Androgyny and Attribution: Effects of Sex Role Adoption, Sex-Linkage of Task, and Outcome on Causal Attributions for Success and Failure

Vally M. Sharpe

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OF TASK, AND OUTCOME ON CAUSAL ATTRIBUTIONS
FOR SUCCESS AND FAILURE

by

Vally M. Sharpe

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Thirty androgynous females, 30 androgynous males, 30 feminine females, and 30 masculine males participated at either a masculine-linked task (wiring a telephone), a feminine-linked task (doing needlepoint), or a neutral task (doing anagrams). Half of the subjects were given success feedback; half were given failure feedback. Each subject, after receiving feedback, completed a post-task questionnaire from which causal attribution ratings for four factors: ability, effort, task difficulty, and luck, were obtained. Scores were analyzed by means of 4 x 3 x 2 multivariate analyses of variance. "Success" subjects attributed success to ability ($F = 18.007$, $df = 1/96$, $p < .0001$) and effort ($F = 9.787$, $df = 1/96$, $p < .01$), while "failure" subjects attributed failure to task difficulty ($F = 19.370$, $df = 1/96$, $p < .0001$) and luck ($F = 6.613$, $df = 1/96$, $p < .05$). Androgynous females made maximal use of effort to explain success, while masculine males were highest in effort attributions for failure. Androgynous males made significantly lower internal (ability and effort) attributions than androgynous females. It is suggested that it is becoming increasingly more acceptable for females to exhibit more positive masculine traits, but incorporation of feminine traits by males is not so favored due to the continued pressure on males to be masculine in a stereotypical sense.
The past two decades have brought a renewed interest in research on the human female as an entity rather than a comparison point for her male counterpart; and research in sex roles has gained momentum. Of course, masculinity and femininity, as constructs, were purportedly measured in a number of psychological tests prior to the 1960's (Gough, 1952; Hathaway & McKinley, 1943; Terman & Miles, 1936), and countless studies reported sex differences, though often as an afterthought. The influence of the women's movement, and the increasing numbers of women in jobs traditionally seen as masculine have motivated us to reexamine, and to some extent redefine what it means to be "masculine" or "feminine."

To redefine any construct, however, one must operate under the assumption that it has once before been defined. As Constantinople (1973) pointed out, although the terms masculinity and femininity have long been present in psychological discourse, theoretically and empirically they are among the most unclear concepts in the vernacular. The definitions generally used by M-F test constructors is that the terms describe "relatively enduring traits which are more or less rooted in anatomy, physiology, and early experience, and which generally serve to distinguish males from females in appearance, attitudes, and behavior" (Constantinople, p. 390). Most empirical investigators attempting measurement of the M-F construct have relied on the ability of individual items to discriminate the responses of males from those of females, thus employing the criterion-key method of test construction in their development process. The unfortunate result is that the abstract character and/or centrality of the construct is unassessed, and the ultimate
generalizability of the test is weakened, since anything discriminating between males and females at a particular point in time in a particular culture is constantly subject to change. The attempt at measurement of an "enduring" trait, then, is a failure.

Two assumptions underlie the definition of M-F used by most test developers, that the construct is unidimensional, and bipolar. In other words, it is assumed that M-F is a characteristic of one dimension, with masculinity at one end of a continuum and femininity at the other.

In relation to the unidimensionality assumption, although it has been assumed that most M-F tests measure a unitary trait, the evidence clearly indicates that this is not the case, and that different estimates of a person's M-F level will be derived depending on the kind of behaviors sampled. Terman and Miles (1936), for example, in developing the M-F Test, believed that "mental masculinity and femininity" was a core trait around which the remaining personality was formed. Scoring individual items "plus" for a masculine response and "minus" for a feminine response, and each exercise by the algebraic sum of the "plus" and "minus" responses, Terman and Miles (1936) chose to use the total score on the assumption that a high average of masculinity or femininity affected the total personality, but failed to demonstrate the unidimensionality of the M-F trait.

A second attempt at measurement of the construct was the Mf scale of the Minnesota Multiphasic Personality Inventory (MMPI, Hathaway & McKinley, 1943). The manual for the MMPI states that the Mf scale is designed to measure the "tendency toward masculinity or femininity of interest pattern," but the major aim of the scale is to identify sexual inversion
in males (Constantinople, 1973). Mean scores on the MMPI Mf scale consistently show large differences between the sexes, but the nature and size of the criterion groups sampled for validity data for the scale raise questions about its adequacy as a measure of M-F in the general population.

Gough's Femininity (Fe) scale (1952) was intended to be a brief, fairly subtle means of differentiating males from females and sexual normals from deviates. The original 58-item scale was reduced to 38 items when in 1966, it was included in the California Psychological Inventory (Gough, 1966) to define a "personological syndrome that could be called masculine at one pole and feminine at the other."

Gough identified a number of clusters into which the original 58 items fall, (e.g. compassion and sympathy). The variety of clusters found here again reduces support for the assumption of unidimensionality.

Constantinople (1973) also pointed out that the relationship between theoretical definitions and attempts at measurement of the M-F construct is complicated by related terms such as sex-role preference, sex-role adoption, sex-role orientation, and sex-role identity. For example, a test purported to measure sex-role preference may very well ignore factors relevant to M-F included in tests of sex-role adoption. Constantinople continued to say, however, that...

... there seems to be some notion of identity that should be included when making a statement about an individual's masculinity or femininity, unless one is thinking purely in terms of its social stimulus value. Sex-role identity includes both cognitive and affective factors which reflect both self-evaluation and the evaluation of others as to one's adequacy as a male or female.
Such an evaluation would probably include several components (e.g., appearance, reproductive capacity, social and/or occupational role), and one's definition of adequacy would probably vary with the kinds of standards of sex role appropriateness to which one had been exposed in the process of development. (p. 391)

The existence of specific standards of sex role appropriateness has been documented for some time (Maccoby, 1966; McKee & Sherriffs, 1957). The implications are, however, that these stereotypes may have an adverse effect on the healthy functioning of the adult female (Broverman, Broverman, Clarkson, Rosenkrantz, & Vogel, 1970; Rosenkrantz, Vogel, Bee, Broverman, & Broverman, 1968).

Rosenkrantz et al. (1968) drew college students from several New England institutions to investigate the relationship of self-concept to differentially-valued sex-role stereotypes. The students were asked to indicate what typical adult males, adult females, and they themselves were like, based on the 122-item questionnaire developed by Rosenkrantz et al. (1968). Computing an average masculinity response and an average femininity score for both the sample of men and women, they found that the average masculinity and femininity responses given by men correlated highly with those given by women. This indicated a high degree of agreement between men and women concerning differences between typical members of the two sexes. Responses also indicated that significantly more masculine characteristics were perceived as socially desirable than stereotypically feminine ones. The male and female self-concept means differed significantly, which suggested that men and women see themselves as differing along a dimension of stereotypic sex differences, women holding
"negative values of their worth relative to men." Rosenkrantz et al. (1968) suggested that the "factors producing the incorporation of the female stereotype, along with its negative valuation into the self-concept of the female subjects, must be enormously powerful" (p. 293).

Using the same procedure, Broverman et al. (1970) found evidence that clinicians also perpetuate a double standard of mental health. Asked to describe a healthy adult male, adult female, and adult, sex unspecified, the professionals judged the male and female as differing along dimensions paralleling the stereotypic sex differences. The behaviors judged as healthy for unspecified adults resembled those judged healthy for males, but differed significantly from those characteristics judged healthy for females. On the basis of these two studies, Broverman et al. (1972) concluded that (1) there does exist a strong consensus about the differing characteristics of men and women; (2) positively-valued masculine traits, which reflect competence, rationality, and assertion, are more socially desirable than those positively-valued feminine traits reflecting warmth and expressiveness; and (3) that sex-role definitions, implicitly accepted to the extent that they are incorporated into the self-concepts of both men and women, are "considered desirable by college students, healthy by clinical professionals, and ideal by most men and women" (p. 61).

In summary, attempts at measuring a unitary trait have resulted in evidence to the contrary. Further, the clusters found in Gough's Fe scale (1952), and other M-F tests, which support a multidimensional conceptualization of the construct, might well be identified as stereotypic aspects of M-F, standards which are agreed upon by both men and
women, and which may have negative effects on the self-concepts of women in particular. Another effect of the stereotypes has been their reinforcement of the second assumption underlying the clouded definition of M-F: that masculinity and femininity are bipolar constructs, the opposite ends of a continuum, or even mutually exclusive. The bipolarity assumption, most relevant to the present study, is implicit in the scoring of most M-F tests, including those discussed in relation to the unidimensionality assumption: the M-F Test (Terman & Miles, 1936), the MNPI Mf scale (Hathaway & McKinley, 1943), and the Fe scale (Gough, 1952). The validity data for each of the scales, i.e., the degree of overlap between male and female samples despite significantly different means, and the conclusions of Broverman et al. (1972), however, did not necessarily indicate that the masculine traits cannot exist simultaneously with the feminine traits within a single individual. The bipolarity assumption was further challenged by Carlson's (1971) assertion that reviews of the literature documenting sex differences (Garai & Scheinfeld, 1968; Maccoby, 1966) showed overlapping distributions of males and females for all dimensions, including M-F. She also stated that mean differences occur regularly, along with more important sex differences in relationship patterns, and that the dimensional approaches failed to reflect qualitative aspects of psychosexuality. Asserting that the personality research literature reflects an unintended male bias (the result of imbalanced sex composition of subject samples), Carlson (1971) accused personality theorists of ignoring the "formulations potentially capable of illuminating problems of psychosexuality" (p. 267).

One such formulation which deals with the finding of mean differences
in patterns of relationships, is that of Gutmann (1965). Gutmann con-
trasted males and females on the basis of their "maturational milieus,"
suggesting that men inhabit an impersonal milieu governed by impersonal
laws of nature, economics, and political order, while women inhabit the
personal milieu of family, neighborhood, or community, a feeling world
of familiarity. Therefore Gutmann’s formulation (1965) implied that dis-
tinctive masculine or feminine styles may be attributable to cultural rather
than biological influences. Males in more personal milieus should then re-
fect more cross-genderal traits. Gutmann noted that traditional criteria
of ego strength, such as future orientation, objectivity, and capacity
for delay, are relevant to the masculine world, but not to the feminine.

In the masculine world, said Gutmann, the self is distinct because
we objectify others, classing them as objects to be tested and investi-
gated. In the feminine world, "the self derives its definition and its
'names' from the groupings to which it belongs, the distinctions between
self and others are blurred over..." (p. 235). Space, in the masculine
world, is open, not converging on the self, whereas in the feminine world,
paths in space are seen as converging on and "radiating" from the self.
For masculine individuals, the future is uncertain. Present security
is experienced in the face of plans which represent the future as already
conquered; for feminine individuals, future is not separate, but a continu-
ation of the present.

Though it is evident that Gutmann’s (1965) formulation probes into
the area of gender differences in ego development, it still does not account
for the overlapping distributions shown in the indices of sex differences
(Carlson, 1971). Bakan (1966) offered the constructs "agency" and "communion"
account for the presence of both masculine and feminine characteristics within a single individual. Bakan's proposition is that the agency/communion polarity underlies human existence from the cellular level to the societal. Bakan clarified it as follows:

I have adopted the terms 'agency' and 'communion' to characterize two fundamental modalities in the existence of living forms, agency for the existence of the organism as an individual, and communion for the participation of the individual in some larger organism of which the individual is a part. Agency manifests itself in isolation, alienation, and aloneness; communion in contact, openness, and union. Agency manifests itself in the urge to master; communion in non-contractual cooperation. Agency manifests itself in the repression of thought, feeling, and impulse; communion in the lack and removal of repression . . . I conceive of agency and communion at a rather high level of abstraction, as manifested in various ways and in various contexts . . . (Bakan, 1966, p. 15)

A fuller understanding of the complementary nature of Bakan's concepts may be gained from their treatment in human sexuality. For Bakan, according to Carlson's (1971) interpretation,

(a) agency and communion are male and female principles, differentiating the aggregate of males from the aggregate of females; (b) in sexuality, agency is seen as 'libido,' as 'sexiness,' as orgasm; communion is seen in 'eros' in union, in relationship; (c) in biological functioning, agency is seen in muscular tension, in narrower ranges of homeostatic mechanisms, in androgen functioning; communion is seen in lower activity and motility, greater homeostatic
tolerances, in estrogen effects (specifically the greater genital androgynicity of the female is seen as evidence of the female's greater endowment with both agentic and communal features);

(d) in psychological functioning, agency is seen in differentiation of self from the field, in intellectual functions involving separating and ordering, and in interpersonal styles involving objectivity, competition, exclusion, and distance; communion is seen in merging of self with the field, in intellectual functions involving communication, in interpersonal styles involving subjectivity, cooperation, acceptance, and closeness (Carlson, 1971, p. 271)."

Carlson investigated the relevance of Bakan's formulation (1966) to the studies included in Maccoby's (1966) index. In order to make comparisons, Carlson developed seven general predictions concerning psychological sex differences based on Bakan's conceptualization:

1. Different patterns of relationships are found in males and females.
2. Greater complexity of constitutional-physiological processes is found among females.
3. Females are more likely to show both masculine and feminine patterns.
4. Adults are more likely to show both masculine and feminine patterns as compared to children and adolescents.
5. Females excel in communicative abilities; males excel in ordering abilities.
6. Females are more accepting, cooperative, concerned with interpersonal relationships; males are more independent, competitive, accepting of a narrower range of others.
7. Females are more emotionally expressive, more tolerant of negative
affects; males are relatively inhibited in affect expression, and particularly inhibit awareness of negative affects (Carlson, 1971, p. 274).

Two samples of 100 consecutive abstracts were drawn from the bibliographic appendix in Maccoby's review (1966). Any abstracts in which only one sex was studied, or which referred to a general textbook were deleted from consideration. The remaining "relevant" abstracts were then rated by assignment to one of three categories: CONFIRMING -- Significant differences confirmed one or more of the predictions based on Bakan's formulation; NONCONFIRMING -- No significant differences reported; DISCONFIRMING -- Significant differences opposite to one or more of the predictions. The agency-communion predictions were consonant with the results of 81% and 84% of the two samples. Omitting the 15% of the studies reporting no significant differences (NONCONFIRMING), the results supported the agency-communion predictions in 97% of each of the two samples. The Bakan concepts of agency and communion as qualitative concepts of male and female principles seem impressively capable of handling many of the results in sex difference studies.

Central to Bakan's point of view, however, is that these "masculine" and "feminine" concepts must exist in balance, that they must be successfully integrated in order for an organism to function as effectively as possible. Neither agency nor communion can operate alone and still allow its possessor to achieve his fullest potential. In fact, Bakan saw "unmitigated agency" as evil, and Carlson's example of the "proliferation of cancer cells" adequately illustrated his view. Communion in dominance creates an even less viable condition for the organism, as the
organism develops no identity separate from the part it plays in a larger whole. In summary, in order for an individual to exist optimally, he must successfully find a balance between his agentic and communal traits so that they do not pull against each other. This framework of integrated traits is the basis of the research on sex-roles, specifically androgyny, begun by Bem in 1974.

Using Bakan's formulation as a foundation, Bem (1974) answered the challenges of Carlson (1971) and Constantinople (1973) to advocates of the bipolar M-F conceptualization, and introduced a measure of psychological androgyny. The androgynous individual, according to Bem, is that individual who possesses both masculine agentic traits and feminine communal ones. Bem's Sex Role Inventory (BSRI) is a self-report instrument consisting of separate masculinity and femininity scales which do not overlap, thus eliminating bipolarity. Each of the scales includes 20 characteristics; an additional 20 neutral characteristics are included as an index of social desirability. Bem's inventory may be considered a measure of sex-role adoption, as differentiated from sex-role preference in Constantinople's discussion (1973).

Hypothesizing that androgynous individuals would more likely display sex-role adaptability across situations than would sex-typed individuals, Bem (1975) asked subjects to rate cartoons as "funny" or "unfunny" compared to three other (taped) ratings which were systematically manipulated to sometimes differ from the true rating of the cartoons. Other subjects were given the opportunity to interact with a kitten. Androgynous persons of both sexes showed "masculine" independence when under pressure to conform, and "feminine" nurturance and playfulness when given opportunity to
interact with a kitten. Feminine-typed subjects did not differ significantly from masculine males in conformity, but tended to conform more often than masculine ones, and masculine subjects were less playful than androgynous ones. Feminine subjects were unexpectedly not as playful as had been hypothesized, which suggested behavioral deficits for the feminine females relative to androgynous and masculine individuals.

In order to clarify these findings, and to replicate the findings concerning the nurturance of the masculine male, Bem, Martyna, and Watson (1976) designed two experiments in which subjects were required to interact with a human infant and listen to a lonely student. The first experiment showed that the low nurturance level of the feminine females in Bem’s original experiment (1975) was situation specific and did not extend to her reaction to humans, as feminine and androgynous subjects did not differ from each other, but differed significantly from masculine males. The low nurturance finding for masculine males in interaction with humans supported the finding by Bem (1975).

Bem and Lenney (1976) found that cross-sex behavior in sex-typed individuals is not only less likely to occur, but is actively avoided by those individuals. Asked to indicate which of a series of paired activities they would perform for pay while being photographed for subsequent experiments, the sex-typed subjects preferred sex-appropriate activities more often than androgynous individuals, even when they were losing money by choosing those activities. Those sex-typed subjects who chose to perform the cross-sex behavior reported feeling more nervous and peculiar than anyone else, feeling less likable and attractive than anyone else; they reported feeling less enjoyment participating in
the experiment, and feeling less masculine (if male) or less feminine (if female) than anyone else. In summary, sex-typed subjects reported greater psychological discomfort and more negative feelings about themselves after performing cross-sex activities.

Bem's original (1974) scoring procedure for the BSRI involved computing simple arithmetic averages for the self-ratings on items of each scale, and comparing the masculinity score to the femininity score by means of a Student t-ratio. A closer look at the statistical procedure revealed that it ignored absolute numbers of endorsed items, attending only to difference scores. Spence, Helmreich, and Stapp (1975) challenged Bem on this point, holding that low masculinity-low femininity persons who, according to the BSRI might be classified as androgynous because of a near-zero difference score, would be apt to have few positively-valued behavioral alternatives and would be maladjusted relative to the high masculine-high feminine person with many behavioral alternatives. Spence et al. (1975) suggested, then, that androgynous persons not only exhibit both masculine and feminine characteristics, but high numbers of both.

In order to eliminate this problem, Spence et al. devised a measure of their own, based on the Sex Role Stereotype Questionnaire used by Rosenkrantz, Vogel, Bee, Broverman, and Broverman (1968). This measure, the Personal Attributes Questionnaire (PAQ) is scored by splitting the score distributions into four parts by medians. Low-masculine-low feminine individuals are then classified as undifferentiated.

Spence et al. (1975), in acquiring reliability data on their scale, tested their samples also with a measure of social self-esteem. Androgynous persons of both sexes were higher in self-esteem than any other
group, with the masculine-typed persons next highest, followed by the feminine-typed, and the undifferentiated groups. This finding, that the undifferentiated group was lowest in self-esteem, supported the argument that Bem's scoring procedure may have confounded her original results. Subsequently, Bem (1977) revised her scoring procedure, reanalyzed her data, and found results similar to those reported by Spence et al. (1975).

In their review of the research on androgyny, Kelly and Worell (1977) suggested that the higher self-esteem shown by androgynous females was based on the possession of those females of more of the positively-valued masculine traits, since studies in self-esteem and androgyny have shown no differences between androgynous and masculine individuals (Bem, 1977; Spence, Helmreich, & Stapp, 1975). In summary, those individuals who possess both masculine and feminine characteristics, who integrate agency and communion in a successful way, seem to be better adjusted, as Bakan (1966) suggested. They have greater self-esteem, have the ability to be flexible across situations due to their possession of a greater repertoire of behaviors, and are more comfortable with themselves when they engage in behaviors traditionally seen as more appropriate for the opposite sex.

Data presented by Kelly and Worell (1976) on the origin of sex-role orientations are of particular interest because of differences found between androgynous and sex-typed individuals. Their findings indicated that masculine, feminine, and androgynous orientations are distinctively related to parental child rearing behaviors. Using the PRF ANDRO scale, which was derived from the Personality Research Form (PRF; Jackson, 1967)
to classify subjects in sex-role groups, Kelly and Worell had each respondent rate each of his parents on two sets of 117 items, based on what the parent was like when the subject was 16 years old. These items, which make up the Parent Behavior Form (Worell & Worell, 1974), assessed for each parent, his or her warmth involvement with the child, egalitarianism, overt positive reinforcement of independent thinking and curiosity, and degree and type of control over the child. Among males, parental warmth differentiated between masculine and androgynous persons, with androgynous males reporting elevated affection from father and mother. In addition, androgynous males reported greater involvement with their fathers and father conformity. Masculine males reported cool, unaffectionate relationships with parents, while undifferentiated males reported not only cool relationships, but low encouragement of independent thinking and curiosity.

The findings of Kelly and Worell (1976) concerning the orientation of females may demonstrate a relationship between sex-role orientations and achievement behavior in women. Androgynous women reported greater maternal reinforcement for being curious than any other group, describing their mothers as female role models whose behaviors demonstrated that inquisitiveness and independence are compatible with conventional warmth and involvement.

The role models presented by the mothers of androgynous women demonstrate a condition in which the masculine traits of assertion, competence, and rationality may exist in complement to warmth and expressiveness, the characteristics mentioned in Broverman et al. (1972), and further support the contentions of Carlson (1971) and Constantinople (1973) that M-F should not be viewed as a single bipolar construct. The reported
influence of parent behaviors on sex-role orientation and achievement behaviors also fits the "maturational milieu" formulation of Gutmann (1965), and presents further evidence of the utility of the qualitative formulations of Gutmann and Bakan (1966) in creating a global model of sex-role development. If, as Gutmann's model and the results of Kelly and Worell (1976) imply, an individual's self-concept is influenced so strongly by his maturational environment, then his interpersonal styles, his aspirations, his belief in his own capabilities, his attitudes toward achievement, and his explanations for his successes and failures at various activities will be influenced by sex-role stereotypes at work within his "maturational milieu" as well.

It has been demonstrated that the social stereotypes which differentiate between males and females affect observer/raters' evaluations of the performances of males and females under various circumstances (Goldberg, 1968; Pheterson, 1969; Pheterson, Kiesler, & Goldberg, 1971). Goldberg (1968) investigated prejudice among women toward women in the areas of professional and intellectual competence. Using college women as subjects, Goldberg asked them to evaluate supposedly published articles on linguistics, law, art history, dietetics, education, and city planning. Half of the subjects were presented with male authors' names, and half female names. Judging identical articles except for the apparent sex of the author, the women rated the articles allegedly written by men as better than the same articles written by women. In 1969, Pheterson used the identical procedure with middle-aged, uneducated women. The articles dealt with marriage, child discipline, and special education.
The articles were evaluated "almost significantly in the reverse direction" from Goldberg's subjects (Pheterson, Kiesler, & Goldberg, 1971).

Attempting to clarify the differing results of Goldberg (1968) and Pheterson (1969), Pheterson, Kiesler, and Goldberg (1971) suggested that the discrepancies may have been due to the different subject populations and/or the different article topics. Using college women again as subjects, Pheterson et al. (1971) asked them to evaluate paintings. Half of the subjects thought the artist was male; half thought the artist was female. Half thought the painting was a contest entry; half thought it had already been judged a winner. The "entry" paintings by men were rated significantly better than the identical paintings by women. No sex differences were reported among the "winners" group.

The importance of social stereotypes as influencing factors in perception of causal determinants was investigated further by Feather in 1975 in a study designed to test the hypothesis that success at an occupation is seen more positively if the success is consistent with stereotypes about the sex role than if it is inconsistent, and failure is seen more negatively when inconsistent with sex role stereotypes than if consistent. Male and female subjects were given questionnaires consisting of items in which both a male and female character either succeeded or failed at one of 12 occupations which varied in prestige and the degree to which they were typically filled by males or females. The subjects judged males as happier with success and unhappier with failure than females for jobs previously rated as male-dominated, and females as happier with success and unhappier with failure for jobs seen as female-dominated. This suggests that the influence of social stereotypes was effective in
maintaining prevalent ideas about the appropriateness of specific occupations for one or the other sex. In other words, it was evident that social stereotypes elicited the sex-typing of the occupations by male and female subjects. Using only female subjects, Feather and Simon (1975) asked them to respond to three short verbal cues in which either a male or female character succeeded or failed an exam qualifying for entry into an occupation. The three occupations varied in masculine dominance (medicine, teaching, nursing). Males who succeeded or failed in any of the occupations were seen as luckier, busier, wiser, more logical, and more honest than males who failed. Failing females, however, were seen as busier, wiser, more logical, and more honest than successful females. In other words, females upgraded successful males in relation to unsuccessful males, but downgraded successful females in relation to unsuccessful females, regardless of the perceived masculinity of the situation.

The study of Feather and Simon (1975) further demonstrated effects of stereotypes on the choice of explanations for outcomes, i.e., causal attributions for the success or failure of the male or female characters. Weiner and his associates (Weiner, Frieze, Kukla, Reed, Rest, & Rosenberg, 1971) building on Heider's (1958) naive analysis of action and Rotter's (1966) work on locus of control, have examined causal attributions for success and failure in terms of four causal factors: ability, effort, task difficulty, and luck. These factors may be classified, according to Weiner et al. (1971) by their perceived locus of control (internality versus externality) or their relative stability over
time. Ability and effort are considered as internal; luck and task
difficulty are seen as external. Ability and task difficulty are seen
as stable; luck and effort as unstable.

In an attempt to assess what cues are utilized in making particular
attributional judgments using the four-element model, Frieze and Weiner
(1971) gave subjects information designating the percentage of a stimulus
individual's past success and failure at a given task, the percentage of
others succeeding or failing at the task, and the percentage of the
individual's success or failure at similar tasks, and asked the subjects
to attribute the cause for the stimulus individual's subsequent success
or failure. Success was found more likely to be attributed to internal
factors than was failure. Consistency with the performance of others
resulted in attribution to task difficulty, whereas inconsistency
resulted in attributions to the other three factors. Consistency with
personal past performance was attributed to ability and task difficulty
(stable factors), while inconsistency was attributed to the variable
factors of luck and effort. These results demonstrate the utility of
the two-dimensional classification of the four element causal model and
the dependence of attributional choice on what type of information is
available.

Differential attributions for males and females on similar tasks
have been shown in several studies using the four-element model
(Deaux & Emwiller, 1974; Etaugh & Brown, 1975; Feather & Simon, 1975;
Feldman-Summers & Kiesler, 1974; Taynor & Deaux, 1973). In the study
by Feather and Simon (1975), ability was seen as a more important cause
of male success than female success, while lack of ability was seen as a more important cause of female failure than male failure, especially in the medical occupation. When the female character succeeded at medicine, her success was more likely explained in terms of an easy course of study (easy task). Task difficulty was more often seen as an important cause of male failure in medicine. In summary, for the most "masculine" occupation, medicine, male success was attributed to ability, and male failure to task difficulty; female success was attributed to task ease, and failure to lack of ability. Similar results were found by Deaux and Emms Willer (1974) in a study which male and female students evaluated the performance of either a male or female stimulus person who allegedly performed in an above-average manner on either a female or male-related task. Though no sex differences were found on the feminine task, male success on the masculine task was attributed to skill, whereas female success was attributed to luck; overall males were seen as more skillful than females. Etaugh and Brown (1975) found, like Feather and Simon (1975), that a female's success on a masculine task (mechanics) was less often attributed to ability than was a male's success. Female failure in mechanics was attributed to low ability.

Evaluating both undergraduates participating at an intellectual task or "established" physicians, subjects in a study designed by Feldman-Summers and Kiesler (1974) attributed greater motivation to females than to males. Male subjects perceived the female physician as having had an easier task than the males, and as being less skillful than the male physicians. Females, in turn, perceived the female physi-
cian as having a harder task. This attribution of greater effort or motivation on the part of the female physician or student was also found in Taynor and Deaux's (1973) study on equity and attribution. Effort, in preference to ability, was employed by male and female subjects to explain above average performance of females in a "masculine" emergency situation which required effective action (acting condition). In a control situation, in which neither males nor females did anything in an emergency situation (non-acting condition), "non-acting" males were seen as higher in ability, and more likely to exert great effort and perform better than "non-acting" females.

In summary of the results of the above studies in which subjects rated other people, differences were noted only on the masculine tasks/occupations. Female success at masculine tasks was more often attributed to external factors of luck or task ease, and even when an internal factor was employed to explain success, ability was not the choice. Male success, however, was more often attributed to ability than other factors. On the other hand, female failure was attributed to lack of ability (internal), while male failure was attributed to task difficulty (external).

Similarly, differences have been noted between male and female attributions when individuals worked at tasks and then made causal explanations for their own successes and failures (Deaux & Farris, 1977; Feather, 1969; Nicholls, 1975). But, in self-attribution, variables not always relevant to the other-attribution studies, such as personal expectancies for success, enter into the design. Here again, sex differences have been reported, which may also be a function of the effect of social stereotypes on what individuals of one or the other sex believe
they are capable of doing (Feather, 1968, 1969; Nicholls, 1975). Feather (1969) asked subjects to rate how confident they were that they could pass a 10-item anagram test of 50% difficulty. After performing the task, they were asked to record the number of items they had solved, the degree to which they felt their performance was due to ability or luck, and their satisfaction with their performances. Dealing only with ability or luck, Feather predicted that outcomes consistent with initial confidence would be attributed to internal ability (or lack of it) and that inconsistent outcomes would be explained by luck (external). Unexpected outcomes were attributed to luck and expected outcomes to skill, but it was unclear as to whether the attributions were based on the locus of control dimension, or one of stability, as outlined by Weiner et al. (1971), since only two choices were given. Of more clarity was the finding that females, as a group, were lower in initial confidence than males, in addition to reporting greater feelings of inadequacy and making higher attributions to luck than did males. This tendency was also seen in an earlier study of Feather (1968).

Adding another independent variable, that of sex-typing of the anagram task by an instructional manipulation, Deaux and Farris (1977) found that on a masculine-linked task, males evaluated their performance more favorably than did females, despite equivalent performance; males claimed greater ability after the task than did females; females used luck to explain their performances more than did males. In children as young as nine years old, Nicholls (1975) found the same derogation of ability and low expectancies for success expressed by females. Stein, Pohly, and Mueller (1971) also found differences between male and female
children, and related them to socialization. Using masculine, feminine, and neutral tasks, they found that boys' expectancies were greatest for the masculine task and lowest for the feminine task. Girls' expectancies were significantly lower on the masculine task. The finding of no significant difference between expectancies for the feminine and neutral tasks for girls while boys reported higher (significantly) expectancies for the masculine compared to the neutral task indicated that masculinity was of greater value to the boys than femininity was to the girls. It was suggested that boys are under more pressure from parents and peers to be masculine than are girls to be feminine. This is in agreement with Carlson's (1971) prediction that females are more likely to exhibit both masculine and feminine traits than are males. In most of the studies in which individuals were required to make attributions for their own actions, females' expectancies for success were generally lower than males'. Females were more prone to use luck to explain their successes, while males were more likely to use ability to explain success.

Basic to all of the reported differences in causal attributions is the assumption that males and females as groups are homogeneous in terms of the relevant variables. Bar-Tal and Frieze (1977) have suggested that this assumption is invalid, and indeed, if it is, then combining the data for females and males as groups may yield averages not representative of important subgroups within the same sex group, such as high and low achievement motivated persons. Dividing 60 males and 60 females into groups differing in achievement motivation, Bar-Tal and Frieze (1977) asked them to work at an anagrams task in which success or failure was experimentally manipulated. Post-test causal attributions yielded
differences within sex groups. High achievement motivated persons of both sexes made higher ratings for ability and lower ratings for task difficulty. Although females as a group tended to use higher ratings for luck, high achievement motivated females made maximal use of effort as a causal factor. The order of highest ability to lowest ability ratings were made by high achievement males, high achievement females, low achievement females, and low achievement males.

Differences found between same-sex members in this study indicate that there are other relevant variables which differentiate between subgroups of women and men on causal attributions for success and failure. The report by androgynous females of greater intellectual encouragement (Kelly & Worell, 1976) and higher motivation toward achievement, may indicate that these findings, with the variable of achievement motivation, are a smaller part of the more global differences found between androgynous and feminine-typed females.

Success on masculine tasks depends on the possession of masculine traits important to the task. Since androgynous individuals, and particularly androgynous females compared to feminine-typed ones, possess positively-valued traits of both sexes, it is predictable that androgynous females will succeed more often on masculine tasks than will feminine-typed females, due to their possession of positively-valued masculine traits. Achievement in intellectual and professional situations has been traditionally defined as masculine, therefore the influence of social stereotypes on the perceived appropriateness for only one sex to work at particular tasks has created a condition in which some females have no experience with "masculine" tasks, and see themselves as less
Women who have been successful in reducing the influence of the traditional stereotypes on their behavior may be classified as androgynous. Compared to sex-typed females, androgynous females have been shown to be higher in self-esteem, more likely to show "masculine" independence when under pressure to conform, less likely to experience psychological discomfort when performing cross-sex tasks, and more likely to have received intellectual and achievement-oriented encouragement from parents (Bem, 1975, 1977; Bem & Lenney, 1976; Kelly & Worell, 1976).

The achievement motivation variable has already been shown to affect causal attributions in females (Bar-Tal & Frieze, 1977). Self-esteem levels have also been found to affect causal attributions (Fitch, 1970). These differences in causal attributions based on achievement motivation and self-esteem, both of which differentiate between androgynous and sex-typed individuals, suggest that androgynous females will differ from feminine-typed ones in their choice of causal attributions for success and failure on tasks, regardless of the sex-linkage of the tasks. The possession of masculine traits and the experience of less discomfort in the performance of masculine activities by androgynous females indicate also that they will differ very little from masculine-typed and androgynous males, but significantly from the feminine-typed females on a masculine task.

The present study was designed to investigate possible differences in patterns of causal attributions for success and failure made by androgynous and sex-typed individuals on sex-linked tasks, and to test the following specific hypotheses:
1) Androgynous females will make higher internal attributions for success than will feminine females, regardless of the sex-linkage of task.

2) Androgynous females will make higher ability attributions for success than will feminine females on the masculine task.

3) Androgynous females will not differ significantly from either masculine-typed or androgynous males on their attributions for success.

4) Androgynous females will make maximal use of effort as a causal explanation for success.

5) Females as a group will make higher luck attributions for success than will males as a group.

6) Males as a group will make higher ability attributions for success than will females as a group.

Method

Subjects

For participation in the first part of the experiment, 317 students enrolled in introductory psychology classes at Georgia Southern College were recruited. Extra credit was given to all students who participated in both parts of the experiment: completing a pre-task questionnaire, the Bem Sex-Role Inventory (Bem, 1974), and participating in the actual testing sessions. Of the 317 students, data for 120 subjects (60 male,
60 female) were used in the post-test evaluations. On the basis of scores on the Bem Sex-Role Inventory (BSRI), 30 subjects were placed in each of four sex-role groups: androgynous females, androgynous males feminine females, and masculine males. Androgynous individuals were defined as those scoring above the median on both the masculine and feminine scales of the BSRI. Feminine females were defined as those scoring above the median on the feminine scale, but below the median on the masculine scale. Masculine males were defined as those scoring above the median on the masculine scale, but below the median on the feminine scale. All individuals scoring below the median on both scales, or scoring in a cross-sex manner, e.g., females scoring above the median on the masculine scale but below the median on the feminine scale, were not used in the experiment.

Materials

The Bem Sex-Role Inventory (BSRI, Bem, 1974) was used to classify subjects according to sex-role trait adoption and to select participants for the study (see Appendix B). The BSRI is a self-report instrument consisting of a 20-item masculinity scale, a 20-item femininity scale, and a 20-item social desirability scale. Bem (1974) reported internal consistency measures of .86, .80, and .75 for the masculinity, femininity, and social desirability scales, respectively. Test-retest reliability was high over a four-week interval, indicated by correlations of .90 for the Masculinity score, .93 for the Femininity score, and .89 for the Social Desirability score. Based on their scores, individuals are classified as either androgynous, sex-typed (masculine or feminine),
or undifferentiated.

Different tasks were used to represent the masculine, feminine, and neutral tasks. For the masculine task, 10 desk set telephones from the Southern Bell Telephone and Telegraph Co., Savannah, Georgia, 10 ½" screwdrivers, and 10 color-coded wiring diagrams were used. For the feminine task, 10 standard embroidery needles, 10 seven-inch embroidery hoops, 40 silk-screened designs, and yarn pre-cut into 36" lengths were used. Finally, for the neutral task, ten "success" anagrams, and ten "failure" anagrams, drawn from those used in the study of Deaux and Farris (1977) were used. A pilot study rating of the sex-linkage of task was done prior to the experiment (see Appendices A, E, & F).

Success or failure feedback was given by means of a standard form stating that the subject had been given a percentile rating (85-89% for success, 13-17% for failure). Both forms included blanks, in which the percentile ratings were written by hand, so as to insure belief that actual ratings were being made (see Appendices G & H).

A post-test questionnaire consisting of three items related to each of the four causal factors as defined by Weiner et al. (1970): ability, effort, task difficulty, and luck, and three additional items not used in evaluation of the present hypotheses was used to assess the causal attributions for success and failure made by each subject. Each of the items were rated on seven-point Likert scales (see Appendix I).

The Foreign Language Laboratory at Georgia Southern College was used in the study. Areas were partitioned so that 10 subjects would be tested simultaneously, each unable to see the other subjects. Each
area was equipped with a pair of headphones, all of which were controlled from a central location within the laboratory. Each subject heard taped instructions for a task (see Appendix C) and taped instructions for the completion of a questionnaire following the task (see Appendix D). The instructions were recorded on a Realistic Concertape and were played on a Raytaton reel-to-reel player/recorder.

Procedure

In general classroom settings, subjects were told that the experiment was a study of how Georgia Southern College students describe themselves compared to students in other colleges. Copies of the BSRI were then distributed to the students for completion. When the students had completed the inventories, the sheets were collected, and the students advised that they would be contacted for participation in the second part of the experiment. Each of the students' inventories were then scored, and subsequently, based on the scores, 30 students were placed into each of the four sex-role groups, and contacted for participation in the second part of the study.

Upon arrival at the testing area, each student (without his knowledge) was sequentially assigned to either the masculine, feminine, or neutral task, and to the success or failure condition. The student was then seated in one of the partitioned areas of the laboratory and asked to put on his headphones and listen carefully to recorded instructions. In front of each student was a box covering the materials for the tasks: a disassembled telephone, screwdriver, and diagram for the
masculine task; an embroidery hoop, a cloth design, and a pre-threaded
needle for the feminine task; and a typed list of anagrams, a blank
sheet of typing paper, and a pencil for the neutral task.

When the first recorded instructions had been played, a 10 minute
"work period" began for the subjects. At the end of this period, an
experimenter collected the task materials, saying, "Our judges will
rate your performance on the task now. When they finish I would like
for you to answer some questions about the task. Please wait here."

After an additional five minutes passed, the experimenter returned
to the laboratory with the appropriate feedback information for each
student, and asked him to read it carefully. The experimenter rein-
forced the outcome manipulation by asking, "Do you understand?"
and explaining the meaning of the percentile rating as indicated on the
feedback form (see Appendices G & H). After all subjects were informed
of their ratings, they were asked to listen again to taped instructions,
this time for the post-test questionnaire, and then were given copies
of the questionnaire. When completed, the questionnaires and feedback
forms were collected from each subject as he left the testing area.

As subjects were drawn from introductory psychology classes during
two separate terms, debriefing was accomplished in two ways. Subjects
enrolled during the quarter in which the study was completed were de-
briefed during a general classroom period. Those participating who
were no longer enrolled in the class, were mailed notes advising them
of a meeting in which the experiment would be discussed. All subjects
were told the true purpose of the experiment, a simple description of
the relevant manipulations was given, and special consideration was
given to assuring those participating in the "failure" condition that no actual rating had occurred and that the feedback given them during the experiment was in no way an accurate indication of their actual performance (see Appendix J).

**Results**

Attributions to ability, effort, task difficulty, and luck were ascertained by means of the post-test questionnaire. Each of the factors was evaluated on the basis of composite ratings of three individual items on the questionnaire, with the exception of luck. Although three items related to the luck factor were included in the questionnaire, only two of the ratings were used in the evaluation. Inspection of the content of the individual items related to "luck" indicates that the poles on the scale for question #14, "How lucky were you at performing this task?" elicit a rating for the presence or absence of "good luck," whereas Questions #2 and #12 elicit ratings of the presence of luck as a factor in any sense, good or bad. Since the aspect of luck dealt with in this study is its general presence or absence rather than its multidimensionality, e.g., good, bad, irrelevant, etc., the values used to assess the effects of manipulations on the luck attribution are the composites of the two scores derived from questions #2 and #12 on the post-test questionnaire.

Data were initially analyzed by means of a 4 x 3 x 2 (sex-role x sex-linkage of task x outcome) multivariate analysis of variance (MANOVA). Two additional MANOVAs were performed to analyze for differences between males and females as groups, and to assess overall internality vs. ex-
# TABLE 1

4 x 3 x 2 MANOVA for 4 Dependent Variables

<table>
<thead>
<tr>
<th>SOURCE</th>
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<th>MS</th>
<th>F</th>
<th>p</th>
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<td>126.908</td>
<td>6.044</td>
<td>.01</td>
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<tr>
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<td>378.075</td>
<td>18.007</td>
<td>.0001</td>
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<tr>
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<td></td>
</tr>
<tr>
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<td>26.964</td>
<td>1.284</td>
<td></td>
</tr>
<tr>
<td>BxC</td>
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<td>36.925</td>
<td>1.759</td>
<td></td>
</tr>
<tr>
<td>AxBxC</td>
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<td>5.514</td>
<td>.263</td>
<td></td>
</tr>
<tr>
<td>S/abc</td>
<td>2015.600</td>
<td>96</td>
<td>20.996</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| A         | 139.292 | 3  | 46.431  | 2.212 |     |
| B         | 259.200 | 2  | 129.600 | 6.175 | .01 |
| C         | 205.408 | 1  | 205.408 | 9.787 | .01 |
| AxB       | 130.533 | 6  | 21.756  | 1.037 |     |
| AxC       | 192.025 | 3  | 64.008  | 3.050 |     |
| BxC       | 2.867   | 2  | 1.433   | .068  |     |
| AxBxC     | 137.000 | 6  | 22.833  | 1.088 |     |
| S/abc     | 2014.800| 96 | 20.988  |       |     |

| IFF       | A       | 115.958| 3  | 38.653  | 2.269 |     |
| B         | 838.617 | 2  | 419.308 | 24.611| .0001|
| C         | 330.008 | 1  | 330.008 | 19.370| .0001|
| AxB       | 138.917 | 6  | 23.153  | 1.359 |     |
| AxC       | 18.425  | 3  | 6.142   | .360  |     |
| BxC       | 2.117   | 2  | 1.058   | .062  |     |
| AxBxC     | 82.350  | 6  | 13.725  | .806  |     |
| S/abc     | 1635.600| 96 | 17.038  |       |     |

| A         | 45.825  | 3  | 15.275  | 1.143 |     |
| B         | 128.450 | 2  | 64.225  | 4.808 | .05 |
| C         | 88.408  | 1  | 88.408  | 6.618 | .05 |
| AxC       | 37.950  | 6  | 6.325   | .473  |     |
| AxC       | 26.358  | 3  | 8.786   | .658  |     |
| BxC       | 3.317   | 2  | 1.658   | .124  |     |
| AxBxC     | 28.417  | 6  | 4.736   | .355  |     |
| S/abc     | 1282.400| 96 | 13.358  |       |     |

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utcome
ternality for all sex-role groups.

The results of the $4 \times 3 \times 2$ MANOVA are shown in Table 1 for each dependent variable. Outcome was found to have a significant effect on all four of the dependent variables. "Success" subjects made higher attributions to ability ($p < .0001$) and effort ($p < .01$) than "failure" subjects, while "failure" subjects made higher attributions to task difficulty ($p < .0001$) and luck ($p < .01$). Based on the locus of control dimension of the variables, then, "success" subjects internalized success ($p < .0001$) while "failure" subjects externalized failure ($p < .0001$).

A main effect was also present for sex-linkage of task on all four variables: ability ($p < .01$), effort ($p < .01$), task difficulty ($p < .0001$) and luck ($p < .01$). When evaluations for cell mean differences were done, it was found that persons working at the masculine-linked task saw themselves as affected by luck more than neutral task participants ($p < .01$), while those on the neutral task attributed more ability to themselves ($p < .05$) than did masculine task subjects. Feminine task subjects made even higher ability attributions relative to the masculine task subjects ($p < .01$). The masculine task was seen as significantly more difficult than both the feminine and neutral tasks (both $p < .01$); the feminine task was also seen as significantly less difficult than the neutral task ($p < .01$). Finally, the neutral task subjects attributed higher effort to themselves than those working at the feminine task ($p < .01$); the masculine task mean was not significantly different from either of the other means.
Analyses of effects on the effort variable also yielded a significant interaction between sex-role and outcome ($p < .05$). Androgynous females were high in attributions to effort in the success condition, significantly more so than androgynous males ($p < .01$). The feminine females' and masculine males' means fell between the androgynous means, and were not significantly different from the other means. In the failure condition, however, masculine males made significantly higher effort attributions than did feminine females ($p < .01$), with the means for androgynous subjects intermediate and not significantly different from each other or the other means.

As indicated, a $2 \times 3 \times 2$ MANOVA was performed to analyze for differences between males and females as total groups (See Table 2). In addition to the main effects of outcome and sex-linkage of task, three findings are of particular interest. Sex was found to have a significant main effect on the luck variable, as hypothesized, with females as a group making higher luck attributions than males as a group ($p = .079$). Support for the prediction that males would make significantly higher ability attributions than females, however, was not found.

This statistical comparison of males and females provided support to the notion of stereotypical sex-linkage of task ($p < .05$), on the task difficulty variable. Analysis for simple main effects (performed by means of the Tukey test) indicated that males rated the feminine task as significantly more difficult than did the females ($p < .05$), while
### TABLE 2

**2 x 3 x 2 MANOVA for 4 Dependent Variables**

<table>
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<tr>
<th>SOURCE</th>
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<th>df</th>
<th>MS</th>
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<th>P</th>
</tr>
</thead>
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<td>11.408</td>
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<td></td>
<td>*B</td>
<td>253.817</td>
<td>2</td>
<td>126.908</td>
<td>6.040</td>
</tr>
<tr>
<td></td>
<td>*C</td>
<td>378.075</td>
<td>1</td>
<td>378.075</td>
<td>17.995</td>
</tr>
<tr>
<td></td>
<td>AxB</td>
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</tr>
<tr>
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<td>AxC</td>
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<tr>
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<td>BxC</td>
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<td>AxBxC</td>
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<td>1.658</td>
<td>.079</td>
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<tr>
<td></td>
<td>S/abc</td>
<td>2269.100</td>
<td>108</td>
<td>21.010</td>
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</table>

|        | A     | 8.008 | 1 | 8.008 | .372 |
|        | B     | 259.200 | 2 | 129.600 | 6.016 | .05 |
|        | C     | 205.408 | 1 | 205.408 | 9.535 | .01 |
|        | AxB   | 75.267 | 2 | 37.633 | 1.747 |
|        | AxC   | 185.008 | 1 | 185.008 | 8.588 | .01 |
|        | BxC   | 2.867 | 2 | 1.433 | .067 |
|        | AxBxC | 18.867 | 2 | 9.433 | .438 |
|        | S/abc | 2826.500 | 108 | 21.542 |

|        | A     | 21.675 | 1 | 21.675 | 1.274 |
|        | B     | 848.617 | 2 | 419.308 | 24.645 | .00001 |
|        | C     | 330.008 | 1 | 330.008 | 19.396 | .0001 |
|        | AxB   | 126.950 | 2 | 63.475 | 3.730 | .05 |
|        | AxC   | .008 | 1 | .008 | .000 |
|        | BxC   | 2.117 | 2 | 1.058 | .062 |
|        | AxBxC | 5.117 | 2 | 2.558 | .150 |
|        | S/abc | 1837.500 | 108 | 17.014 |

|        | A     | 39.675 | 1 | 39.675 | 3.153 |
|        | B     | 128.450 | 2 | 64.225 | 5.104 | .01 |
|        | C     | 88.408 | 1 | 88.408 | 7.025 | .01 |
|        | AxB   | 17.450 | 2 | 8.725 | .693 |
|        | AxC   | 3.675 | 1 | 3.675 | .292 |
|        | BxC   | 3.317 | 2 | 1.658 | .132 |
|        | S/abc | 1359.100 | 108 | 12.584 |

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females rated the masculine task significantly more difficult than did the males ($p < .05$).

The $4 \times 3 \times 2$ MANOVA for two dependent variables, internality and externality of attributions, yielded a significant $\text{Sex} \times \text{Outcome}$ interaction ($p = .08$) (See Table 3). A multiple comparison of cell means (Tukey) indicated that androgynous females internalized success more than any other sex-role group, significantly more so than did androgynous males ($p < .05$). Means for the feminine females and masculine males were intermediate and not significantly different from the other means. Comparison of androgynous females to feminine females for success on the masculine task indicated no difference between the two groups on internality, but feminine females were significantly higher in external attributions for success than were androgynous females ($p < .01$).

**Discussion**

The results indicate, that, as has been documented, attributional patterns are dependent on a number of situational variables. Attributions made by subjects who experienced success gave further support to Fitch's hypothesis (1970) that people make attributions in order to enhance their self-esteem. "Failure" subjects made more defensive attributions for their failure, perceiving their task as more difficult and themselves as having fallen to the misfortunes of bad luck. The internalization of responsibility for success and the externalization of responsibility for failure, in summary, works to maintain and enhance personal self-esteem.
TABLE 3

4 x 3 x 2 MANOVA For 2 Dependent Variables

<table>
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<tr>
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ex

ex-Linkage of Task

itcome
The manipulation of task parameters resulted in differential attributions as well. As noted, the feminine task subjects rated themselves highest in ability, the neutral task subjects as highest in effort, and the masculine task subjects as highest in task difficulty and luck. This effect of sex-linkage of task supports, to some extent, the idea that societal stereotypes concerning the appropriateness of a task for one or the other sex continue to have influence on some individuals. This general hypothesis is further supported by the finding that both males and females as groups perceived the cross-sex task as more difficult. The overall rating of the masculine task as most difficult, however, and the variability of the results on the other three dependent variables may be interpreted in two different ways. Although sex-linkage of task was manipulated in this study, control for other aspects of these particular tasks was not included and may have increased the difficulty in interpreting the results. For example, familiarity of the general public with the activities, or actual vs. perceived difficulty of the tasks, may have contributed to the variance of causal attributions. Both the masculine and feminine tasks required subjects to work primarily with their hands, while the neutral task required primarily thought for completion. The fact that the masculine task may also have required an understanding of how to read a diagram and put it into effect may have increased its difficulty relative to the other tasks. Finally, a good percentage of the general public may have some knowledge or experience with needlepoint, and many people have unscrambled words or done crossword puzzles in their spare time. The average individual, unless employed by some firm such as
Western Electric, will not have had such generalized experience with wiring a telephone. In summary, the high task difficulty rating of the masculine task may not have been due to any of the variables relevant to this design, but to its actual difficulty relative to the feminine and neutral tasks.

In replication of past studies (Deaux & Farris, 1977; Feather, 1968, 1969) it was shown that females as a group make more external attributions to luck for success outcomes relative to males as a group. The reverse prediction, that males attribute success to ability more often than females as a group, however, was not replicated. This failure to replicate may also be interpreted in two ways. It can be speculated that the increasing number of women in male-dominated professions, as well as the influence of the media and Equal Rights Amendment advocates may have served to increase the acceptance of females demonstrating the incorporation into their personalities of socially desirable masculine traits, and to release the female from believing she is less able than her male counterpart. On the other hand, because of the low percentage of androgynous males in the general population, the use of equal "n's" for statistical purposes created a disproportionate number of androgynous males in relation to their actual incidence in the general population. In other words, it is possible that the inclusion of an equal number of androgynous males in the design created a situation in which greater weight was given to the contribution of the androgynous males' responses than actually exists. Had 60 males been drawn from the general population purely at random, 30 of them would not have been androgynous males. The finding that androgynous males were lowest in internal attributions, which include
ability attributions, which is discussed later at length, indicates that giving equal weight to the androgynous males' responses may have reduced the overall male ability ratings to the extent that they were not significantly different from the overall female ability ratings.

The hypotheses that androgynous females would make higher attributions to ability on the masculine task and higher attributions to internal factors than feminine females were not supported. It is interesting to note, however, that although no difference was found between androgynous and feminine females in relation to internality of success, feminine females made significantly higher external attributions than their androgynous counterparts. In other words, though the feminine females demonstrated internalization of success, they also explained their successes by attributing them to external factors, particularly that of luck. The subtle societal suggestion that females are not as capable as males (or should appear so) may have prompted the feminine female to check her endorsement of internal factors as causal explanations for success by attributing a great deal of cause to external factors as well. The difference between androgynous and feminine females, then, may not be based on the level of internalization of responsibility for success as much as that of externalization.

The hypothesis that androgynous females would make higher effort attributions than any other group found partial support, as did the hypothesis that androgynous females would not differ from either of the male groups on attributions for success. Androgynous females did indeed make maximal use of effort, which parallels the finding of Bar-Tal and Frieze (1977) with high achievement-motivated women. This
parallel indicates that achievement orientation may be a variable which differentiates between androgynous and feminine typed females. The finding of Kelly and Worell (1976) that parents of androgynous females encourage more academic and related achievement certainly increases the plausibility of this notion. The high effort attributions made by masculine males in the failure condition may be described as defensive attempts to avoid attributing failure to lack of ability and thereby lowering self-esteem.

Androgynous females did not differ from masculine males in overall attributions for success. The finding, however, that the androgynous males were lowest in effort attributions for success, and consequently lowest of all sex-role groups in overall internal success attributions, may be the finding of greatest impact in this study. It seems that the increase of acceptance for females demonstrating a greater number of masculine traits has not initiated the reverse trend for males. In other words, although females are becoming more and more accepted in traditionally male-dominated occupations, etc., males have not found the same favor when demonstrating more socially desirable feminine traits. It may be that, although parent behaviors directed toward androgynous males (who theoretically possess more feminine traits than masculine males) include warmth and expressiveness (Kelly & Worell, 1976), the same reinforcers are not employed by peers and the pressure to engage in more traditionally masculine behaviors is still overwhelming. The androgynous male, then, though his personality traits may indicate that the appropriate behavior for him in some situations is feminine, is
forced to limit his overt behavior to win the favor of his peers.

The above finding also suggests that the idea that more masculine traits are socially desirable than feminine traits is still pervasive. The incorporation of masculine traits into the female is an improvement in personality functioning resulting in increased internalization of success outcomes. To incorporate more feminine traits, however, is seen as a backward step, particularly for males, and is treated as such.

Bakan's formulation (1966), on which Bem's research is based, suggests that there must exist a balance of agentic and communal traits in order for an organism to function as effectively as possible in its environment. In our society, only when certain feminine traits can be perceived as equally important and necessary as positive masculine traits can they exist in balance. In the current situation, however, those individuals, particularly males, who incorporate more of the "feeling world" into their lives, are under pressure from the majority of their peers who are influenced by the societal stereotypes which maintain an imbalance of prestige given to agentic vs. communal characteristics.

A number of interactions not achieving significance did indeed approach such a level, and differences between groups were often in the direction predicted, though not significantly so. It is possible that, with a more stringent procedure for defining who is androgynous or sex-typed on the Bem Sex-Role Inventory (BSRI, 1974), these differences might have been significantly different. In this study, the BSRI was scored by means of the median split method used by Spence, Helmreich, and Stapp (1975) and Bem (1977) in reanalysis of her original results.
However, though the median split method differentiates between those individuals who are high in both masculine and feminine traits and those who are low in both, it does not consider differences in the means of scores on the masculine and feminine scales, as Bem's scoring procedure originally did. For example, if the median scores for both the masculine and feminine scales were 5.10, as in this study, two types of males might be considered androgynous by the median split method. A male scoring 5.35 on the masculine scale and 5.25 on the feminine scale would be considered androgynous, but so would a male scoring 6.15 on the masculine scale and 5.25 on the feminine scale. In the last case, however, though both scores fall above the median scores, they are significantly different from each other. Since Bakan's (1966) formulation considered the optimal situation to include a balance of masculine and feminine traits, if one bases his definition of androgyny on Bakan's theory, then the male scoring 6.15 on the masculine scale might be more accurately described as a masculine male since masculine characteristics are still in dominance rather than in balance with the feminine traits.

In summary, the indications are that more research concerning the relationships between sex-role adoption and attributions for success and failure should be done, with larger samples and perhaps a more stringent method for classifying subjects as androgynous or sex-typed. Emphasis should be placed on evaluating the effects of social stereotypes on the overall functioning of the androgynous male. It appears from this study that there are indeed within sex-group differences affecting causal attributions for success and failure which are not represented in studies
comparing males and females as total groups. It is also suggested that the incorporation into their personalities of more socially desirable masculine traits by females is gaining increased social acceptability, while the incorporation of feminine traits is not so favored for males. Additional research concerning androgyny and attributions may very well show that androgyny is a viable, more global description of the variables which differentiate certain males and females from others on the basis of causal attributions, in addition to self-esteem, achievement motivation, and comfort with performing in activities traditionally defined as more appropriate for the other sex.
References


Goldberg, P. A. Are women prejudiced against women? Transaction, 1968, April, 28-30.


APPENDIX A

Pilot Rating of Sex-Linkage of Tasks

A pilot study was done to insure the sex-linkage of tasks as defined by the study. Thirteen college students ranked 18 activities on a scale of "1" to "7," with "one" being "very masculine" and "seven" being "very feminine." Using the Friedman test for significance, it was found that "wiring a telephone" was rated significantly lower than either "doing anagrams" or "doing embroidery." "Doing embroidery" was rated significantly higher than either "wiring a telephone" or "doing anagrams," the $\chi^2$ value equalling 20.3, indicating significance at the .001 level.
APPENDIX B

Bem Sex-Role Inventory

Below there are 60 personality characteristics. We would like you to use those characteristics in describing yourself. That is, we would like for you to indicate, on the provided scale of one (1) to seven (7), how true of you each of the characteristics are. PLEASE DO NOT LEAVE ANY OF THE CHARACTERISTICS UNMARKED.

1 NEVER OR ALMOST NEVER TRUE
2 USUALLY NOT TRUE*
3 SOMETIMES BUT INFREQUENTLY TRUE
4 OCCASIONALLY TRUE
5 OFTEN TRUE
6 USUALLY TRUE
7 ALWAYS OR ALMOST ALWAYS TRUE

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RELIABLE
ANALYTICAL
SYMPATHETIC
JEALOUS
HAS LEADERSHIP ABILITIES
SENSITIVE TO THE NEEDS OF OTHERS
TRUTHFUL
WILLING TO TAKE RISKS
UNDERSTANDING
SECRETIVE
MAKES DECISIONS EASILY
COMPASSIONATE
SINCERE
SELF-SUFFICIENT
EAGER TO SOOTHE HURT FEELINGS
CONCEITED
DOMINANT
SOFT-SPOKEN
LIKABLE
MASCULINE
WARM
SOLEMN
WILLING TO TAKE A STAND
TENDER
FRIENDLY
AGGRESSIVE
CULLIBLE
INEFFICIENT
ACTS AS A LEADER
CHILDLIKE
ADAPTABLE
INDIVIDUALISTIC
DOES NOT USE HARSH LANGUAGE
UNSYSTEMATIC
COMPETITIVE
LOVES CHILDREN
TACTFUL
AMBITION
GENTLE
CONVENTIONAL
APPENDIX C

Taped Pre-Task Instructions

You are about to participate in the second part of a study of how G. S. C. students compare to students in other colleges. Under the box in front of you are the necessary materials for a project. DO NOT begin until you are told to do so. You will be allotted ten minutes to work at the project.

Do not be concerned if you do not complete the project, as it may be impossible to do so in the allotted time. After the time is up, your work will be taken to an adjacent room, where a selected panel of judges will evaluate your performance on the basis of quality and the amount you were able to do in the allotted time.

When they are through, you will be informed of your rating, and will be asked to answer a few questions about the task. You may begin. NOW.
APPENDIX D

Post-Test Questionnaire Instructions

You have just been informed of the judges' rating of your work. Your participation in this experiment is appreciated.

To complete the comparison of G. S. C. students to other students, please answer all of the questions on the paper being given to you now.

DO NOT write your name on this paper. When you complete the questionnaire, you may leave. Please give your paper to the person by the door. Again, thank you for your participation. Begin. NOW.
APPENDIX E
Success Anagrams

Please rearrange the letters in the words below to spell meaningful English words.

YOU HAVE TEN MINUTES TO WORK AT THE ANAGRAMS, SO PACE YOURSELF!

Write your answers on the attached blank page. DO NOT write on this paper as it will be used again.

1. TMOMEN
2. POLIEC
3. ONERSP
4. DAMAEIG
5. ARIVER
6. GENCHA
7. WITHNI
8. NARGEN
9. GANTAM
10. MORBEP
APPENDIX F

Failure Anagrams

Please rearrange the letters in the words below to spell meaningful English words.

YOU HAVE TEN MINUTES TO WORK AT THE ANAGRAMS SO PACE YOURSELF!

Write your answers on the attached blank page. DO NOT write on this paper as it will be used again.

1. NARCEN
2. GANTAM
3. MORBEP
4. PIMCAT
5. GNPOSU
6. PPOERC
7. MEEALF
8. ONERSP
9. TEFFEC
10. POLIEC
APPENDIX G

Success Feedback

FOR THOSE WHO PASSED:

Our panel of judges have completed their rating of your performance. Compared to that of other students who have worked at this task, your performance falls into the _____ percentile.

This means that you did better than _____ % of other students at the task. Congratulations! That is great!
APPENDIX H

Failure Feedback

FOR THOSE WHO FAILED:

Our panel of judges have completed their rating of your performance. Compared to that of other students who have worked at this task, your performance falls into the ____ percentile.

This means that ____% of other students did better than you did at the task. That is not very good!
APPENDIX I

Post-Test Attribution Questionnaire

For each of the questions below, circle the number which best indicates your answer. When you finish, please give this paper to the person by the door as you leave. DO NOT PUT YOUR NAME ON THIS PAPER.

1. I have worked at this task before. 1 yes 2 no
   If yes, I did well at the task when I did it before.
   not at all 1 2 3 4 5 6 7 very well

2. My performance was based on luck.
   not at all 1 2 3 4 5 6 7 very much

3. I put a lot of effort into the task.
   not at all 1 2 3 4 5 6 7 very much

4. I am surprised at the rating I received.
   not at all 1 2 3 4 5 6 7 very much

5. I thought the task was easy.
   not at all 1 2 3 4 5 6 7 very easy
6. I possess the skill to do the task well.
   not at all 1 2 3 4 5 6 7 very much

7. My ability at this task is high.
   not at all 1 2 3 4 5 6 7 very much so

8. I would feel uncomfortable about doing this task in front of my friends.
   not at all 1 2 3 4 5 6 7 very much

9. How hard do you think this task was?
   very hard 1 2 3 4 5 6 7 not at all hard

10. How much ability do you think you have at this sort of task?
    none 1 2 3 4 5 6 7 very much

11. How hard did you try to succeed at this task?
    not hard 1 2 3 4 5 6 7 very hard

12. Luck had a lot to do with my performance.
    not at all 1 2 3 4 5 6 7 very much

13. The task was difficult for me to do.
    not at all 1 2 3 4 5 6 7 very much
14. How lucky were you at performing this task?
   not at all  1  2  3  4  5  6  7  very lucky

15. My effort at this task was great.
   not at all  1  2  3  4  5  6  7  very much

THANK YOU FOR PARTICIPATING IN THIS EXPERIMENT. YOU MAY LEAVE NOW.
APPENDIX J
Debriefing Information

Subjects were advised of the true nature of the experiment either in a classroom setting or in a called meeting (for those participating in the experiment during the quarter in which the data collection began). They were told that the experiment was not a comparison of G. S. C. students to other college students, but a study of how sex-role orientation as defined by the questionnaire they had completed before being tested affects the way people explain their successes and/or failures at particular activities. A brief summary description of the androgyny construct was given.

The students were then given a detailed description of how the experiment had been implemented, told that they had been assigned to a particular task and outcome condition when they arrived, advised that there had been no judges and therefore no actual rating of their performances at the tasks, and assured that the feedback they had received (especially in the "failure" condition) had been in no way an accurate evaluation of their actual performances.