventy-two stimulus pictures showed Caucasian, college-aged male (36) and female (36) faces with positive (i.e., smiling) expressions. All pictures were in gray scale and taken from different online sources. All faces were presented with the emblem of the University of Konstanz, the emblem of the Applied University of Konstanz, or nothing on their forehead. As all participants were students of the University of Konstanz, we refer to stimulus faces depicted with the emblem of the University of Konstanz as in-group members and faces depicted with the symbol of the Applied University of Konstanz as out-group members.

The stimulus faces were randomly assigned to the in-group, out-group, or neutral group for each participant to form a set of 24 in-group, 24 out-group, and 24 neutral group stimuli balanced for gender. From the subset of in- and out-group faces, 20 stimuli were randomly drawn as critical to-be-rated stimuli (5 stimuli per group and gender category). These 20 critical stimuli (unique to each individual) were randomly presented in the experiment along with the noncritical stimuli during the counting task but only the 20 critical stimuli had to be rated for likeability.

**Procedure.** The experiment started with a short questionnaire with six in-group identification questions. We selected, adapted, and translated into German six identification questions from the items measuring in-group identification (Leach

et al., 2008). We used one “solidarity” item (1), two “satisfaction” items (4 and 6), two “centrality” items (8 and 9), and item 18 from the “excluded items” but changed the negative term “criticized” into the neutral term “statements about the in-group.” Additionally, as much of the experimental task (counting and rating) depended on a quick recognition of the in-group emblem, participants rated how familiar they were with the emblem.

**Categorization task.** To familiarize the participants with the university symbols, 28 face stimuli (the 20 critical faces plus 2 noncritical faces from each gender and group category) were each presented randomly twice at different positions on the screen. The participants’ task was to press the F-key if the presented face was an Applied University student and the U-key if the presented face was a University student.

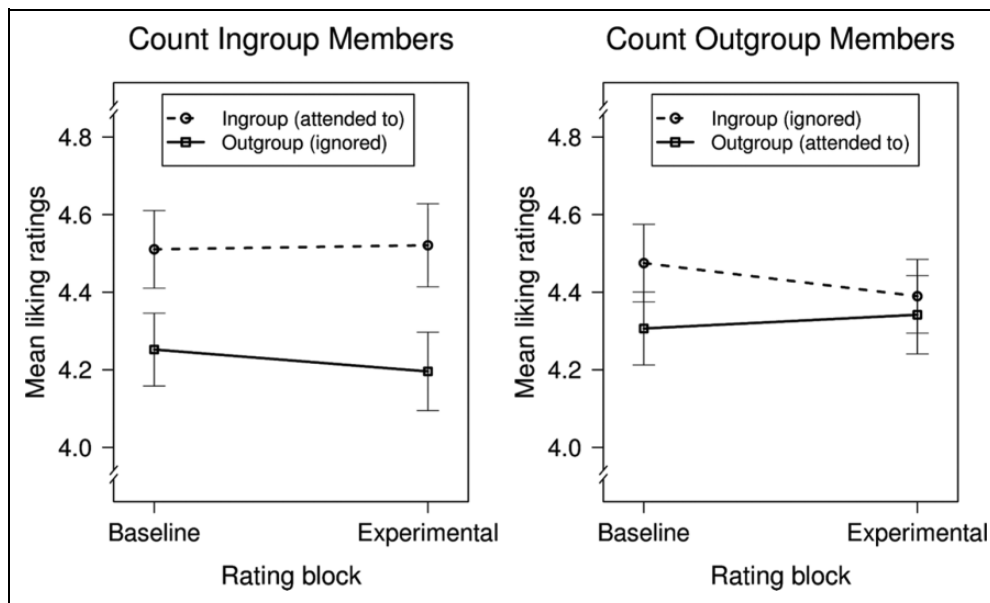
**Baseline ratings.** In 20 rating trials, each of the 20 critical face stimuli was presented for 1,000 ms at the center of the screen. Each face was then replaced by a 7-point Likert-type scale ranging from *less likeable* (1) to *rather likeable* (7). After rating the face by clicking on the corresponding scale number, the scale disappeared and the next face appeared.

**Counting task (attention/response manipulation).** The attention/response manipulation was similar to Study 1 with the following differences: Participants completed two blocks of the counting task. The first block (without likeability ratings) with 144 trials and 16 requests (each ninth trial) to enter the target-group members counted. Each face stimulus (critical and noncritical) was presented 4 times during the counting task. The second counting task block with 60 trials included the ratings of all 20 critical stimuli (i.e., experimental ratings). In this block, the critical stimuli only appeared in the rating trials and not during the paired face presentations. This ensured that each critical to-be-rated face stimulus was presented exactly 4 times between the baseline and experimental rating. Finally, the participants again completed six identification questions as part of a postexperimental demographic questionnaire were debriefed and received their course credit.

## Results and Discussion

As in Study 1, we checked for an intergroup bias in the baseline ratings. A repeated measures ANOVA with the factors group (within: in-group vs. out-group) and focus (between: count in-group vs. count out-group) on the mean baseline face ratings showed the expected significant main effect of group,  $F(1, 94) = 12.55$ ,  $p < .01$ ,  $\eta^2_p = .12$ , and no Group  $\times$  Focus interaction effect,  $F(1, 94) < 1$ , ns. Thus, as expected, participants showed intergroup bias at baseline ratings; ratings of in-group members ( $M = 4.49$ ,  $SD = .71$ ) were more positive compared to ratings of out-group members ( $M = 4.28$ ,  $SD = .65$ ), and this bias did not differ between the two experimental conditions.

Furthermore, we tested whether pre- and post-in-group identification was affected by the attention/response manipulation.



**Figure 3.** Mean ratings as a function of group, rating, and focus in Study 2. Whiskers represent  $\pm 1$  standard error of the mean.

The six pre- and postmanipulation identification questions showed a good reliability (Cronbach's  $\alpha$  of .80 and .84, respectively) and were thus combined to create a pre- and postmanipulation identification score. A repeated measures ANOVA with the factor identification assessment (within: pre- vs. postmanipulation) and focus (between: count in-group vs. count out-group) on in-group identification showed a significant main effect of identification assessment,  $F(1, 94) < 10.34$ ,  $p < .01$ ,  $\eta^2_p = .10$ , and importantly no interaction effect between identification assessment and focus,  $F(1, 94) < 1$ , ns. Although there was a decrease in identification from the premanipulation assessment ( $M = 5.28$ ,  $SD = .98$ ) to the postmanipulation assessment ( $M = 5.16$ ,  $SD = 1.07$ ), this decrease was independent of the attention/response manipulation. Thus, changes in in-group identification cannot account for the subsequently reported differential changes in intergroup bias as a result of the attention/response manipulation.

To test the predicted interaction effect, as in Study 1, we conducted a repeated measures analysis of covariance with the factors rating (within: baseline vs. experimental) and focus (between: count in-group vs. count out-group) on the magnitude of the intergroup bias (difference score between in-group and out-group ratings). To control for effects of in-group identification and familiarity with the in-group emblem, we included premanipulation identification and familiarity with the in-group emblem as covariates. The main effect of rating was not significant,  $F(1, 92) < 1$ , ns, and there was a marginally significant interaction between rating and familiarity with the in-group emblem,  $F(1, 92) = 3.26$ ,  $p = .07$ ,  $\eta^2_p = .03$ . This effect reflected the trend that participants who were more familiar with the in-group emblem showed more intergroup bias in the baseline (compared to less familiar participants), which then decreased in the experimental ratings. Participants unfamiliar with the in-group emblem showed less

intergroup bias in the baseline ratings (compared to highly familiar participants), and the magnitude of the intergroup bias increased in the experimental ratings.

Most importantly, and in line with Study 1, the factors rating and focus showed a significant interaction effect,  $F(1, 92) = 4.02$ ,  $p < .05$ ,  $\eta^2_p = .04$ .<sup>1</sup> The interaction is displayed in Figure 3, indicating that the changes in intergroup bias from baseline to experimental ratings differed depending on the attention/response focus. As in Study 1, after showing a significant intergroup bias in the baseline ratings, participants who counted in-group members displayed a highly significant intergroup bias (mean difference = .33),  $t(47) = 3.52$ ,  $p < .01$ , in the experimental ratings. But this was not the case for the experimental ratings of participants counting out-group members (mean difference = .05),  $t(47) < 1$ , ns. This pattern of results is in line with our predictions and identical to that of Study 1. Following more positive ratings of in-group members compared to out-group members (intergroup bias) at baseline, attending to in-group members while ignoring out-group members increased intergroup bias, whereas attending to out-group members while ignoring in-group members decreased intergroup bias.

Importantly, in-group identification was not affected by the attention/response manipulation. Including premanipulation in-group identification and familiarity with the in-group emblem in the analyses did not reveal any significant interactions with the hypothesized rating by focus interaction. This suggests that the exposure-selection effects on intergroup bias occur independent of in-group identification.

## General Discussion

With the present two studies we report evidence that cognitive processes related to goal-directed interactions with in-group and out-group members (i.e., exposure and selection) influence

the magnitude of intergroup bias. Attending/responding to in-group members (i.e., counting in-group members while ignoring out-group members) differentially affected the change in intergroup bias from baseline to experimental ratings compared to attending/responding to out-group members (i.e., counting out-group members while ignoring in-group members). This interaction is most likely the result of a combination of the upvaluation of attended to stimuli due to mere exposure (Zajonc, 1968, 2001) and devaluation as a result of ignoring (e.g., Raymond et al., 2003) and response suppression (e.g., Fenske et al., 2005; Veling et al., 2008). Based on an initial intergroup bias (i.e., more positive in-group ratings compared to out-group ratings), attending/responding to in-group members while ignoring out-group members increased intergroup bias; attending/responding to out-group members and ignoring in-group members, however, resulted in a reduction of bias. Both of our studies, tested in different countries, with different in- and out-groups, and significant methodological variations (e.g., amount of times a stimulus was presented and rated) show this significant interaction. This is novel evidence that intergroup bias—a central measure in intergroup attitudes and a source for social injustice and biased interactions—is systematically influenced by basic selection processes in the service of goal-directed behavioral control.

Our new approach of course poses new questions for additional research. For example, Study 2 provides evidence that the exposure and selection processes do not interact with in-group identification to affect the magnitude of intergroup bias. However, it would be interesting to explore whether in-group identification influences how we choose to interact with certain group members (e.g., whom we attend to and whom we ignore) and how this interaction style in turn—through the presented effects of exposure and selection on evaluations— influences the magnitude of intergroup bias. Such considerations could be taken into account when investigating the effects of intergroup contact (reviewed by Pettigrew, 1998) as any real contact between members of different groups involves exposure and selection processes—processes we have shown to influence intergroup bias.

Not addressed in our current studies is the question of whether the impact of exposure and selection on intergroup bias are specific to people we have already interacted with or whether they generalize to other novel group members (Zebrowitz et al., 2008). In line with research from Goolsby et al. (2009), by using a feature-based selection task, we expect the current effect to be limited to the group categories as they had been the important selection criterion (see also Martiny-Huenger et al., 2014 for a discussion about feature- and object-based distractor devaluation). However, the research from Goolsby et al. (2009) also suggests that generalization to novel group members might occur if the novel group members display signs of group membership that were the criterion of a previous selection episode. Thus, intergroup bias may be increased/reduced with novel group members if the relevant group categorization is openly visible as it is the case for example with skin color.

In sum, while social–motivational factors (i.e., social identity, needs of assimilation and differentiation, uncertainty reduction, or the promotion of intergroup hierarchies) influencing intergroup bias are extensively studied, we show that cognitive processes of goal-directed interactions (i.e., exposure and selection) with in- and out-group members systematically influence intergroup bias. Whereas exposure to out-group members has previously been proposed to have positive effects on intergroup relations by the mere exposure effect (Bornstein, 1993; Zebrowitz et al., 2008), we considered new research on the interaction of attention and evaluations to show that not all exposure is good; the status of the involved people as targets or distractors to one's current behavioral goals needs to be taken into account. As exposure and selection are omnipresent in our everyday social interactions, it is worthwhile to consider these basic processes along with social–motivational factors to fully understand intergroup bias and how it influences our social behavior.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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### Note

1. The same analysis but without including the covariates resulted in a marginal significant Rating  $\times$  Focus interaction effect,  $F(1, 92) = 3.56, p = .06, \eta^2_p = .04$ .

### References

- Allport, A. (1989). Visual attention. In M. I. Posner (Ed.), *Foundations of cognitive science* (pp. 631–682). Cambridge, MA: MIT Press.
- Bornstein, R. F. (1989). Exposure and affect: Overview and meta-analysis of research, 1968–1987. *Psychological Bulletin, 106*, 265–289.
- Bornstein, R. F. (1993). Mere exposure effects with outgroup stimuli. In D. M. Mackie & D. L. Hamilton (Eds.), *Affect, cognition, and stereotyping: Interactive processes in group perception* (pp. 195–211). San Diego, CA: Academic Press.
- Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality And Social Psychology Bulletin, 17*, 475–482. doi:10.1177/0146167291175001
- Brewer, M. B., & Brown, R. J. (1998). Intergroup relations. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 2., pp. 554–594). Boston, MA: McGraw-Hill.
- Buttaccio, D. R., & Hahn, S. (2010). The effect of behavioral response on affective evaluation. *Acta Psychologica, 135*, 343–348.
- Doallo, S., Raymond, J. E., Shapiro, K. L., Kiss, M., Eimer, M., & Nobre, A. C. (2012). Response inhibition results in the emotional devaluation of faces: Neural correlates as revealed by fMRI. *Social Cognitive and Affective Neuroscience, 7*, 649–659.

- Fenske, M. J., & Raymond, J. E. (2006). Affective influences of selective attention. *Current Directions in Psychological Science, 15*, 312–316. doi:10.1111/j.1467-8721.2006.00459.x
- Fenske, M. J., Raymond, J. E., Kessler, K., Westoby, N., & Tipper, S. P. (2005). Attentional inhibition has social-emotional consequences for unfamiliar faces. *Psychological Science, 16*, 753–758. doi:10.1111/j.1467-9280.2005.01609.x
- Fiske, S. T. (1998). Stereotyping, prejudice, and discrimination. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology*, (4th ed., Vol. 2., pp. 357–411). Boston, MA: McGraw-Hill.
- Frischen, A., Ferrey, A. E., Burt, D. H. R., Pistchik, M., & Fenske, M. J. (2012). The affective consequences of cognitive inhibition: Devaluation or neutralization? *Journal of Experimental Psychology: Human Perception and Performance, 38*, 169–179. doi:10.1037/a0025981
- Goolsby, B. A., Shapiro, K. L., Silvert, L., Kiss, M., Fragopanagos, N., Taylor, J. G., . . . Raymond, J. E. (2009). Feature-based inhibition underlies the affective consequences of attention. *Visual Cognition, 17*, 500–530. doi:10.1080/13506280801904095
- Griffiths, O., & Mitchell, C. J. (2008). Negative priming reduces affective ratings. *Cognition and Emotion, 22*, 1119–1129.
- Hewstone, M., Rubin, M., & Willis, H. (2002). Intergroup bias. *Annual Review of Psychology, 53*, 575–604.
- Hogg, M. A. (2000). Subjective uncertainty reduction through self-categorization: A motivational theory of social identity processes. *European Review of Social Psychology, 11*, 223–255. doi:10.1080/14792772043000040
- Kiss, M., Goolsby, B. A., Raymond, J. E., Shapiro, K. L., Silvert, L., Nobre, A. C., . . . Eimer, M. (2007). Efficient attentional selection predicts distractor devaluation: Event-related potential evidence for a direct link between attention and emotion. *Journal of Cognitive Neuroscience, 19*, 1316–1322.
- Kiss, M., Raymond, J. E., Westoby, N., Nobre, A. C., & Eimer, M. (2008). Response inhibition is linked to emotional devaluation: behavioural and electrophysiological evidence. *Frontiers in Human Neuroscience, 2*, 1–9. doi:10.3389/neuro.09.013.2008
- Leach, C. W., van Zomeren, M., Zebel, S., Vliek, M. L. W., Pennekamp, S. F., Doosje, B., . . . Spears, R. (2008). Group-level self-definition and self-investment: A hierarchical (multicomponent) model of in-group identification. *Journal of Personality and Social Psychology, 95*, 144–165. doi:10.1037/0022-3514.95.1.144
- Martiny-Huenger, T., Gollwitzer, P. M., & Oettingen, G. (2014). Distractor devaluation in a flanker task: Object-specific effects without distractor recognition memory. *Journal of Experimental Psychology: Human Perception and Performance, 40*, 613–625. doi:10.1037/a0034130
- Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49*, 65–85. doi:10.1146/annurev.psych.49.1.65
- Raymond, J. E., Fenske, M. J., & Tavassoli, N. T. (2003). Selective attention determines emotional responses to novel visual stimuli. *Psychological Science, 14*, 537–542. doi:10.1046/j.0956-7976.2003.psci\_1462.x
- Raymond, J. E., Fenske, M. J., & Westoby, N. (2005). Emotional devaluation of distracting patterns and faces: A consequence of attentional inhibition during visual search? *Journal of Experimental Psychology: Human Perception and Performance, 31*, 1404–1415. doi:10.1037/0096-1523.31.6.1404
- Rubin, M., & Hewstone, M. (1998). Social identity theory's self-esteem hypothesis: A review and some suggestions for clarification. *Personality and Social Psychology Review, 2*, 40–62. doi:10.1207/s15327957pspr0201\_3
- Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression*. New York, NY: Cambridge University Press.
- Tajfel, H., & Turner, J. (1979). An integrative theory of intergroup conflict. In M. A. Hogg & D. Abrams (Eds.), *Intergroup relations: Essential readings* (pp. 94–109). Philadelphia, PA: Psychology Press.
- Tukey, J. W. (1977). *Exploratory data analysis*. Reading, MA: Addison-Wesley.
- Turner, J. C., & Reynolds, K. J. (2001). The social identity perspective in intergroup relations: theories, themes, and controversies. In R. Brown & S. Gaertner (Eds.), *Blackwell handbook of social psychology: Intergroup processes* (pp. 133–52). Malden, MA: Blackwell.
- Veling, H., Holland, R. W., & van Knippenberg, A. (2007). Devaluation of distracting stimuli. *Cognition & Emotion, 21*, 442–448. doi:10.1080/02699930600843007
- Veling, H., Holland, R. W., & Knippenberg, A. V. (2008). When approach motivation and behavioral inhibition collide: Behavior regulation through stimulus devaluation. *Journal of Experimental Social Psychology, 44*, 1013–1019. doi:10.1016/j.jesp.2008.03.004
- Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology—Monograph Supplement, 9*, 1–27.
- Zajonc, R. B. (2001). Mere exposure: A gateway to the subliminal. *Current Directions in Psychological Science, 10*, 224–228. doi:10.1111/1467-8721.00154
- Zebrowitz, L. A., White, B., & Wieneke, K. (2008). Mere exposure and racial prejudice: Exposure to other-race faces increases liking for strangers of that race. *Social Cognition, 26*, 259–275. doi:10.1521/soco.2008.26.3.259

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