European Journal of Social Psychology, *Eur. J. Soc. Psychol.* **42**, 65–71 (2012)
Published online 24 August 2011 in Wiley Online Library (wileyonlinelibrary.com) **DOI**: 10.1002/ejsp.840

Research article

When a new group identity does harm on the spot: Stereotype threat in newly created groups

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Abstract

The detrimental consequences of negative stereotypes on performance have been demonstrated in a variety of social groups with various stereotypes. The present studies investigate the minimal conditions for stereotype threat using newly created groups. Results of three experiments (total N = 184) demonstrate that in the negative stereotype condition, the more participants identified with their novel group, the stronger was their decrease in performance. In the control condition, identification was either not related to performance, or it had by trend a positive effect. The theoretical and practical implications of the findings are discussed with regard to stereotype threat and social identity theory. Copyright © 2011 John Wiley & Sons, Ltd.

In everyday life, people often join new groups, voluntarily or involuntarily. Nearly all social groups are stereotyped in one way or another. For example, imagine moving to a new town. The only available soccer team is the University Soccer Club. As you like playing soccer, you immediately join this soccer club. Only when telling your friends about it, you realize that negative stereotypes about the club exist. Will this knowledge influence your performance on proceeding soccer matches? If so, under which conditions will your performance be hindered by the negative stereotypes about your new team? The aim of the following research is to answer these questions.

It is well established that members of groups that they have a lifelong history with (e.g., males and females, African Americans) suffer performance decreases when a negative performance-related stereotype about the in-group is activated—*stereotype threat* (e.g., Steele & Aronson, 1995). Yet, can information about a group's expected performance even hinder the performance of new group members? If random placement in a negatively stereotyped group decreases new group members' performance immediately, this would indicate that stereotype threat can harm on the spot, and it would add evidence to the claim that stereotype threat is a powerful phenomenon hindering everyone when a negative stereotype about one's in-group is salient (Steele, 1997). We therefore investigate stereotype threat effects in newly created groups. Newly created groups allow the investigation of group phenomena under controlled conditions (e.g., Ellemers, 1993; Tajfel, Billig, Bundy, & Flament, 1971). This is especially fruitful when investigating "real" groups[1] is problematic because of possibly confounding variables. Newly created groups allow controlling all information given about the in-group, the out-group, and the intergroup situation. This is particularly important in research on stereotype threat. Despite a large body of evidence, it remains unclear whether the disruptive nature of the evaluation situation is sufficient for creating stereotype threat or whether specific preconditions of the target are needed in addition (e.g., low status). Thus, showing stereotype threat in newly created groups would support the claim that stereotype threat is solely about the content of the stereotype and not about the groups' position in the social hierarchy; factors that were typically confounded in previous research (but see Leyens, Désert, Croizet, & Darcis, 2000). Demonstrating stereotype threat in newly created groups would thus add to the evidence that a history of stigmatization is not a necessary precondition for stereotype threat to occur (Aronson et al., 1999; Leyens et al., 2000).

In line with social identity theory (Tajfel & Turner, 1979), we argue that stereotype threat should only influence the performance of new group members when the new group has become an important part of the group members' self-concept. Activating a negative stereotype can be understood as a threat to a person's positive social identity. Thus, the more group members perceive themselves as being part of the negatively stereotyped group, the more should their self-concept be harmed by the activated (negative) stereotype. Consequently, those highly identified with the negatively stereotyped group should be especially vulnerable to stereotype threat. Whereas

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[1]For reasons of simplicity, we use the term "real" groups only for groups existing in society (e.g., ethnic groups), even though the social groups created in the present experiments also are "real" as they constitute psychological reality for participants.

Received 22 July 2010, Accepted 7 July 2011

early work on the role of group identification was ambiguous (e.g., Oyserman, Harrison, & Bybee, 2001; Steele, Spencer, & Aronson, 2002), more recent research showed that people who report high identification with the in-group apparently show the strongest decrease in performance under stereotype threat (Davis, Aronson, & Salinas, 2006; Schmader, 2002; Wout, Danso, Jackson, & Spencer, 2008).

EXPERIMENTS 1A-C

We investigated whether identification with a novel in-group moderates stereotype threat in an experimental paradigm using newly created groups. In line with Steele (1997), we predicted that stereotype threat, being situational, is powerful enough to hinder the performance of members of newly created groups. In line with social identity theory (Tajfel & Turner, 1979) and extending studies with "real" groups (Davis et al., 2006; Schmader, 2002; Wout et al., 2008), we expected group identification to moderate stereotype threat in newly created groups: The higher a participant is identified with his/her new in-group, the stronger the performance impairment should be when a negative stereotype is salient.

Several factors were varied between experiments. First, stereotype threat is often described as reputational threat (Steele, 1997). Reputational threats can be grounded either on facts, that is, real group differences, or on the suspicion of group differences that may not exist in reality. In *Experiments 1a* and *1c*, the negative performance-related stereotype about the new in-group in an unknown domain was implemented as a given fact ("Previous research has shown. . ."). In *Experiment 1b*, we tested if stereotype threat even occurs when the induced negative stereotype is framed as a suspicion ("It is assumed. . .").

Second, generalized conclusions on stereotype threat should not be based solely on university student samples, which are highly selective in terms of the importance of intellectual achievement (Keller, 2007). For this reason, whereas *Experiment 1a* was conducted with university students as participants, *Experiments 1b* and *1c* replicated the findings with non-university student samples.

Third, measuring our central moderator, identification with the newly created groups, before task performance could make participants suspicious concerning the aim of the experiments, influencing their performance. However, when measuring identification after task performance, participants' earlier performance could influence their identification with the group. Therefore, whereas in *Experiment 1a* and *1b*, group identification was measured after task performance; in *Experiment 1c*, we measured group identification after participants were assigned to their new groups and before making any reference to the stereotype. As a final variation between experiments, in *Experiment 1a* and *1b*, we implemented measures of the cognitive component of identification. However, recent work suggests that a self-definition component of identification is more appropriate for assessing identification in newly created groups (e.g., Leach et al., 2008). We therefore decided to use the self-stereotyping items suggested by Leach and colleagues to assess this component of self-definition in *Experiment 1c*. These items have the additional advantage that compared with the standard cognitive identification item (e.g., "I actually think that I am a member of the concave/convex group."); they are less prone to raise suspicion and doubts about the categorization, which would be detrimental at the outset of the study.

Method

Participants

Experiment 1a. The sample comprised 54 first-year students from a large German university and polytechnic unfamiliar with minimal group studies; age range 18–30 years ($M = 21.43$; $SD = 2.67$); 31 were female.

Experiment 1b. Participants were 58 high school students visiting the university; age range 16–19 years ($M = 17.58$; $SD = 0.57$); 30 were female.

Experiment 1c. Participants were 72 visitors of the university; age range 15–23 years ($M = 18.74$; $SD = 1.31$); 43 were female.

Design

In all experiments a 2 (negative stereotype versus no stereotype) × 2 (high versus low group identification; quasi-experimental factor) design was used. Performance in two tests was the dependent measure.

Materials and Procedure

Participants were seated separately in cubicles in front of a computer. After signing the consent form, all instructions were given on the computer screen. Measures were applied in the order described below.

Cover-story and Self Categorization. All participants read a cover-story claiming that each person either has a convex or a concave information processing style (e.g., Otten & Wentura, 1999, 2001). After participants were provided with information about both styles ("concave processors work best at the beginning and the end of a working period, whereas convex processors work best in the middle"), they were asked to think about former working periods and which style applies to them. Then they had to guess their information processing style.[2]

Categorization Test. An alleged test of information processing style followed. Participants saw very briefly either a meaningful picture or an abstract pattern (30 in total) and then indicated what kind of picture they had seen. Additionally, they decided how many persons they saw on the picture or pattern. Based on the test, participants were allegedly assigned to the convex or concave group and asked to remember this assignment. In fact, they always were assigned to the group they had guessed as reflecting their own information processing style before.

Introducing the Negative/No Stereotype. Afterwards, participants in the negative stereotype condition (half of those in

[2]Even though participants self-selected their group, self-selection has no implications for the interpretation of the results because the assignment to stereotype condition was independent of the group label. Moreover, regression analyses testing the influence of the group label on performance showed no effects (see Figure 1).

the convex/concave group) were told that earlier studies had revealed intellectual performance differences between the groups. These performance differences were ostensibly based on different attentional focusing abilities, and members of the participant's group were said to show, on average, lower levels of attentional focusing than out-group members (*Experiments 1a and 1c*: "Research has shown that [*Experiment 1b*: "It is assumed that"] people with a concave/convex information processing style perform worse in ability tests than people with a convex/concave information processing style because of lower levels of attentional focusing."). Participants in the control condition were informed that there were no group differences in attentional focusing and intellectual performance in general between the two groups (". . . neither people with a convex information processing style nor with a concave information processing style perform worse in ability tests because they have the same level of attentional focusing."). In other words, in both conditions the comparison between both groups was made salient. Then, all participants were told that they would be working on two tasks measuring attentional focusing and that the two groups' performance in attentional focusing would later be compared. In order to make group membership and the stereotype salient, participants were asked to write down their group membership and to check whether their group's attentional focusing ability is particularly bad, particularly good or neither good nor bad.

Task Performance

Stereotype threat impairs working memory capacity (e.g., Schmader & Johns, 2003), and performance decrements are stronger with increasing task difficulty (O'Brien & Crandall, 2003). Therefore, we chose tasks that heavily rely on working memory capacity.

Digit-symbol Task. The digit-symbol task (Colman, 2001) consisted of 10 symbols and 10 digits. Each symbol was paired with a digit from 1 to 10 in ascending order. Participants were asked to memorize the pairs within 30 seconds. Then each symbol had to be assigned to the correct digit without a time limit; response time was measured for each of a total of three rows in which 10 symbols each had to be memorized. Main dependent variable was the number of correct assignments on the total of 30 symbols. After that task, participants again indicated their group membership and recalled their group's ability in attentional focusing.

Arithmetic Task. The arithmetic task also relied on working memory capacity (Schmader & Johns, 2003). Participants were instructed to add three numbers and then compute the cross sum. If it was an even number, it was to be divided by two; in the case of an odd number, multiplied by two. Participants were asked to type each response into a text field. Fifteen problems were presented with ascending difficulty. Time limit per problem was 15 seconds. Participants who finished earlier could continue to the next problem by pressing "enter". All participants worked on all 15 problems. Dependent variable was the number of correctly solved problems. In addition, we measured how long it took each participant to answer all 15 problems.

Questionnaire. In *Experiment 1a* ($\alpha = .86$) and *Experiment 1b* ($\alpha = .86$) three items assessing the cognitive component of group identification ("I identify with the concave/convex group.", "I see myself as a member of the concave/convex group.", "I actually think that I am a member of the concave/convex group."; ranges: 1 to 7) were measured after task performance. In *Experiment 1c* ($\alpha = .81$) group identification was measured immediately after the categorization test before participants learned about the negative stereotype and before they worked on the performance tasks. Because the cognitive identification items used in *Experiment 1a* and *1b* could raise suspicion among participants about the categorization, three items assessing self-stereotyping as an important component of group identification were used ("I am similar to the other members of the concave/convex group.", "I have features in common with other members of the concave/convex group.", "I share traits with other members of the concave/convex group."; all ranges: 1 to 7; Leach et al., 2008).

All experiments ended with a questionnaire including a manipulation check item measuring perceived performance of the in-group ("The ability in attentional focusing of my group is worse than the ability of the other group."; range: 1 to 7) and demographic questions. Then participants were compensated with three Euros, debriefed, thanked, and dismissed.

Results

Manipulation Check

In line with expectations, in each experiment, participants in the negative stereotype condition agreed more that their group's attentional focusing ability is low than did participants in the control group, indicating that the manipulation was successful (*Experiment 1a*: $M_{\text{negative stereotype}} = 5.33$, $SD = 2.02$, versus $M_{\text{control}} = 2.22$, $SD = 1.53$, $t(52) = 6.39$, $p \leq .001$, $R^2 = 0.44$; *Experiment 1b*: $M_{\text{negative stereotype}} = 5.36$, $SD = 1.85$, versus $M_{\text{control}} = 2.70$; $SD = 1.54$, $t(57) = 5.76$, $p \leq .001$, $R^2 = 0.37$; and *Experiment 1c*: $M_{\text{negative stereotype}} = 5.48$, $SD = 1.69$, versus $M_{\text{control}} = 2.60$; $SD = 1.83$, $t(70) = 6.89$, $p \leq .001$, $R^2 = 0.40$.

Task Performance

Performance on the digit-symbol task varied from 2 to 10 per row (*Experiment 1a*: $M = 8.11$, $SD = 1.64$; *Experiment 1b*: $M = 8.15$, $SD = 1.75$; *Experiment 1c*: $M = 8.54$, $SD = 1.45$), and in the arithmetic task from 0 to 15 (*Experiment 1a*: $M = 10.06$, $SD = 5.49$; *Experiment 1b*: $M = 9.79$, $SD = 5.56$; *Experiment 1c*: $M = 8.54$, $SD = 6.14$).

We hypothesized an interaction between stereotype condition and group identification on performance: Only in the negative stereotype condition more identification with the new in-group should lead to lower performance. Before analyzing the data of Experiments 1a and 1b, we tested if the reported *level of group identification* (measured at the end of the experiment) differed between conditions because similar levels of group identification in both conditions are a precondition for using group identification as a moderator. *T*-tests for independent samples revealed that group identification did not differ

between conditions, *Experiment 1a*: $M_{\text{negative stereotype}} = 4.36$, $SD = 1.07$; $M_{\text{control}} = 4.59$, $SD = 0.85$, $t(52) = -0.90$, *n.s.*; *Experiment 1b*: $M_{\text{negative stereotype}} = 4.38$, $SD = 1.32$; $M_{\text{control}} = 4.72$, $SD = 1.09$), $t(57) = -1.08$, *n.s.*

Then we checked for the influence of gender and group membership (concave versus convex) on both tasks. Whenever these two variables influenced performance they were included in further analyses. Multiple regression analyses were computed with stereotype condition, group identification, and their interaction (Aiken & West, 1991) as independent variables, and performance in the two tasks as dependent variables. The predictor stereotype condition was contrast coded (1: negative stereotype, −1: no stereotype). The continuous predictor group identification was *z*-standardized. Figure 1 shows the results of all three experiments in both tasks. No main effects were significant. But, in line with our prediction, we found an interaction of group identification and stereotype condition on performance (statistically significant in five out of six analyses). As simple slopes tests showed, in the negative stereotype condition, the higher participants' group identification, the lower was their performance (this relation was statistically significant in four out of six analyses). In contrast, in the control condition, descriptively, the higher participants' group identification, the better their performance.

Additional Analyses

To test the robustness of these effects, we computed a higher-order analysis using the meta-analytic procedure suggested by Rosenthal and DiMatteo (2001). We tested the robustness of the interaction as well as the robustness of the negative influence of group identification on performance in the experimental condition. In both analyses, we treated each performance test as independent, allowing us to combine the effects pertaining to six results.

First, we computed the effect size *r* based on the *t*-statistics from the above regressions. Then, we combined the *r*s as described by Rosenthal and DiMatteo (2001) and computed the weighted and unweighted mean *r*s; for the interaction: unweighted $r = .27$, weighted $r = .27$ (95% CI: .21–.35); for the negative effect of group identification: unweighted $r = .30$, weighted $r = .28$. (CI: .13–.48). Thus, even though both effect sizes are rather small, neither the confidence interval of the interaction nor that of the negative effect of group identification in the experimental condition includes zero. In other words, even though the predicted interactions and the simple slopes did not always reach conventional significance in single regressions, both effects are consistent and robust throughout the three studies as demonstrated by higher-order analyses.

GENERAL DISCUSSION

Three experiments and their combined analysis confirmed our predictions based on stereotype threat theory (e.g., Schmader, 2002) and on social identity theory (Tajfel & Turner, 1979). Even under the minimal conditions of newly created social groups in the laboratory, a negative effect of stereotypes on

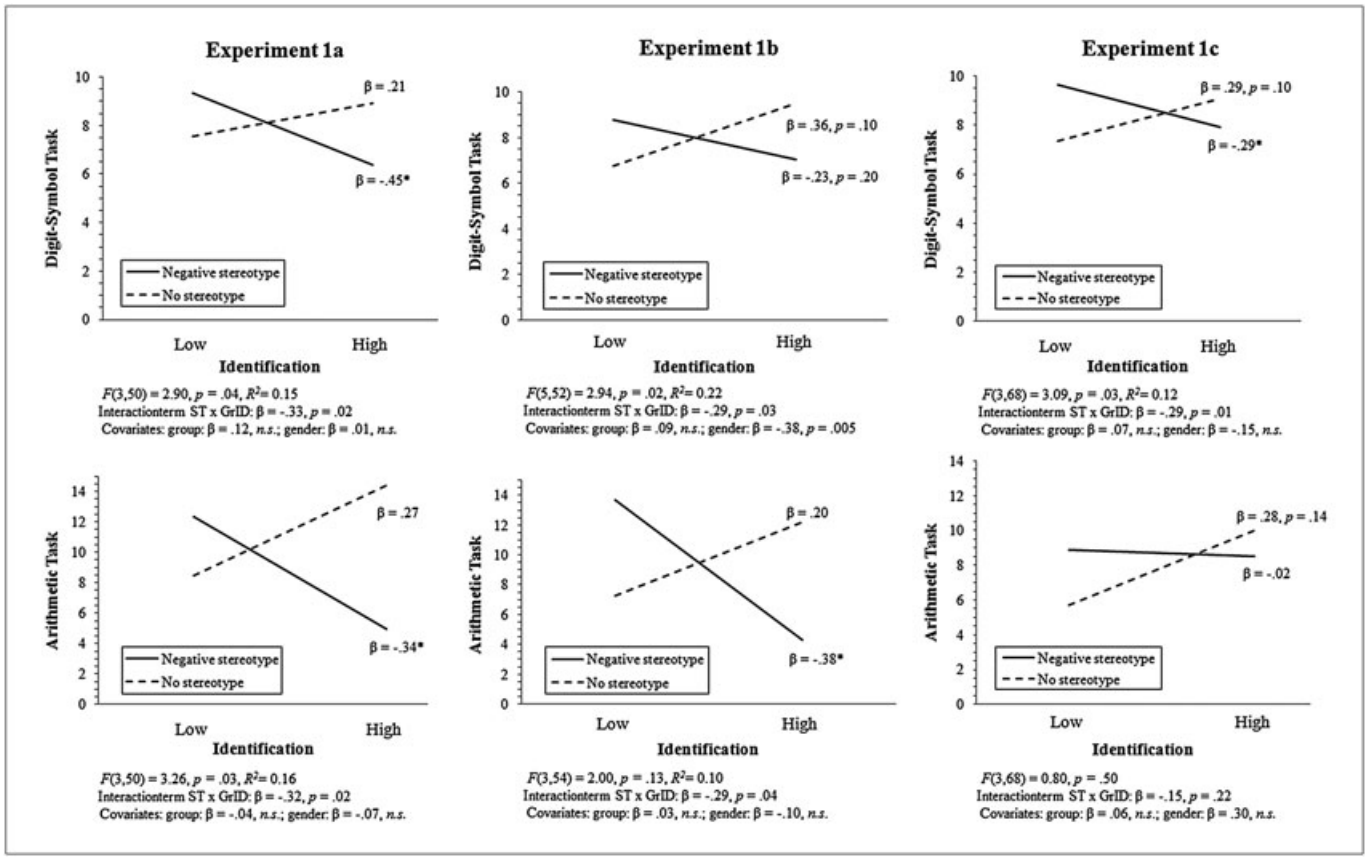

Figure 1. Simple slopes for the interaction of group identification and stereotype condition on performance in the digit-symbol task (upper panel) and the arithmetic task (lower panel) for Experiments 1a, 1b, and 1c. * = $p \leq .05$

performance for highly identified group members was demonstrated. This was the case when both stereotypes were stated as a fact or as a suspicion. Moreover, higher group identification went along with lower performance, whether identification was measured before or after task performance. The higher-order analyses confirmed the robustness of the presented effects. In sum, stereotype threat is a powerful situational social identity threat moderated by group identification that does occur even under minimal conditions, that is, in the absence of any prior experiences with the group or the domain. Our manipulations were rather minimal as they did not include any information about individual abilities. Yet, they were sufficient to decrease performance of members highly identified with their new group.

This experimental procedure opens up the possibility for a better integration of research on stereotype threat with a social identity perspective (Tajfel & Turner, 1979) and helps us to understand performance deficits as byproducts of intergroup relations. In addition, the present results contribute to recent attempts to disentangle different kinds of stereotype threat (Shapiro & Neuberg, 2007; Wout et al., 2008). As Wout and colleagues (2008) demonstrated and as social identity theory would predict, group identification moderates performance under stereotype threat only if an intergroup situation is salient. The present experimental paradigm emphasized the intergroup situation without providing any information about the participants' personal abilities. We thus created conditions in which the group was the target of the threat (Shapiro & Neuberg, 2007). In line with social identity theory, we argued that highly identified group members incorporate their group into their self-concept so that the value of the group directly reflects on their self-concept. Consequently, only highly identified group members perceive the activation of a negative group stereotype as a threat to their social identity. Motivated by their need to keep a positive social identity, these group members have to cope with the negative, stereotypic information about their group. In line with earlier work on social identity threat (Coull, Yzerbyt, Castano, Paladino, & Leemans, 2001) and work on the neural basis of stereotype threat (Krendl, Richeson, Kelley, & Heatherton, 2008), we propose that coping with the negative information about the in-group uses cognitive resources that are withdrawn from the performance task (for similar arguments see Beilock, Rydell, & McConnell, 2007; Schmader & Johns, 2003; Schmader, Johns, & Forbes, 2008). Therefore, highly identified group members have fewer cognitive capacities for working on the task, which leads to a decrease in performance. Our findings are in line with these predictions. In contrast, whenever group members are not identified with their group, their self-concept is not threatened by their group membership. Consequently, performance of low identifiers does not suffer from facing a negative stereotype. It rather appears that the performance of low identifiers even increases when a negative stereotype was introduced (as compared with low identifiers in the control condition). A possible explanation is that low identifiers are motivated to distance themselves from the group's negative stereotype by increasing their effort.

Also in line with the argument of an integration of stereotype threat and social identity theories is our finding of a descriptive increase in performance in the control condition for highly identified group members. This tendency replicates earlier findings on social identity and productivity demonstrating that highly identified group members are willing to make an effort to increase their group's performance (e.g., Worchel, Rothgerber, Day, Hart, & Butemeyer, 1998). One may wonder why this tendency has not been found in earlier work on the effect of group identification on stereotype threat (e.g., Schmader, 2002; Wout et al., 2008). In contrast to earlier work (e.g., Schmader, 2002), we accentuated the comparison between groups even in the control condition by explicitly stating that until now no general group differences in performance have been found. In earlier work, only in the experimental condition the comparison between groups was made salient. Highlighting the comparison between groups apparently motivated highly identified group members to increase effort to ensure high performance of their in-group when no negative stereotype was made salient.

In addition, one could question if the processes underlying stereotype threat in newly created groups are identical to those underlying stereotype threat in groups with negative experiences and group histories. In line with recent work postulating different kinds of stereotype threat (Shapiro & Neuberg, 2007; Wout et al., 2008), we do not believe that all kinds of stereotype threat are the same. Thus, we do not propose that exactly the same processes underlie stereotype threat in newly created groups and all types of stereotype threat in "real" groups. However, we do argue that the same basic motive, namely the need to keep or restore a positive social identity (Tajfel & Turner, 1979) or to preserve a sense of self-adequacy (Steele, 1997), is activated in stereotype threat situations when an intergroup situation is salient. Further, we argue that this motive drives behavior in these situations. Thus, even though the same motive is activated, the experiences group members have made with long-term group memberships and domains in question increase the complexity of the context in which stereotype threat is experienced.

One may wonder whether the present findings actually are caused by a threat to group members' social identity and not merely by self-fulfilling prophecy (e.g., Jussim, 1986; Rosenthal & Jacobson, 1968). We believe this is not the case for at least three reasons. First, self-fulfilling prophecy is about a false expectancy that becomes true because of a differential treatment of the targets. In this experiment, all participants were treated the same. Second, if expectancy confirmation or self-fulfilling prophecy had driven the effects reported in the three experiments, one would have expected a reduction in effort among participants in the negative stereotype condition. Indeed expectancy should influence the performance of all group members independently of group identification. Yet, analyses yielded no main effect of condition on the time spent working on the task or on performance, all $|t|$s < 1, *n.s.* On the contrary and in accordance with stereotype threat theory, the induced negative stereotype only hindered the performance of highly identified group members. Finally, the fact that the pattern of results did hold true also when the stereotype was formulated as a mere suspicion, further supports the claim that we indeed induced a group reputational threat for the targets. Although we strongly believe that self-fulfilling prophecy is not a plausible alternative interpretation of our findings, however we do not preclude the possibility that the found

decreases in performance in the experimental condition were mediated by targets' performance expectancy (Cadinu, Maass, Frigerio, Impagliazzo, & Latinotti, 2003; Cadinu, Maass, Rosabianca, & Kiesner, 2005). Further research will have to highlight this mediating process.

Importantly, the present minimal paradigm developed in the present article provides several advantages for stereotype threat research. First, because of the random classification of participants into one of the two experimental conditions, we excluded prior differences between participant groups. Second, by implementing a novel performance domain, we made sure that participants did not have experiences with the investigated domain. Finally, because of the newly introduced groups, participants were not able to develop coping strategies undoing the negative social identity in question. This implies that only the situation (the introduced negative stereotype) can have caused the decrease in performance, as it is impossible that the decrease depends on any specific characteristics of the groups or the group members. This confirms that stereotype threat can occur without a negative group history (Aronson et al., 1999; Leyens et al., 2000). As a consequence and in accordance with Steele's initial theory (1997), we conclude that everyone's performance can be hindered by stereotype threat whenever one happens to identify with a group stereotyped as inferior. Finally and crucially, the introduced minimal group paradigm is promising because it offers the opportunity to manipulate variables (e.g., position in the social hierarchy) that could not be manipulated before and thus disentangle important factors that often covary with negative stereotypes (e.g., social status, majority versus minority status, power). The present paradigm therefore enables researchers to fully control and manipulate these important variables and will allow them to draw causal conclusions. In addition, whereas the present research focused on the consequences of negative stereotypes, studying the consequences of positive stereotypes in minimal groups seems promising, especially because the effects of the activation of positive stereotypes are less well understood.

The present research also has important real life implications. Even though rather neglected as a research topic in social psychology, people often join new groups as a result of normative life transitions, circumstances, or personal choice. Our findings suggest that immediately after joining a new group, one's behavior can be impaired by negative stereotypes about this group. Returning to the example of the person who recently joined a new town's University Soccer Club: After this person learns about the club's negative stereotypes, this may negatively affect her performance; but only if she identifies with the new club. Keeping in mind that joining new groups is of course not limited to leisure activities but also new jobs, new schools and new neighborhoods, we strongly believe that studying stereotype threat related to new group membership is an important scientific and societal contribution.

ACKNOWLEDGEMENTS

This research was funded by the Deutsche Forschungsgemeinschaft through the International Research Training Group "Conflict and Cooperation between Social Groups" (GRK 622). Sarah E. Martiny and Jenny Roth were at the Friedrich Schiller University, Jena, when this research was conducted.

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