

Short Research Note

Men Are Hierarchical, Women Are Egalitarian: An Implicit Gender Stereotype

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The goal of the present study was to provide empirical evidence for the existence of an implicit hierarchy gender stereotype indicating that men are more readily associated with hierarchies and women are more readily associated with egalitarian structures. To measure the implicit hierarchy gender stereotype, the Implicit Association Test (IAT, Greenwald et al., 1998) was used. Two samples of undergraduates (Sample 1: 41 females, 22 males; Sample 2: 35 females, 37 males) completed a newly developed paper-based hierarchy-gender IAT. Results showed that there was an implicit hierarchy gender stereotype: the association between male and hierarchical and between female and egalitarian was stronger than the association between female and hierarchical and between male and egalitarian. Additionally, men had a more pronounced implicit hierarchy gender stereotype than women.

Keywords: Implicit stereotype, hierarchies, gender differences, Implicit Association Test

Expectation States Theory (Berger, Fisek, Norman, & Zelditch, 1977) posits that in heterogeneous groups (e.g., mixed-gender groups) hierarchies are formed according to culturally shared performance expectations based on external status characteristics (e.g., age, gender, competence). For instance, higher performance expectations are linked to male as opposed to female group members and, in a group interaction, members who are allocated higher performance expectations are given more opportunities to contribute, their contributions are valued more, and they ultimately have more group influence. In homogeneous groups (e.g., same-gender groups), Expectation States Theorists explain the formation of hierarchies through subtle differences in dominance behavior among group members (Johnson, Clay-Warner, & Funk, 1996). Performance expectations are higher for behaviorally dominant individuals than for behaviorally non-dominant individu-

als. Although performance expectations might explain how hierarchies are formed within all-male and all-female groups, it cannot, however, explain why all-male groups form more pronounced hierarchies than all-female groups. Indeed, all-male groups tend to be more hierarchically organized than all-female groups – at least at the beginning of an encounter among strangers (Schmid Mast, 2001; 2002). If people share *implicit expectations* about gender and hierarchies, e.g., men are more hierarchical and women are more egalitarian, such expectations could explain this result. Men in an all-male group expect their group to build a rather hierarchical structure and women in an all-female group expect their group to build a rather egalitarian structure. As in the Expectation States Theory tradition, these expectations become self-fulfilling prophecies and more or less pronounced hierarchies will be formed. There is ample evidence in the literature that

implicit expectations or stereotypes affect behavior (e.g., Bargh, Chen, & Burrows, 1996).

The goal of the present study was to test whether people share an implicit stereotype about gender and hierarchies and associate "male" with hierarchies and "female" with egalitarian structures (referred to hereafter as a "hierarchy gender stereotype"). Although there is research showing that men are seen as more dominant, assertive, and competitive, and as more prone to be leaders and authorities than women (e.g., Bem, 1974; Rudman, Greenwald, & McGhee, 2001), this does not necessarily translate into men being seen as more *hierarchical* than women. Dominance means how much influence or control one has and hierarchy refers to the dominance differences between individuals. To date, no study has looked at whether men are more easily associated with hierarchies and women with egalitarian structures.

Besides explaining why there is a gender difference in hierarchy formation when strangers meet for the first time, showing that people possess an implicit stereotype about gender and hierarchies seems important also for other reasons. Although Schmid Mast (2001; 2002) found all-male groups to be more hierarchically organized than all-women groups at the beginning of an encounter among strangers, all-women groups increased in hierarchical organization as time went by. Indeed, it seems that women have the potential to form hierarchies to the same extent as men but it takes them longer to do so (Anderson, John, Keltner, & Kring, 2001). This means that the hierarchy gender stereotype – if it exists – is only accurate for the very beginning of an interaction but is inaccurate for long-term interactions. In the latter case, a hierarchy gender stereotype can have potentially detrimental effects. It might, for instance, prevent women from being hired into a very hierarchical organization because a man seems to be the better fit. Also, if the stereotype is alive in women's heads, it might function as a stereotype threat (Steele & Aronson, 1995). Women might expect to perform poorly in a hierarchical environment, which might prevent them from trying to achieve high status positions in such environments. Indeed, there is evidence that women are less motivated to lead in hierarchically organized settings (Eagly, Karau, Miner, & Johnson, 1994).

Research has shown that beliefs about social groups often exist outside of conscious awareness or control (Greenwald, McGhee, & Schwartz, 1998; Spangler, 1992). The Implicit Association Test (IAT, Greenwald et al., 1998) has become one of the most widely used tools to assess implicit stereotypes. In the IAT, the associative strength between two concepts that are stereotypically paired (e.g., male and hierarchical or female and egalitarian) is compared to the associative strength between two concepts that

are stereotypically not paired (e.g., female and hierarchical or male and egalitarian). A stereotype exists if the associative strength of the stereotypical pairings is more pronounced than the associative strength of the non-stereotypical pairings. There are many examples of implicit gender stereotypes as measured by the IAT. For instance, women have been found to be associated more strongly with arts and men with math than vice versa (Nosek, Banaji, & Greenwald, 2002) and Rudman et al. (2001) found that for men, the association between male and potency and between female and weakness was stronger than vice versa. The present study is different in that it investigates a gender stereotype about a social structure (hierarchy) rather than a specific position within the social structure (high or low status) or a personality characteristic (dominant or submissive).

Method

Participants

Two samples both drawn from the Northeastern University subject pool in different years (2000 and 2001) consisted respectively of 63 undergraduates (41 females, 22 males, Sample 1) and 72 undergraduates (35 females, 37 males, Sample 2) who participated for partial course credit. Participants in both samples were on average 19 years old. Ethnic information was collected only for participants in Sample 2: 87% were Caucasian, 7% Asian, 3% African American, and 3% other.

Procedure

Participants in Sample 1 took the IAT after having had a videotaped interaction with another participant in a study unrelated to the present investigation. Participants in Study 2 completed the IAT at the beginning of a series of personality measures (also unrelated to the present investigation). Participants were told that we wanted to investigate how people classify words. All participants completed the hierarchy-gender IAT individually. To illustrate how the IAT works, participants took the already existing flower-insect IAT (Greenwald et al., 1998), prior to the hierarchy-gender IAT. Participants also reported their age and gender (and those in Sample 2 their ethnicity).

The Paper-Based Hierarchy-Gender IAT

There exists a paper-based version of the Implicit Association Test, which has shown satisfactory reliability and va-

lidity (Lemm, Sattler, Khan, Mitchell, & Dahl, 2002).¹ In the present study, an analogous paper and pencil version of the IAT was used to measure people's implicit gender stereotype for hierarchies (hierarchy-gender IAT). The paper-based IAT has two within-subjects conditions, a stereotypical and a non-stereotypical categorization task (administered in random order). The left column of Figure 1 depicts the stereotypical categorization task condition in which participants were instructed that the circle on the left should be checked if the word on the list pertained to either the concept "male" or "hierarchical" and the circle on the right should be checked if the word on the list pertained to either the concept "female" or "egalitarian." In the non-stereotypical task (right column of Figure 1), the circle on the left represents "female" and "hierarchical" and the circle on the right represents "male" and "egalitarian". Words used for the concept "hierarchical" were: *rank*, *status*, and *hierarchy*; words used for the concept "egalitarian" were: *equality*, *egalitarian*, and *similar*; words used for the concept "male" were: *boy*, *man*, and *he*; and words used for the concept "female" were: *girl*, *woman*, and *she*.²

Because participants first completed the flower-insect IAT with detailed instructions to make sure every participant understood the task, the instructions for the hierarchy-gender IAT were very short. The investigator showed participants an instruction sheet, which listed the four concepts (hierarchical, egalitarian, female, male) each with the 3 words representing the concept. Participants then received the response sheets for the stereotypical and non-stereotypical condition (in random order). For each condition, they were told to read which concepts were paired (indicated at the top of the page, see Figure 1) and to do the same task as before: categorizing as many words as possible within the time limit of 30 seconds (timed by the investigator – who was blind to the condition – with a stopwatch).

¹ Although the paper format of the IAT is not as widely spread as the computer version of it, many researchers have begun using it (e.g., Lemm et al., 2002; Lowery, Hardin, & Sinclair, 2001). Lemm and her colleagues have addressed the question of reliability and validity of the paper-based version of the IAT and found that when using verbal stimuli (as in the present study), the paper-based IAT was comparable to the computer-based IAT: The test-retest reliability of the paper version of the IAT was comparable to the test-retest reliability of the computer version of the corresponding IAT and the paper version of the IAT was significantly correlated with its corresponding computer version.

² The 12 words used for the entire IAT were randomly ordered so that within each block of 12 words, one word was mentioned only once (see Figure 1). This was done for the stereotypical as well as for the non-stereotypical condition. Each IAT consisted of 48 words (4 blocks of 12 words).

HIERARCHICAL		EGALITARIAN		HIERARCHICAL		EGALITARIAN	
rank	status	equality	egalitarian	rank	status	equality	egalitarian
hierarchy		similar		hierarchy		similar	
MALE		FEMALE		FEMALE		MALE	
boy		girl		girl		boy	
man		woman		woman		man	
he		she		she		he	
<input type="checkbox"/> hierarchical		<input type="checkbox"/> egalitarian		<input type="checkbox"/> hierarchical		<input type="checkbox"/> egalitarian	
<input type="checkbox"/> male		<input type="checkbox"/> female		<input type="checkbox"/> female		<input type="checkbox"/> male	
<input type="checkbox"/> O	similar	<input type="checkbox"/> O		<input type="checkbox"/> O	she	<input type="checkbox"/> O	
<input type="checkbox"/> O	boy	<input type="checkbox"/> O		<input type="checkbox"/> O	similar	<input type="checkbox"/> O	
<input type="checkbox"/> O	hierarchy	<input type="checkbox"/> O		<input type="checkbox"/> O	girl	<input type="checkbox"/> O	
<input type="checkbox"/> O	woman	<input type="checkbox"/> O		<input type="checkbox"/> O	status	<input type="checkbox"/> O	
<input type="checkbox"/> O	equality	<input type="checkbox"/> O		<input type="checkbox"/> O	man	<input type="checkbox"/> O	
<input type="checkbox"/> O	man	<input type="checkbox"/> O		<input type="checkbox"/> O	hierarchy	<input type="checkbox"/> O	
<input type="checkbox"/> O	status	<input type="checkbox"/> O		<input type="checkbox"/> O	woman	<input type="checkbox"/> O	
<input type="checkbox"/> O	she	<input type="checkbox"/> O		<input type="checkbox"/> O	egalitarian	<input type="checkbox"/> O	
<input type="checkbox"/> O	egalitarian	<input type="checkbox"/> O		<input type="checkbox"/> O	boy	<input type="checkbox"/> O	
<input type="checkbox"/> O	girl	<input type="checkbox"/> O		<input type="checkbox"/> O	rank	<input type="checkbox"/> O	
<input type="checkbox"/> O	rank	<input type="checkbox"/> O		<input type="checkbox"/> O	he	<input type="checkbox"/> O	
<input type="checkbox"/> O	he	<input type="checkbox"/> O		<input type="checkbox"/> O	equality	<input type="checkbox"/> O	
<input type="checkbox"/> O	status	<input type="checkbox"/> O		<input type="checkbox"/> O	boy	<input type="checkbox"/> O	
<input type="checkbox"/> O	woman	<input type="checkbox"/> O		<input type="checkbox"/> O	status	<input type="checkbox"/> O	
<input type="checkbox"/> O	hierarchy	<input type="checkbox"/> O		<input type="checkbox"/> O	she	<input type="checkbox"/> O	
<input type="checkbox"/> O	she	<input type="checkbox"/> O		<input type="checkbox"/> O	hierarchy	<input type="checkbox"/> O	
<input type="checkbox"/> O	egalitarian	<input type="checkbox"/> O		<input type="checkbox"/> O	man	<input type="checkbox"/> O	
<input type="checkbox"/> O	he	<input type="checkbox"/> O		<input type="checkbox"/> O	girl	<input type="checkbox"/> O	
<input type="checkbox"/> O	equality	<input type="checkbox"/> O		<input type="checkbox"/> O	rank	<input type="checkbox"/> O	
<input type="checkbox"/> O	boy	<input type="checkbox"/> O		<input type="checkbox"/> O	equality	<input type="checkbox"/> O	
<input type="checkbox"/> O	similar	<input type="checkbox"/> O		<input type="checkbox"/> O	woman	<input type="checkbox"/> O	
<input type="checkbox"/> O	man	<input type="checkbox"/> O		<input type="checkbox"/> O	egalitarian	<input type="checkbox"/> O	
<input type="checkbox"/> O	rank	<input type="checkbox"/> O		<input type="checkbox"/> O	he	<input type="checkbox"/> O	
<input type="checkbox"/> O	girl	<input type="checkbox"/> O		<input type="checkbox"/> O	similar	<input type="checkbox"/> O	

Figure 1. Left column: Stereotypical categorization task condition of the hierarchy-gender IAT. Right column: Non-stereotypical categorization task condition.

If the associative strength between the concepts "male" and "hierarchical" and between the concepts "female" and "egalitarian" is higher than the associative strength between the concepts "female" and "hierarchical" and between the concepts "male" and "egalitarian," participants should be able to categorize more words in 30 seconds in the stereotypical than in the non-stereotypical categorization task condition. The IAT effect is the difference between the stereotypical and the non-stereotypical categorization task condition and indicates how pronounced the implicit hierarchy gender stereotype is (only correctly categorized words were taken into account although there were hardly any errors).

Results

All reported *p*-values are two-tailed. A 2 (stereotype: stereotypical vs. non-stereotypical condition) by 2 (perceiver gender) by 2 (Sample 1 vs. Sample 2) mixed-model ANOVA was performed with stereotype as a within factor, perceiver gender and sample as between factors and number of categorized words as the dependent variable (Table 1). Participants categorized more words in the stereotypical condition as compared to the non-stereotyp-

Table 1
Analysis of variance for hierarchy gender stereotype

Source	df	F	p	r
Stereotype (ST)	1	35.26	.0001	.46
Gender (G)	1	9.95	.002	.27
Sample (SA)	1	7.22	.008	.23
ST × G	1	5.57	.02	.20
ST × SA	1	1.75	.19	.11
G × SA	1	0.70	.40	.07
ST × G × SA	1	0.78	.38	.08

Note. df denominator = 131. r is effect size.

ical condition, which is indicative of possessing an implicit stereotype (Figure 2). Accordingly, as Table 1 shows, the ANOVA indicated a stereotype main effect. Participants found it easier to associate male with hierarchy and female with egalitarian ($M = 25.83$) than they found it to make the non-stereotypical categorization ($M = 22.69$). The difference between the stereotypical and the non-stereotypical condition was more pronounced for men than for women (see Figure 2 and the interaction effect between stereotype and perceiver gender in Table 1; M female, stereotypical = 26.72; M female, non-stereotypical = 24.82; M male, stereotypical = 25.17; M male, non-stereotypical = 21.09), meaning that men held a more pronounced implicit hierarchy gender stereotype than women. Despite this gender difference, both women and

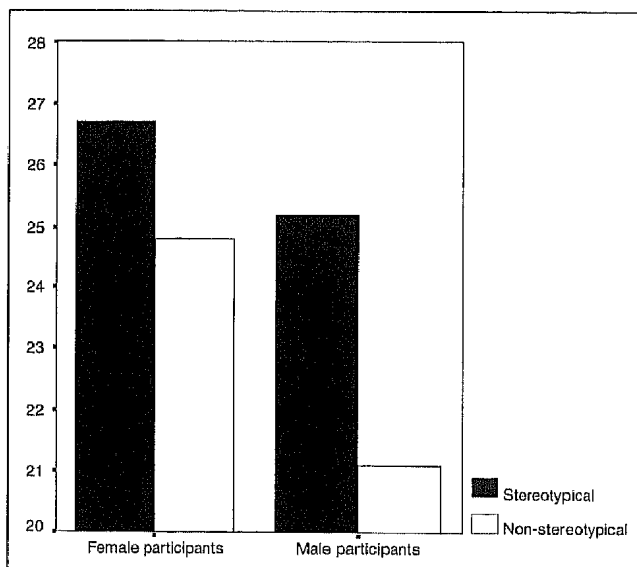


Figure 2. Number of categorized words on the hierarchy-gender IAT for the stereotypical task condition (male paired with hierarchical and female paired with egalitarian) and for the non-stereotypical task condition (male paired with egalitarian and female paired with hierarchical) broken down by participant gender.

men had a significant IAT effect ($t(75) = 2.87, p = .006$; $t(59) = 5.12, p = .0001$; simple main effects for women and men respectively calculated with paired t tests). The ANOVA also revealed a significant gender main effect (Table 1) with women giving more answers ($M = 25.84$) than men ($M = 22.68$). This most likely reflects greater effort put into the task by female than by male participants. This interpretation is corroborated by the fact that the same significant gender main effect emerged for the flower-insect IAT (used to familiarize participants with the IAT task, $F(1, 131) = 10.11, p = .002$). Women might have taken the task more seriously, been more motivated or interested, or more compliant with the instructions than men. Also, there was a significant sample main effect (Table 1), showing that participants in Sample 1 gave fewer answers ($M = 22.91$) than participants in Sample 2 ($M = 25.61$). Since participants in Sample 1 performed the IAT after interacting with a stranger in front of a video camera, they might have been more tired than participants in Sample 2 who performed the IAT at the beginning of their study session. This might explain the difference.

Discussion

The present investigation sought to provide evidence for the existence of an implicit hierarchy gender stereotype. Results showed that indeed such a stereotype exists. Men were associated with hierarchies and women were associated with egalitarian structures more than vice versa. The present study is the first to provide empirical evidence for the existence of an implicit hierarchy gender stereotype. The result parallels gender differences with respect to explicit values and motivation. Men, for instance, prefer inequality in status/power among social groups, as measured by the Social Dominance Orientation Scale (Pratto, Stallworth, & Sidanius, 1997) and men are more motivated to lead in hierarchic organizations than women (Eagly et al., 1994). Social Role Theory (Eagly, 1987) explains the existence of gender stereotypes by pointing out that the traditional division of labor constituted different social environments for women and men. Traditionally, a man's world was characterized by competition and hierarchical structures more so than a woman's world. Therefore, social role expectations – or stereotypes – in terms of hierarchies differ for women and men and those stereotypes are shared by both women and men.

Additionally, results showed that men's implicit hierarchy gender stereotype was more pronounced than women's. This finding is similar to that reported by Rudman et al. (2001): men but not women associated male with potency. Maybe men identified more with hierarchies

than women did with egalitarian structures, which could explain the gender difference.

Stereotypes are powerful shortcuts that influence how we perceive and act. The magnitude of the implicit hierarchy gender stereotype (effect size $r = .46$, Rosenthal, 1991) was by no means small (an r of .50 is considered large, Cohen, 1977). Knowing that an implicit hierarchy gender stereotype exists and taking into account the relatively pronounced magnitude of the effect underscore the importance of preventing potentially detrimental implications of the stereotype. For instance, not offering a woman a top leadership position in a hierarchically structured environment because of the influence of the hierarchy gender stereotype is especially regrettable because in most cases, the stereotype is inaccurate; women and men do not differ in how prone they are to build hierarchies in the long run (Anderson et al., 2001; Schmid Mast, 2001; 2002).

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