

The relationship between personality impression formation and sex: An application of information integration theory

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Ss were asked, for each of 200 adjectives, to rate the likability of a "woman your age" (Group W), a "man your age" (Group M), a "person your age" (Group P), or a "child" (Group C). There were 32 men and 32 women in each group. The ratings of Groups W and M were more polarized for Ss rating the opposite sex than for Ss rating their own sex. In other words, when positive adjectives were ascribed, women Ss rated men as more likable than women and men Ss rated women as more likable than men, while, when negative adjectives were ascribed, the opposite sex was rated as more unlikable. The results are considered in the context of information integration theory, employing a weighted average model of personality impression formation.

A number of studies have demonstrated the applicability of an averaging model of information integration to the rating of likability as a function of number and value of personality traits attributed to a person (Anderson, 1965, 1967; Levin, Schmidt, & Norman, 1971). In a typical experiment of this type, Ss are presented with descriptions of hypothetical persons, each description consisting of one or more adjectives which presumably characterize that person. The S then rates each hypothetical person on a scale ranging from "very likable" to "very unlikable." It has been shown that the ratings can be predicted quite accurately from an equation of the form:

$$R = \frac{kw\bar{A} + (1-w)I_0}{kw + (1-w)} \quad (1)$$

where R is the rating, k is the number of adjectives, \bar{A} is the average scale value of the adjectives, I_0 is the scale value of an initial impression, and $w/(1-w)$ is the ratio of the weight of a single adjective to the weight of the initial impression in determining the rating.

The study reported here represents an application of this model to achieve a systematic representation of sex stereotypes. Previous research has indicated that Ss of both sexes agree in characterizing healthy, mature, socially competent men and women as differing on a number of personality traits (Broverman, Broverman, & Clarkson, 1970). It was assumed in this study that a specified trait would result in a higher likability rating when ascribed to a person of the sex for which it was

considered characteristic than when ascribed to a person of the opposite sex. Thus, for example, Broverman et al (1970) found that healthy, mature, socially competent women were more often described as *very emotional* than were men, while men were more often described as *very ambitious*. The prediction in this study would be that a woman characterized as *emotional* would be rated as more likable than a man so characterized, while the reverse would be the case if the adjective ascribed were *ambitious*. In terms of the information integration model, it was assumed that the scale values of specific traits would differ when ascribed to persons of different sexes, with values being higher for a given sex for traits considered characteristic of that sex. The advantages of applying the information integration model lie in the potentialities of the model for predicting likability ratings of women and men when combinations of traits are assigned. Thus, given scale values of a set of basic descriptive adjectives for women and men, it would be possible to predict the likability of women and men characterized by any description consisting of one or more of these adjectives.

The items used by Broverman et al were rather unsystematically assembled, consisted of lengthy expressions as well as single adjectives, and included a combination of unipolar and bipolar scales. In this study, the set of 200 starred adjectives recommended for personality impression research by Anderson (1968) was chosen as providing an adequate sample of the domain of descriptive adjectives. (See Anderson, 1968, p. 272, for a description of the criteria used in obtaining the list.)

Broverman et al (1970) noted that, when asked to ascribe characteristics to healthy, mature, socially competent *adults*, Ss ascribed them in a way more similar to their ascriptions to men than to women. In order to obtain evidence on whether the likability ratings would show the same pattern, as well as to compare the results of the present study with Anderson's (1968) results, *person* was included as a stimulus object to be rated in this study. (*Person* was used rather than *adult* in order to be able to compare the results of this study with Anderson's results, and also because pilot work had suggested that *adult* carried connotations of maturity not shared by *man* and *woman*.) In addition, since women have frequently been characterized as "childlike" relative to men, *child* was included as a stimulus object in order to determine whether or not the likability ratings for child would be more similar to those for women than to those for men.

In line with the results of Broverman et al, it was expected that the sex of the judge would not affect the ratings.

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METHOD

Subjects

The Ss were 256 University of Kansas summer school college students, equally divided between men and women, recruited as volunteers from two large dormitories. They included a variety of ages and all student classifications, with the majority being undergraduates and of usual college age and with foreign students excluded.

Procedure

Each S received a questionnaire which contained the 200 traits and was asked to rate the likability of a stimulus object described by each of those traits on a 7-point scale ranging from 0 to 6. The Ss were assigned randomly to four different groups, with the restriction of 32 men and 32 women within each group; the stimulus objects for the four groups were, respectively, "woman your age" (Group W), "man your age" (Group M), "person your age" (Group P), and "child" (Group C).

RESULTS

Using the data from Groups W and M only, two-factor analyses of variance were performed on each adjective, with sex of S and sex of object as factors, in order to determine which adjectives discriminated best between these two stimulus objects. In line with previous research, and consistent with the hypotheses, it was expected that there would be a substantial number of significant main effects of sex of stimulus object, along with only a chance sprinkling of significant main effects of sex of S and significant interaction effects. The 200 analyses actually yielded, at the .05 level, 18 significant main effects of sex of stimulus object, only 2 of which reached the .01 level; 9 significant main effects of sex of S, only 1 of which reached the .01 level; and 73 significant interaction effects, 40 of which reached the .01 level. Furthermore, an examination of the 18 adjectives on which men and women were rated significantly differently did not yield any support for the assumption that these differences would be related in the hypothesized way to stereotypic traits. Subsequent analyses were restricted to the unexpected interaction effects and also, for the most part, to the data from Groups W and M only.

Examination of the 73 significant interactions revealed that all but 2 of them followed an identical pattern: On positively valued traits, women rated men more positively than women and men rated women more positively than men, and on negatively valued traits, women rated men more negatively than women and men rated women more negatively than men. The pattern can be described more simply as one of greater polarization of ratings (i.e., more extreme ratings) of the opposite sex than of the same sex. An overall evaluation of the significance of this polarization tendency was obtained by computing, for each S, a total polarization score (average over all adjectives of the absolute value of $R - 3$), a positive polarization score (average of $R - 3$ for all adjectives rated higher than 3 by that individual), and a negative polarization score (average of $3 - R$ for all adjectives rated lower than 3 by that individual). Two-factor analyses of variance of each of these three

dependent measures were performed, with sex of S and sex of object as factors. The results were the same in each analysis: nonsignificant main effects and a significant interaction in the direction of greater polarization of the opposite sex (total polarization: $F = 14.68$, $p < .001$; positive polarization: $F = 4.45$, $p < .05$; negative polarization: $F = 23.39$, $p < .001$).

As a possible aid in interpretation, two additional analyses of variance were carried out, one comparing polarization scores on *person* with polarization scores on opposite sex (e.g., women's scores on men and men's scores on women), and one comparing polarization scores on *person* with polarization scores on same sex. Sex of S was the second factor in each of these analyses. The results indicated significantly greater polarization of opposite sex than of *person* ($F = 5.50$, $p < .05$) and no significant difference between polarization of same sex and of *person*.

In order to obtain a clearer picture of the relationship between evaluation and polarization, the correlation was computed over the 200 adjectives between (a) mean rating by Groups W and M and (b) degree of differential polarization, as measured by the interaction effect in the cell corresponding to women stimulus objects judged by male Ss. More extreme polarization of the opposite sex would imply that the latter measure be positive for positively valued traits and negative for negatively valued traits, with the absolute size of the measure corresponding to the magnitude of the differential polarization effect. The obtained correlation of .76 indicated a substantial linear effect. The regression line for interaction on mean evaluation was computed. The mean evaluation which would result in a prediction of zero interaction (no differential polarization) was 3.5, i.e., slightly positive rather than neutral. Regression analysis indicated significant quadratic and cubic components in the regression, accounting, respectively, for 1% and 4% of the total variance.

DISCUSSION

The discussion will focus, first, on possible ways of representing the effects in terms of an information integration model, and second, on possible explanations for the differential ratings of the same and the opposite sex. A linear relationship between mean rating and polarization effect will be assumed as approximately characteristic of the obtained results, although the observed nonlinearity, if confirmed in subsequent work, would require additional explanation.

When applied to a single adjective, the three parameters of Eq. 1 are I_0 , the scale value of the initial impression; A , the scale value of the adjective; and w , a measure of the relative weight of the adjective as compared with the initial impression in the determination of the rating. If the value of I_0 differed for the same and the opposite sex, it would follow that each sex would tend to rate like-sexed objects either uniformly higher or uniformly lower on all adjectives. The obtained results clearly contradict this implication. With regard to scale value, A , the obtained results would follow on the assumption that the set of scale values is more polarized when rating the opposite sex than when rating one's own sex. A more appealing possibility, because it would involve a difference in only one parameter rather than a set of parameters, and thus appears psychologically simpler, lies

in the assumption that the weight of the initial impression is different (greater) when rating the same as compared with the opposite sex, i.e., that w , the weight of the adjective, is greater for the opposite sex than for the same sex. This assumption would lead to the prediction of zero interaction at the scale value I_0 . The results of Levin et al (1971) suggest that I_0 may not be neutral, and Anderson (1967) has noted that some results suggest that I_0 is slightly positive—a possibility which would be supported by the results of the experiment reported here if interpreted in this way. Note that the assumptions of differential scale values and differential weight have different implications for the effect of rating likability on the basis of sets of attributes. If differential values apply, increasing the number of like-valued adjectives should increase the interaction (analogous to the set size effect), while if a differential weight is involved, increasing the number of adjectives should either decrease the interaction effect or first increase and then decrease it, depending upon the weights. Further studies are in progress to test these differential predictions.

The obtained results might be explicable in terms of (1) the different relationship the S perceives between the self and a like-as opposed to an opposite-sexed stimulus person, (2) the greater degree of familiarity the S feels for like-sexed as compared with opposite-sexed persons, or (3) a greater identification with like-sexed than with opposite-sexed persons.

(1) Ss might think in terms of more intimate relationships, e.g., possible marriage relationships, when rating contemporaries of the opposite sex than when rating like-sexed contemporaries. The anticipation of closer relationship might make the traits assume greater importance in determining the impression of the person. Or, even if a different degree of intimacy were not envisaged, differences in ways of interacting with like- and opposite-sexed peers might make the traits assume differential importance.

(2) The greater feeling of familiarity Ss might have with their

like-sexed peers could make the weight of an initial impression stronger in judging them than in judging less familiar opposite-sexed stimulus objects.

(3) There is evidence from other studies (Jones & Nisbett, 1971) that Ss tend to attribute their own behavior relatively more to situational factors and the behavior of others relatively more to personality factors. If Ss tend to identify more with like- than with opposite-sexed peers, they might tend to attribute the behavior of like-sexed persons more to situational than to personality factors and, thus, tend to discount the trait information presumably provided by others about those like-sexed persons.

Further studies are under way to provide evidence relevant to these and other possible interpretations.

REFERENCES

- Anderson, N. H. Averaging versus adding as a stimulus-combination rule in impression formation. *Journal of Experimental Psychology*, 1965, 70, 394-400.
- Anderson, N. H. Averaging model analysis of set-size effect in impression formation. *Journal of Experimental Psychology*, 1967, 75, 158-165.
- Anderson, N. H. Likableness ratings of 555 personality-trait words. *Journal of Personality & Social Psychology*, 1968, 9, 272-279.
- Broverman, I. K., Broverman, D. M., & Clarkson, F. E. Sex-role stereotypes and clinical judgments of mental health. *Journal of Consulting & Clinical Psychology*, 1970, 34, 1-7.
- Jones, E. E., & Nisbett, R. E. The actor and the observer: Divergent perceptions of the causes of behavior. In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valins, and B. Weiner (Eds.), *Attribution: Perceiving the causes of behavior*. New York: General Learning Press, 1972.
- Levin, I. P., Schmidt, C. F., & Norman, K. L. Person preference choices: Tests of a subtractive averaging model. *Journal of Experimental Psychology*, 1971, 90, 258-261.

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