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EXTENDING STEREOTYPE THREAT TO BEHAVIOR UNDER NO EVALUATIVE PRESSURE

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ABSTRACT

Recent research (Cohen & Garcia, 2005) shows that threat effects may occur in the absence of direct evaluative pressure. This article extends this finding to motor behavior. The stereotype of shyness among women was activated or not, and subsequent shy behavior in front of a researcher was measured for male and female students. The threatened female students were shyer than the other three groups of participants, which did not differ from one another. The manipulation had not effect upon the self-perception of shyness.

INTRODUCTION

"Stereotype threat is the realization that one's performance on a particular task might confirm a negative stereotype about one's group (Steele & Aronson, 1995). Once evoked, this concern may hinder the performance of stereotyped individuals in various evaluative contexts" (Bosson, Haymovitz, & Pinel, 2004, p. 247). The stereotype threat phenomenon is a reliable one that has been obtained with a variety of samples and tasks. Relative to their counter-parts in a non-diagnostic condition, African-Americans (Steele & Aronson, 1995), low SES Whites (Croizet & Claire, 1998), females (Spencer et al., 1999), and men (Leyens et al., 2000) do poorly in vocabulary, math, and affect recognition when confronted to a diagnostic evaluation condition. Diagnostic evaluation means here a comparison with the results obtained by individuals pertaining to non-stigmatized groups. The present paper aims at examining two questions. First, does the stereotype threat affect (motor) behavior in addition to written or oral (cognitive) performances? Second, and linked to the first question, is evaluation a necessary requisite for the deleterious effects of stereotype threat? In other words, will stereotype threat extend to overt behaviors accomplished in the absence of explicit evaluation?

To the best of our knowledge, only two sets of studies have tested the behavioral effects of stereotype threat. Stone et al. (1999) conducted two studies in which they presented a golf game as testing strategic thinking or natural athletic ability. Their participants were European-Americans and African-Americans, which means that sports intelligence applied to the former students and athletic ability to the latter ones. When told that the task measured strategic thinking, underperformance occurred, as expected, for the African-American participants. The results were less pronounced for European-Americans informed that the task required athletic ability. The results were non significant in the first study, and in the second one only participants highly involved in sports lowered their performance when they were not given a (mis)attributional reason for their (hypothetical) arousal. Désert et al. (2005) obtained stronger behavioral results in two experiments with female participants who were threatened or not with the stereotype that women are more anxious than men when delivering a speech. These participants were filmed during their speech and, in both studies, judges rated the threatened female students as more anxious than the non-threatened ones. There is thus evidence that stereotype threat is not limited to the cognitive sphere and can have deleterious effects on behavior, but this evidence is still scarce.

Can stereotype threat occur in a non-evaluative setting? In a study by Steele and Aronson (1995, St. 4), African-American students performed a difficult verbal task. The results obtained by those who had had to indicate their race before starting the task were significantly lower. In this experiment, the instructions did not mention an ulterior evaluation, but it is likely that participants inferred that such an evaluation would take place. Otherwise, why was it necessary to reveal one's race? In another study (Bosson, Haymovitz & Pinel, 2004), gay and bisexual males knew that their interactions with 4-6 years old children were videotaped. Just before entering this evaluative setting, half of the participants revealed their sexual orientation while nothing was asked from the rest of them. Those participants who had exposed their sexual orientation were judged to behave less skillfully and more anxiously with the children than those who had been allowed to keep their sexual orientation secret. In this experiment, therefore, evaluation was present, but it was not sufficient to provoke stereotype threat effects, most likely

because sexual orientation is not a visible characteristic. The design and the procedure did not allow verifying whether evaluation was also unnecessary.

Theoretically, and as stated at the start of this article, stereotype threat research implies the fear that one's performance will confirm the negative stereotype of one's group. For this fear to exist, there must be an explicit evaluation like in typical studies of this line of studies. Another possibility is that evaluation may be self-generated like it is the case with self-awareness (Duval & Wicklund, 1972) when individuals become conscious of their self and stress its deficiencies. Whatever the source of evaluation, it remains that scholars of stereotype threat propose a non-direct link between the threat and the performance. Stated otherwise, some affective or cognitive process should mediate the impact of threat upon performance. It is remarkable that all the efforts at finding possible mediators have taken for granted the fact that the fear of evaluation interferes with performance. The most obvious example is anxiety. Evaluation implied by stereotype threat should engender anxiety and this anxiety should deter the performance. Another plausible process is mental load. Stereotype threat may lead threatened people to think about their capacity and possible performance, and these thoughts may interfere with the performance itself. Croizet et al. (2004) measured mental load by HRV (heart period variability) and found that it moderated, but did not mediate, stereotype threat. Schmader and Johns (2003) worked with women and a math test. They showed that a reduction in working memory capacity mediated stereotype threat. Several tests have been conducted unsuccessfully with self-reported anxiety (see Wheeler & Petty, 2001). Recently, Bosson et al. (2004) measured behavioral (non-verbal) anxiety and found that this non-reactive measure mediated the stereotype threat effects.

It seems fair to conclude that the reasoning behind the stereotype threat research implies some sort of evaluation, which, by apprehension, interfering thoughts, reduction of working memory, mental load, etc., leads to a decrement of performance. Direct evaluation is also present in another interpretation of the results obtained by stereotype threat researchers. Lovaglia et al. (2004), for instance, reasoned that lower performance by members of low-status groups who are under evaluation pressure might be provoked by fear of consequences, that is, doing too well for their group. A test of the latter interpretation supports both the differential expected consequences interpretation and the classic stereotype threat one. In the present context, it is important to note that both interpretations call for direct evaluative pressure.

In a recent series of studies, however, Cohen and Garcia (2005) showed that decrements of reported self-esteem and self-efficacy in math could be obtained by participants who were not directly faced with evaluative pressure. In four studies, Black students overheard the typical threatening or non-threatening instructions to another Black individual (i. e., a confederate) who had to solve a very difficult math test, while they were simply asked to fill in questionnaires. Reported self-esteem was consistently lower in the threat condition than in the no-threat one. Even more importantly, in Study 4, participants were requested to rate their ability in math. The scores of math self-efficacy were significantly lower in the threat than in the non-threat condition. In other words, the threat facing a member of a given racial group (i. e., the confederate) becomes collective in the sense that it is shared by other members of the same group. In fact, in a correlational study, the same authors (Cohen & Garcia, 2005) found that the more Black students felt chronically threatened by the negative stereotypes of their group, the worse was their academic performance.

The latter research evidences that threat, without direct evaluative pressure, is sufficient to produce results consistent with the stereotype threat line of research. The present experiment tests the same idea with a behavioral measure. Male and female students were blatantly exposed, or not, to the female stereotype of shyness (Bem, 1974; Eagly, 1987). Later on, they were faced with a situation in which it was possible, and not requested, to react with an overt behavior of shyness or assurance. Stated otherwise, female students were, or not, threatened by a negative stereotype of their group, but their behavior was observed in the absence of a direct evaluative pressure. According to the stereotype threat perspective, only the threatened female students should be influenced by the stereotype of shyness.

Although the stereotype threat literature has not been very successful at finding mediating factors, we attempted to verify whether self-perception could explain the behavior of the participants. Indeed, a couple of studies have suggested that the effect of stereotype threat on intellectual performances is due to expectations on the part of the participants (Stangor, Carr, & Kiang, 1998; Cadinu, Maass, Frigerio, Impagliazzo, & Latinoti, 2003). Following this reasoning, one might expect that the activation of the stereotype of the shy woman would affect the perception of shyness of the female participants and that this self-perception would be responsible for the behavior.

METHOD

Design and Participants

The study consisted of a 2 (Gender: man vs. woman) X 2 (Activation: threat vs. control) design. Fifty-six students (28 men and 28 women), recruited in the streets of Louvain-la-Neuve in Belgium, accepted participating in the experiment.

Procedure

Participants were tested individually. When arriving at the laboratory, the participant was led into the office of a first experimenter, introduced as a lecturer at the Faculty of Psychology and Educational Sciences. She, in turn, explained that the experiment itself would take place with another experimenter in another room but that she could not reveal the purpose of the study. She insisted on the fact that the second experimenter could not receive the participant immediately because he was very busy. She further added that her task was to collect biographical data pertaining to the participants in order to alleviate the second experimenter's workload. The supposed lecturer started by asking the participant his/her age, number of years of completed studies, and the area of studies he/she had enrolled in. Then, she asked the participant to evaluate to what extent a series of personality traits, which she called out loud, applied to him/her personally. The participant answered in writing on a 7-point scale, from 1 (nothing) to 7 (totally). These traits had been taken from Bem's (1974) androgyny scale and half of them referred to masculine traits and the other half to feminine traits. The aim of this task was to keep the participant busy for enough time to expose him/her to the experimental manipulation.

During the completion of the questionnaire, four confederates (aged approximately the same as the participants) entered the room in a pre-established and constant order (boy, girl, girl, boy). These confederates wished to hand in a report to the female experimenter posing as lecturer. Systematically, the men would enter the room with an affirmative step, upon knocking on the door but without waiting for a reply. The women, on the other hand, would knock lightly and await the lecturer's second reply before timidly entering the room.

The experimental manipulation was introduced by means of the lecturer's reaction regarding the confederates' behaviors. In the condition of non-threat, she made no comment. By contrast, in the threat condition, as soon as the second student (i.e., the first female confederate) had left the room, she remarked aloud: "Girls are still more shy than boys. And it is not an advantage to succeed in life."

After the fourth confederate's intervention and as soon as the participant finished answering the items, he/she was guided to the second experimenter's office. The lecturer opened the door, made him/her go in, and closed the door behind him/her. The participant found himself/herself standing in a big office without a chair to sit on. The second experimenter, a young man, sat at a desk, working on a computer, and did not pay attention to the person who had just walked in. Actually, he set the chronometer from the moment the participant entered the office and stopped it only when the participant called his attention, with a time limit set at 300 seconds (5 minutes). The experimenter was unaware of which condition the participant was in. Once the chronometer was stopped, he explained that the experiment was over, invited the participant to fill in a post-questionnaire, and debriefed him/her.

The participant's reaction time (measured in seconds) was the main dependent variable in this study.

Post-Questionnaire

The post-questionnaire consisted of five 7-point scale questions. Two of the items tested the extent to which the participant believed there were differences in gender on the level of shyness: *"According to you, are men generally more shy than women?"* and *"According to you, are women generally more shy than men?"* The two questions verified the extent to which participants agreed about the existence of the female stereotype of shyness. Finally, participants evaluated their perceived level of shyness through three questions: *"To what extent do you see yourself as a shy individual? Compared to other men/women (in-group)? Compared to other women/men (out-group)?"*

RESULTS

Reaction Times

A 2 (Gender: men vs. women) X 2 (Activation: threat vs. control) ANOVA over reaction times in seconds shows a main effect on gender, $F(1,52) = 4.66$, $p < .04$, as well as a main effect of the stereotype threat, $F(1,52) = 4.36$, $p < .05$. Threatened participants ($M = 90$ s) were slower to react than non-threatened ones ($M = 47$ s). Moreover, women were slower to approach the

experimenter than men (Ms = 90 s and 47 s for women and men, respectively). These two main effects are completely due to the interaction between the participants' gender and the stereotype threat, $F(1, 52) = 10.09$, $p < .004$. The women under threat are much slower (M = 146 s) than all the other participants, who do not differ amongst themselves (Ms = 36 s, 58 s, 35 s respectively for the women in non-threat, for the men in non-threat, and for the men under threat). (See Table 1.)

Table 1. Means and Standard Deviations for Dependant Variables as a Function of Partcipants' Gender and Threat Instructions

	Female/No threat condition		Female/Threat condition		Male/No threat condition		Male/Threat condition	
	M	SD	M	SD	M	SD	M	SD
Reaction times	36	29.3	146	139.7	58	48.7	35	38.2
Log(RTs)	1.42	.39	1.83	.64	1.59	.42	1.34	.44
Stereotype acceptance	4.11	1.32	3.77	1.62	4.57	1.04	3.85	.83
Self-perception	4.57	1.70	5.15	1.57	4.43	1.79	4.15	1.63
Self compared to ingroup	3.14	1.92	4.38	1.50	3.43	1.87	3.38	1.76
Self compared to outgroup	4.29	1.86	4.54	1.76	4.64	1.82	4.08	1.32

The data analyzed in the above ANOVA present a strong heterogeneity of the variance between the conditions, with a very important standard deviation for the condition of women-threat (SD = 140). In reality, under this condition, six participants out of 14 remained inactive for the maximum time limit allowed, i.e. 300 seconds, while no other participant in the other three conditions went over 151 sec. This delay, observed only amongst the threatened women, may certainly be interpreted as evidence of the efficacy of the manipulation. However, in order to overcome the problem of the heterogeneity of the variance, a logarithmic transformation was applied to the reaction times (this statistical method allows the weight of the extreme values to be limited). A new 2 X 2 ANOVA was applied on these figures. Only the interaction gender X threat remained significant, $F(1,52) = 6.69$, $p < .015$. No other effect reached the limit of significance (ps $> .10$).

Post-Questionnaire

A series of 2 (man vs. woman) x 2 (threat vs. non-threat) ANOVAs were applied to the answers on the items in the post-questionnaire. The two items relative to the stereotype acceptance were combined into one single index (1 = men are more shy than women, 7 = women are more shy than men). No main effect or interaction reached the level of significance, ps $> .10$. In general, participants preferred to remain in a neutral position (M = 4.1).

As for the self-perception on the shyness issue, no main or interaction effect reached levels of significance on any of the three items. On the individual scale, the participants evaluated themselves as tending to be somewhat shy (M = 4.6). The individual scores of shyness for the three items of self-perceptions did not correlate with the experimental conditions. They could therefore not be included in a mediational analysis with the results of reaction times, as the first condition necessary for this type of analysis was not fulfilled.

DISCUSSION

When male and female participants were made aware of the shy behavior of women, only female participants subsequently behaved in a shy manner, even though shyness had been presented as a disadvantage in life. We interpret this behavior as an effect of stereotype threat. Such finding was obtained despite the fact that female participants did not recognize the shyness stereotype for their group. The latter finding is not unique (see Leyens et al., 2000); often people refuse to recognize a stereotype targeting their group even when they know it exists. The stereotype of shyness among women is well known and it has even been documented that women who try to disconfirm it are negatively valued (Eagly, 1987).

Such findings strongly support the two aims of this research. First, we replicated in a natural context stereotype threat effects at the behavioral level (Stone et al., 1999). Second, and more importantly, the present results suggest that direct evaluative pressure is not necessary to obtain stereotype threat-like data. To our knowledge, it is the first time that such effect is obtained without evaluative pressure. Cohen and Garcia (2005) had reported similar data but they were either correlational or self-reported efficacy in a given domain rather than behaviours as such. In the research by these authors, it was sufficient that people felt threatened, chronically or through manipulation, by the negative stereotype of their group.

When trying to find a mediator for our results, we did not find evidence that behaviors of women were due to perceived threat. We had expected that the threat of a negative relevant stereotype would influence targets' self-perception. "Women are shy and I am a woman, therefore I am shy and I behave in a shy manner". This reasoning is akin to Bem's (1972) reinterpretation of cognitive dissonance in terms of self-perception. No support for self-perception was obtained. Such lack of finding is frequent in stereotype research where it is easier to find moderators than mediators of the phenomenon (Cadinu, Maass, Lombardo, & Frigerio, 2006).

CONCLUSION

The present research generalizes previous findings about stereotype threat by the test of a motor behavior obtained in the absence of evaluative pressure. Unfortunately, it was not possible to find a mediator of the effect. While stereotype threat continues to look for mediators of its effects, we suggest that future research tries synthesizing this literature with the one on behavioral confirmation (Snyder, 1984) and on self-fulfilling prophecy (Merton, 1948). In the three cases, indeed, targets of relevant stereotypes construct their own reality, and they may do it for very different reasons.

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APPENDIX: CORRELATION MATRIX (PEARSON CORRELATIONS)

	Mean	SD	1	2	3	4	5	6
1	68,62	88,45	1.00	.86*	.23	.18	.18	.10
2	1,54	0,51	.86*	1.00	.25	.18	.12	.15
3	4,08	1,24	.23	.25	1.00	.01	-.01	.07
4	4,57	1,67	.18	.18	.01	1.00	.50*	.47*
5	3,57	1,79	.18	.12	-.01	.50*	1.00	.26
6	4,39	1,68	.10	.15	.07	.47*	.26	1.00

* significant at $p < .01$ level (two-tailed)

1= Reaction times
2 = Log(RTs)
3 = Stereotype acceptance
4 = Self-perception
5 = Self compared to ingroup
6 = Self compared to outgroup

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