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ABSTRACT

Early research demonstrating an association between success and the male stereotype and between failure and the female stereotype, and the Bayesian analysis of attribution theory provided the bases for predictions about the effects of gender and performance outcomes on probability estimates of future success. The relation between gender stereotypes and attributions for skill-based performance were examined from the framework of the psychology of prediction. College students (N=235) observed a videotaped male or female target either succeed or fail at a task. Following this observation, a male or female coactor either succeeded or failed at the same task. After viewing the tapes, subjects made probability estimates of the targets' future success at similar tasks. Probability estimates of the target's future success revealed that males benefited more from success than did females, and that females were hurt more by failure, whether their own or another's, than were males. Given identical successful performances, probability estimates of future success were greater for males than for females. Support for predictions derived from attribution theory suggest that the effects of consensus information on attributions depend on the congruence of outcomes with gender stereotypic expectations.
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GENDER STEREOTYPES AND ATTRIBUTIONS:

A BAYESIAN ANALYSIS

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Abstract

The relation between gender stereotypes and attributions for skill-based performance were examined from the framework of the psychology of prediction. Subjects observed a male or female target either succeed or fail at a task. Following this observation a male or female coactor either succeeded or failed at the same task. Probability estimates of the target's future success revealed that males benefited more from success and that females were hurt more by failure. Support for predictions derived from attribution theory suggested that the effects of consensus information on attributions depend on the congruence of outcomes with gender stereotypic expectations.

This research examined the influence of gender stereotypes on attributions using the framework of the psychology of prediction. Early research demonstrating an association between success and the male stereotype and between failure and the female stereotype (Deaux, 1976), and the Bayesian analysis of attribution theory (Azjen & Fishbein, 1975) provided the bases for predictions about the effects of gender and performance outcomes on probability estimates of future success.

In an early discussion of gender and the attribution process Deaux (1976) suggested that gender stereotypes influence attributions by providing a source of expectancies about performance outcomes. When expectancies are matched by performance outcomes then attributions are made to internal, stable causes (e.g., ability). When outcomes violate expectancies then external, unstable explanations are used in causal accounts (e.g., luck). The success of males, an expected outcome, is therefore attributed to ability whereas the success of females, an unexpected outcome, is attributed to luck, effort, or task ease (Deaux & Emswiller, 1974; Etaugh & Brown, 1975; Feldman-Summers & Keisler, 1974). Similarly, failure, an unexpected outcome for males, is attributed to (bad) luck and to females' lack of ability, although the findings are less consistent with regard to failure outcomes than success outcomes (Deaux, 1976; Wallston & O'Leary, 1981). In this research we manipulated the performance outcomes (success or failure) of male and female targets. From the framework of the psychology of prediction, previous research suggested the following hypotheses:

Hypothesis 1. When targets succeed, probability estimates of future success will be greater for male targets than for female targets.

Hypothesis 2. When targets fail, probability estimates of future success will be lower for female targets than for male targets.

Kelley's theory of causal attributions (Kelley, 1967) predicts that the

outcomes of others influence causal attributions for the actor's performance. When the outcomes of others are different from the actor's (i.e., low consensus information is provided) attributions to the actor are more likely than when the outcomes of others are the same as the actor's (i.e., high consensus information is provided). In this research the outcome of a male or female coactor was manipulated. According to Kelley's theory, probability estimates of future success will be greater when the target succeeds and the coactor fails than when both succeed, and less when the target fails and the coactor succeeds than when both fail. In other words, low consensus information strengthens attributions to the target for his/her outcome. Probability estimates of future success are based on the strength of attributions to the target.

However, we predicted that the congruence between outcomes and gender stereotypic expectations will influence the effects of consensus information on attributions and, therefore, probability estimates of future success. Based on Deaux's reasoning, discussed above, low consensus information will strengthen attributions to the target only when the target's outcome is gender congruent (i.e., a male target succeeds or a female target fails). That is, outcomes congruent with gender stereotypic expectancies are more likely to be attributed internally when the coactor's outcome highlights the uniqueness of the target's outcome.

Hypothesis 3. When male targets succeed, probability estimates of future success will be greater when the coactor fails than when the coactor succeeds.

Hypothesis 4. When female targets fail, probability estimates of future success will be lower when the coactor succeeds than when the coactor fails.

Methods

Subjects. Subjects were 235 undergraduates (65 males and 170 females) who participated for extra course credit.

Materials. Eight videotapes, each consisting of three, 90 second segments, were developed for use in the experiment. In segment one, the Incomplete Puzzle segment, an incomplete puzzle picture of the Jackson Pollak painting, Convergence, was presented. In segment two, the Targets' Gender and Targets' Outcome were manipulated by presenting a male or female target successfully complete or fail to complete the puzzle. Successful completion required placing the last eight pieces correctly in the center of the puzzle within the allowable time of 90 seconds. In segment three, the gender and outcome of the coactor were similarly manipulated.

Procedures. Subjects were told that the research concerned quantitative judgments and were given examples of such judgments. They were then told that they would be viewing videotape excerpts of previous research in which the task of participants was to complete a complex jigsaw puzzle within the allowable time. After viewing all three segments of the videotape subjects made their probability estimates of the targets' future success at similar tasks. -1

Results

Separate 2(Targets' Gender) X 2(Coactors' Gender) X 2(Coactors' Outcome) analysis of variance were performed for the Target Success and Target Failure conditions (Winer, 1971). -2 Additional analyses which included Subjects' Gender revealed no effects which qualified any of the findings reported below.

Hypothesis 1. When targets succeeded, probability estimates of future success were greater for male targets ($M=79.34$) than for female targets ($M=70.60$, $F(1,120)=5.14$, $p<.05$). Moreover, the Coactors' Gender main effect was significant ($F(1,120)=11.73$, $p<.001$) and the Targets' Gender X Coactors' Gender interaction approached significance ($F(1,120)=3.07$, $p<.08$).

Probability estimates of future success were greater when the coactor was male than when the coactor was female, but only for female targets (male coactor, $M=81.00$, female coactor, $M=62.16$). For male targets, probability estimates were not influenced by the coactors' gender (male coactor, $M=81.61$, female coactor, $M=77.00$).

Hypothesis 2. When targets failed, probability estimates of future success were not less for female targets ($M=33.00$) than for male targets ($M=34.74$, $F(1,99)=0.01$, ns), contrary to predictions.

Hypothesis 3. The Targets' Gender X Coactors' Gender X Coactors' Outcome interaction was significant in the analysis for the Target Success conditions ($F(1,120)=10.30$, $p<.001$). When a male target succeeded, probability estimates of his future success were greater when the coactor failed ($M=84.00$) than when the coactor succeeded ($M=74.84$), consistent with predictions. When a female target succeeded, probability estimates of her future success were lower when the coactor failed ($M=63.95$) than when the coactor also succeeded ($M=79.31$). However, as indicated in Table 1, this effect was attributable to the failure

of female coactors only. The failure of a male coactor did not reduce probability estimates of a female target's future success.

Hypothesis 4. The Targets' Gender X Coactors' Outcome interaction was not significant in the analysis for the Target Failure conditions. Contrasts among the means (Table 1) revealed that when female targets failed, the failure of a female coactor resulted in lower probability estimates of future success than when a female coactor succeeded, contrary to predictions ($p < .05$).

Discussion

Given identical successful performances, probability estimates of future success were greater for males than for females. This effect was attributable to the fact that the failure of another, regardless of the others' gender, increased probability estimates of a male's future success whereas the failure of another female decreased probability estimates of a female's future success. These results suggest that the outcomes of others serve only to highlight a male's success but may undermine a female's success.

Support for the conclusion that the outcomes of others are likely to undermine the performance of females is found in subjects' probability estimates of future success when targets failed at the task. Given the target's failure, the failure of a female coactor dramatically reduced probability estimates of a female target's future success, whereas the gender and outcome of the coactor had no effect on predictions for male targets.

Overall, the results suggest that males benefit more from success than females and that females are hurt more by failure, either their own or another's failure, than males. This research also illustrates the utility of the framework provided by the psychology of prediction for understanding the effects of stereotypes on judgments of individuals. Future research is needed

which adopts this approach to examine the generalizability of these results (e.g., to other tasks) and to consider judgments of other stereotyped group members.

Footnotes

- 1 Subjects were also asked to estimate the probability that the target possesses two skills (analytic ability, a masculine skill, and intuitive reasoning, a feminine skill), and to rate the importance and difficulty of the task. These results are omitted in the interest of brevity. They are available from the first author.
- 2 A multivariate analysis of variance (MANOVA) was performed on the data. Only those effects for which the MANOVA was significant are discussed.

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Table 1

Probability Estimates of Future Success

	Coactor Succeeds		Coactor Fails	
	Male Coactor	Female Coactor	Male Coactor	Female Coactor
Target Succeeds				
Male				
Targets	79.38	70.00	84.00	84.00
Female				
Targets	82.67	75.71	79.33	53.91
Target Fails				
Male				
Targets	39.17	32.67	32.00	36.00
Female				
Targets	39.33	40.00	34.00	23.33

Note: Cell Frequencies ranged from 12 to 15.