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Causal attributions by children and adolescents concerning superior and inferior performance in masculine feminine and neutral school subjects

Christine M. Kniivila
The University of Montana

CAUSAL ATTRIBUTIONS BY CHILDREN AND ADOLESCENTS CONCERNING SUPERIOR AND INFERIOR PERFORMANCE IN MASCULINE, FEMININE, AND NEUTRAL SCHOOL SUBJECTS

By

Christine M. Kniivila

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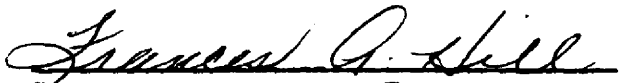

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This study was designed to assess the effect of prior expectancies about male and female performance upon causal attributions, when these prior expectancies were found to result from clear beliefs about differential performance of the sexes. Two attributional models were compared: the internal-external model, predicting expected performance to be attributed to internal sources (ability and effort) and unexpected to external sources (task difficulty and luck); and the variable-stable model, predicting expected outcomes to be attributed to stable attributes (ability and task difficulty) and unexpected outcomes to be attributed to variable attributes (effort and luck). On the basis of pilot work, a masculine, feminine, and neutral academic area were selected for both the upper grade school (G.S.) and high school (H.S.) levels. Male and female G.S. and H.S. students read a brief description of a male or female said to have performed in an above- or below-average manner in the masculine, feminine, or neutral school subject, and attributed that performance to ability, effort, task difficulty, and/or luck. A 2X2X3X2X2 factorial analysis was used, the independent variables being: sex of subject, sex of stimulus person, sex of task, performance level of stimulus person, and grade level of subject. The primary dependent measure consisted of attribution wheels, upon which Ss adjusted the relative proportion of each of four colors to represent the relative ascription to the cause it represented. Ss also rated their surprise in the observed performance.

Regardless of task, successful girls were seen as more able while failing girls were seen as less able than equally performing boys. As predicted, G.S. Ss saw luck: as more involved in a girl's success at a masculine task; as more involved in a boy's success at a feminine task; and as less involved in a girl's failure at a masculine task. Unexpectedly, H.S. Ss saw luck as more involved in the success of a male in a masculine task than a female. In contrast to opposite sex peers: G.S. girls who failed in a neutral task were seen as more influenced by bad luck; H.S. girls failing at this task were seen as less influenced by luck, but more influenced by luck if they succeeded. Males were less surprised about failure and more surprised about success than females, and used luck as an explanation more often.

Specific properties of the educational system were considered to help account for findings. Certain G.S.-H.S. differences which emerged were viewed as a competitive position being taken by H.S. males in particular, while H.S. females were seen as often adopting a more cooperative stance. Various sex differences in causal ascription were discussed in terms of helping understand sex differences in academic achievement. Neither attributional model received greater support.

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CHAPTER 1

INTRODUCTION

The existence of sex role stereotypes is a well-documented phenemenon in modern American society. Males and females are often suspected of performing differently from one another (Bem & Bem, 1970); of possessing sex-specific skills (Stein & Smithells, 1969), attributes (Seward, 1946; Spence, Helmreich, & Stapp, 1975), and actions (Rosenkrantz, Vogel, Bee, Broverman & Broverman, 1968); of being motivated by different factors and behaving for disparate reasons (Kagan, 1964); and of suffering from different psychological stresses (Ginn, 1975). In fact, there are few areas of modern life in which some sex difference has not been postulated, despite the lack of empirical support for all but four fairly well-documented sex differences (Maccoby & Jacklin, 1974). These include higher verbal abilities in women, higher mathematical and visual-spatial skills in men, and greater male aggressiveness. Although there may be other sex differences, Maccoby and Jacklin concur that conclusions cannot yet be drawn as the relevant research has been inadequate in testing these questions. Nonetheless, many males and females continue to accept stereotypic beliefs.

The purpose of this research was to investigate the effects of certain sex role stereotypes on the process of causal attribution in a sub-college population. Specifically, the study was designed to assess the effects of prior expectations about male and female performance upon causal attributions, when these prior expectations

were found to result from clear beliefs about differential performance of males and females. This study therefore addressed itself to the issues of: a) the differential evaluation of males and females, and b) the effects of confirmed and disconfirmed expectancies on causal attributions.

Expectations about the Performance of Females

As earlier noted, females are often regarded as being different from males on a variety of dimensions. Quite often, these expectations are not favorable (Bilick, 1973; Broverman, Broverman, Clarkson, Rosenkrantz & Vogel, 1970; Broverman, Vogel, Broverman, Clarkson & Rosenkrantz, 1972; Kitay, 1940). Both boys and girls are capable of making sex-typed discriminations by three years of age, by being able to define what is culturally "appropriate" for their own and the opposite sex (Schell & Silber, 1968). Smith (1939) asked children 8 - 15 years of age to vote which sex possessed the most socially desirable traits. With increasing age both boys and girls gave a progressively higher opinion of males and lower opinion of females. Prater (1971) suggested that as girls grow up they learn to value boys more and themselves less. In a similar vein, Ginn (1975) questioned 100 male and 100 female university students and found that, of 75 possible problems to select from, 35 were seen as more often presented by women, 16 by men, and 22 equally presented. A survey of the university psychology clinic's files indicated only three problems to be more often actually presented by either sex; both sexes were found to present basically the same concerns. However, both men and

women appeared to agree that women have more problems. Not only were men seen as having fewer problems, the nature of the problems was different. Half of the perceived male problems were educational-vocational whereas none of the female-perceived problems were.

A number of studies have documented sex discrimination in performance ratings. Shaw (1972) presented résumés of both men and women applicants to college recruiters and found that women were rated lower, even though all applicants had either an MBA degree or a degree in mathematics.

A classical study of the attitudes of male executives toward women executives was conducted by the Harvard Business Review (Bowman, Wortney & Greyser, 1965). The attitudes of male executives toward their female counterparts were rated in the mildly favorably to mildly unfavorable range. One third of the men sampled felt that women in supervisory positions had a "bad" effect on employee morale, 51% felt women were temperamentally unfit for management, and 81% did not believe that men would feel comfortable with female supervisors.

Rosen and Jerdee (1973) asked undergraduate students and bank supervisors to rate the use of certain supervisory styles by a male or a female. They found that sex-role stereotypes influenced evaluations of supervisory effectiveness for some of the supervisory styles. That is, men were viewed as more effective than women when using certain styles, and certain other styles were felt more appropriate for women. Others showed no sex differentiation. In a later study by the same authors (Rosen & Jerdee, 1974), male undergraduate business students acting as employers accepted male appli-

cants more often than equally qualified females. They evaluated men more favorably on general suitability, potential for long service and potential for fitting in well with the organization. Both the lowest acceptance rates and the poorest evaluations were given females for "demanding" managerial positions.

In some of the previous studies subjects were all males; in others, both males and females participated. However, the phenemenon of differential evaluations is not merely a function of evaluations made by male subjects. Goldberg (1968) asked college women to evaluate articles supposedly published in the fields of art, history, dietetics, city planning, law, and linguistics. Identical articles in each area were provided, upon half of which appeared a male author's name and upon half a female author's name. The results indicated that, as hypothesized, college women rated the professional work of men more highly than the identical work of women.

However, there appear to be certain situations in which women are not evaluated as performing worse than males. Using the identical procedure of the previous study, Pheterson (1969) used middle-aged non-college educated women as subjects, and asked them to evaluate professional articles on marriage, child discipline, and special education. The results were not in line with Goldberg's -- women judged female work to be at least equal to male work, just short of significance for being evaluated more favorably. Pheterson felt that the articles may have had different significance to the two sets of subjects. Perhaps the mere writing of an article was not felt by college women to be a great accomplishment, whereas it may

have represented a significant feat to the less-educated women. Pheterson reasoned that given work which has uncertain status, the man's work would be evaluated more highly, simply because men in our society are more likely to succeed. But given already clearly successful work, the success of a woman should be evaluated at least as highly as comparable male work, since success is less common for women.

To test these hypotheses, Pheterson, Kiesler, and Goldberg (1971) showed paintings to college women. Half of them thought the artist was male, half thought the artist was female; half thought the painting was a contest entry, and half thought the painting had been declared a contest winner. Given these conditions, women judged the entry paintings of men to be better than the identical paintings by women, but winning paintings were not differentially evaluated by sex. Thus, the hypotheses were supported. It appears that when the performance is somewhat ambiguous, stereotypes about typical male and female performance have a greater effect in helping an individual reach a decision. More certain criteria seem to lessen the effect of biases interfering in the judgmental process.

The general quality of the individual's performance also appears to have some bearing on evaluations made. In evaluating identically qualified applicants for a study-abroad program (Deaux & Taynor, 1973) both male and female subjects evaluated well-qualified male applicants more highly than well-qualified female applicants, as has occurred in many of the other studies thus far reviewed. However, poorly-qualified female applicants were rated more highly than equally poorly-qualified males. The authors suggest that stereotypic per-

formance expectations resulted in the poorest evaluations being given to the low-competent males. In a sense, the males were being punished for behaving contrary to expectation.

To summarize briefly the many findings thus far discussed, four general tendencies can be noted.

1. The existence of sex-role stereotypes is a fairly pervasive phenomenon.
2. There is a tendency toward differential evaluation of male and female performance, with female performance often regarded as poorer than equivalent male performance.
3. When clear evidence of superior performance is available, stereotypes have less effect, and female performance does not appear to be devalued.
4. Expectations of male and female performance appear to influence evaluations made.

Given the tendencies noted, the actual cognitive processes by which male and female performance is accounted for become questions of research interest. The performance of males and females may be viewed often as evaluated from the standpoint of stereotypic beliefs as to the expected level of that performance (Feldman-Summers & Kiesler, 1974). Thus, male and female performance may be viewed as confirming or disconfirming prior stereotypes or expectancies regarding anticipated male and anticipated female performance. Construed along these dimensions, the question of cognitive explanations offered for male and female performance can be analyzed within the framework of attribution theory.

Expectancies and Attribution Theory

Based on the seminal work of Heider (1958) numerous authors have examined performance and achievement within the framework of attribution theory (Menapace & Doby, 1976; Weiner, Freize, Kukla, Reed, Rest, & Rosenbaum, 1971; Weiner & Kukla, 1970). According to these more recent elaborations of attribution theory, four types of attributions are believed to account for one's own or another's performance: ability, effort, task difficulty and luck. Following any event with a discernable outcome (e.g., success or failure) individuals will vary in terms of which attributions or proportional combination of attributions they select to account for the observed performance. Therefore, a considerable amount of recent research attention has been directed at determining those variables that affect the choices of attributes offered to account for success or failure (Dweck, 1975; Fitch, 1970; McMahan, 1973; Miller, 1976).

A number of attributional studies of achievement behavior, particularly earlier ones, focused on the use of ability and luck attributes to explain performance outcome. This occurred largely as a function of viewing ability as an internal attribute and luck as an external one, and using a "locus of control" (Rotter, 1966) analysis. That is, an individual with an internal orientation was viewed by Rotter as one who expects reinforcement to come from his environment contingent upon his actions, whereas an individual with an external orientation views reinforcement as occurring noncontingently. Therefore, individuals with internal orientations were expected to ascribe outcome to such internal factors as skill, while an externally

oriented individual was expected to view outcome as occurring on a random or chance basis and ascribe its occurrence to luck.

Feather (1969) asked subjects to judge how confident they were of succeeding before attempting an anagrams task. H_e hypothesized on the basis of a locus of control model involving confirmed or disconfirmed expectancies; that is, when a subject's confidence in his ability was high (internal locus of control), success at a task would be attributed to internal factors (ability) and failure would be attributed to external factors (luck). When a subject's confidence in his performance was low (external locus of control) the opposite relationship was anticipated. Thus, disconfirmation of an expectancy was expected to be ascribed to external factors while confirmation was expected to be attributed to internal factors. Results were in line with these hypotheses, confirming Feather's predictions.

Sobel (1974) hypothesized that an individual's subjective impression of success or failure is the key determinant of attribution of causality, as opposed to either absolute performance standards or an individual's locus of control. Sobel presented subjects first with a brief "practice" anagrams task, giving bogus feedback to the subjects, half of whom were told they were likely to be successful on the "real" test and half of whom were told they were likely to be unsuccessful. After completing the test, subjects were asked to scale the importance of four internal and four external factors in producing the performance outcome. Those given success feedback attributed their performance to internal factors and those given failure feedback ascribed their performance as resulting from external causation. Locus of control, as measured by the I-E Scale

(Rotter, 1966) had no effect on attributes offered.

Fitch (1970) obtained a measure of subjects' self-esteem by administering the Tennessee Self-Concept Scale (Fitts, 1964). In the experimental task half of the subjects received false feedback indicating they had been successful (accurate) at a dot-counting task; half received false feedback indicating they had been unsuccessful (inaccurate). Fitch found that subjects high in self-esteem attributed the success to internal factors and failure to external factors, while the reverse held for subjects low in self-esteem.

Feather and Simon (1971a) hypothesized that unexpected outcomes are more likely to be attributed to external causes, while expected outcomes are more likely to lead to internal explanations. They manipulated expectancies by influencing success or failure on an anagrams test, administering a second test shortly after the first. When subjects experienced failure on the first test and later experienced success on the second test (i.e., unexpectedly), they attributed their success to luck. However, if success on the first task was followed by success on the second (e.g., expectedly), subjects attributed the outcome on the second task to their own ability.

To summarize the findings recently discussed, a basic pattern emerges. Confirmed expectancies tend to be attributed to internal causation, while disconfirmed expectancies tend to receive external explanations. Expectancies may come about from a variety of sources -- for example, general personal expectations of success or failure, previous experience, or feedback from others.

However, Weiner et al. (1971) have criticized the "ability-

luck" attributional studies on the basis of a possible confounding of the "internal-external" dimension with a second dimension of "stability." Internal refers to the locus of causation being seen as within the actor, while external signifies the locus of causation being beyond the individual himself. "Stability" refers to how enduring a given cause is seen to be; stable indicating a fairly enduring trait or factor over a moderate period of time, while unstable or variable referring to traits or factors capable of considerable short-term fluctuation. Therefore, ability is both an internal attribute and a stable one, whereas luck is an external attribute and an unstable one. Thus, findings based on dependent measures of ability and luck leave unclear whether subjects were responding to the internal-external dimension or the stable-unstable dimension to account for performance success and failure. In fact, Weiner et al. (1971) proposed that unexpected outcomes are explained by variable attributions while expected outcomes are explained by stable attributions. Using the four types of attributions earlier presented, these dimensions may be illustrated as follows.

TABLE 1

Perceived Determinants of Success and Failure in Achievement Situations

Stability	Locus of Control	
	Internal	External
Fixed	Ability	Task difficulty
Variable	Effort	Luck

(From Weiner et al. 1971)

A later study conducted by Freize and Weiner (1972) used all four types of attributions in accounting for performance outcome. In two experiments reported, subjects were given information about past performance on the same or a similar unspecified task and asked to make ability, effort, task difficulty and luck attributions either to another individual who purportedly performed in a specified manner, or to imagine that the information given was about them. Results indicated that expected outcomes increased attributions to ability and task difficulty and decreased attributions to luck (and motivation, but not significantly). This effect can be seen as supporting the view that it is the variable-stable dimension, as opposed to the internal-external one, which explains expected versus unexpected outcomes.

Feather and Simon (1971b) used the four attributional categories in order to evaluate further the variable-stable and internal-external dimensions. Specifically, they predicted that unexpected outcomes would be attributed to luck and that expected outcomes would be attributed to skill. All subjects were asked to give their expectations of success at an anagrams task; half after being administered a practice test manipulated such that they would succeed or fail at it, and the other half given no prior testing. Success on the anagrams test was itself manipulated such that one form was easy and one form unsolvable. Post-test attributions offered by subjects were mostly to stable internal factors (ability) when task outcome was expected and to unstable external factors (luck) when task outcome was unexpected. No significant patterns were found for the attributions

to task difficulty (stable, external) and effort (variable, internal), nor were there significant differences between subjects who stated expectancies on the basis of a practice test and those with no prior testing. These results do not support the Weiner et al. (1971) model.

In a later study, Simon and Feather (1973) asked college students to estimate how confident they were of succeeding on an actual examination immediately before its administration. After the graded exams were returned, the students were asked to account for the examination outcome on the basis of the categories of knowledge or ability, effort on the test, difficulty of the examination, and luck. Students who were initially confident attributed their success internally to their ability or knowledge and their failure externally to luck. On the other hand, students who were initially low in confidence attributed their success externally to luck and failure internally to a lack of knowledge or ability. Overall, students who passed accounted for their success in terms of their own ability. While Simon and Feather found attributions to be made along the internal-external dimension, they did not find subjects' attributions to vary along the variable-stable dimension.

Menapace and Doby (1976) constructed an experiment in which they contrasted two groups of subjects known to have widely different expectancies for success -- college students, with high expectancies for success, and psychiatric rehabilitatees, with low expectancies for success. They had subjects perform a manual dexterity task in which success or failure was manipulated. Psychiatric rehabilitatees were

more likely than the college students to attribute failure to the stable factors of task difficulty and poor ability. They were also more likely to attribute success to the unstable factor of effort, although no differences occurred between populations in the use of luck to account for success. College students were more likely than psychiatric rehabilitatees to attribute success to task ease, although they were no more likely to attribute success to ability. They were also more likely to attribute failure to lack of effort, although no more likely to attribute failure to bad luck. Taken as a whole, the variable-stable dimension was much more likely to account for these results than the internal-external dimension.

McMahon (1973) also found partial confirmation for predictions made according to the variable-stable dimension. Subjects with high expectancies for success were compared with subjects with low expectancies for success. The high-expectancy subjects were more likely to attribute failure to the unstable factors of luck and effort. They were also more likely to attribute success to the stable factor of ability, but they were no more likely to attribute the cause of success to task ease. It is important that the internal, unstable factor of effort was not differentially used by subjects in the success condition.

On the basis of the research just presented, it is still unclear which attributional dimension best accounts for successful and unsuccessful outcomes; the internal-external dimension or the variable-stable dimension. There is evidence in support of each position. In addition, there is research evidence not clearly linked to either

model. Luginbuhl, Crowe, and Kahan (1975) presented subjects with a task described as having to do with "signal identification under varying conditions of interference," (p. 87) similar to tasks performed by radar operators. Subjects were told that they would be presented with a series of patterns they were to identify as representing one of three stimulus classes, and that they would be correct by guessing one-third of the time. Difficulty was manipulated by blurring certain portions of stimulus slides. Subjects were given false feedback indicating success or failure. Results confirmed a tendency to attribute success more than failure to internal, unstable factors (effort); and a strong interactive tendency to attribute success to effort rather than to ability, but to attribute failure to lack of ability rather than to lack of effort. The authors conclude that the nature of the task may be a critical variable in determining the causal ascriptions for success and failure. They felt that the defined nature of the task may have discouraged attributions to either luck (as it is difficult to view radar operators as performing on the basis of luck) or, in the success condition, to ability (as subjects were uncertain as to why they did well, and which specific ability of theirs aided their success.) Viewing the results in terms of the internal-external and variable-stable dimensions, it might also be noted that one may construe the authors' findings in a variable-stable framework. Although expectancies of success were not elicited, it might be hypothesized that because of the novel and complex nature of the task, subjects expected to perform poorly. Such expectancies would suggest stable (ability and task difficulty) attributions for

failure (which would be consonant with subjects' expectations) and variable attributions (effort and luck) for success (an unexpected outcome.) In fact, as noted, the ability and effort attributions were elicited.

Actor Versus Observer

One variable found to influence attributions, the frame of reference of the subject, has received some recent research attention. All attributional studies thus far discussed, with the exception of the Weiner et al. (1971) study, have used subjects who may be termed "actors." That is, the subject himself participated in the achievement situation, experienced success or failure, and made attributions regarding his own performance. Weiner and his associates, on the other hand, used "observers," subjects who did not themselves participate in the performance situation, but attributionally evaluated the performance of subjects who supposedly did. In one condition subjects were asked to assume that a stated performance referred to them, serving as simulators rather than actual performers. No differences were found between simulator and observer conditions.

However, actor and observer attributions are often found to be at variance. In an early comparison of the two frames of reference, Beckman (1970) designed an experiment in which education students and student teachers were led to believe they were either instructing or observing another individual instruct two fictitious children on two instructional units. While one child always performed well (high-high), the second child's performance either remained poor

(low-low), deteriorated (high-low), or improved (low-high). Using effort and ability attributes, the subjects in the participant condition attributed the low-high child's success to themselves, while observers attributed success to characteristics of the child. The proportions of participants and observers who mentioned teaching did not differ. In this situation, then, the difference between participants and observers was in the form of a self-enhancing process on the part of participants.

Jones and Nisbett (1971) proposed that actors tend to view behavior as environmentally caused and that observers tend to view behavior as personally caused. Three explanations were offered to account for this actor-observer difference. "Perceptual perspective" explanations suggest that actors see themselves as stable and the environment as varied, while observers view the environment as stable and the actor as varied. "Motivational" explanations suggest that actors attempt to defend or enhance self-esteen by attributing self-enhancing behaviors to personal causation and self-derogatory behaviors to environmental causation. "Informational differences" explanations generally assume that actors have historical information about their own abilities, past performance, emotional states and personal intentions to which observers are not privy. However, it should be noted that these explanations are not offered solely to explain achievement behavior, but also to explain generalized situations. And as the situations employing this model are typically <u>not</u> achievement-oriented, the four attributes of ability, effort, task difficulty and luck have not been uniformly employed, making

comparisons of the "observer" and the "actor" studies discussed earlier difficult. A sampling of behaviors investigated utilizing the Jones and Nisbett (1971) model includes: helping behavior (Nisbett, Caputo, Legant, & Marecek, 1973), perceived conversational behavior (Storms, 1973), perceived affective responses (Hansen & Lowe, 1976), and interpersonal behavior (Orvis, Cunningham & Kelley, 1975).

Harvey, Arkin, Gleason and Johnston (1974) used the Jones and Nisbett (1971) model in a study dealing with both a form of achievement behavior and confirmed or disconfirmed hypotheses. They had college students serve as either therapists (actors) or observers in a study presented as dealing with the ability of the average person to give therapy to another individual having a minor phobia. Before their experimental participation, subjects were given expectancies about the probable outcome of the therapy (i.e., high or low expectancy). During and following therapy subjects were given feedback as to how successful the therapy had been (successful or unsuccessful outcome). Following therapy, subjects were administered post-experimental questionnaires upon which they could attribute the successful (or unsuccessful) outcome to the therapist or to circumstances beyond the control of the therapist. Results indicated that when a successful outcome was expected, actors exhibited a slight tendency to make greater self-attributions for successful than unsuccessful outcomes, and observers attributed more responsibility to the actor for a favorable outcome than for an unfavorable one. When an unsuccessful outcome was expected, actors did not respond differently as a function

of the outcome manipulation, whereas observers assigned more responsibility to actors for a favorable than for an unfavorable outcome.

These findings are basically in line with the Jones and Nisbett (1971) model; for observers, confirmed expectancies were attributed to external factors and disconfirmed expectancies to internal. However, results are contrary to those which would have been predicted on the basis of the internal-external model of performance outcome. That model anticipates confirmed expectancies to be attributed to internal causation, and disconfirmed to be attributed to external causation. The internal-external model was originally developed to explain actor attributions, though, and Jones and Nisbett also expect actor attributions to follow a similar pattern. However, an important difference between the Harvey et al. (1974) study and those based upon the internal-external or variable-stable models is that actors' performance in the Harvey et al. (1974) study was at least somewhat dependent upon the response of the supposed client, as were the results of the Beckman (1970) study of teacher attributions regarding student performance earlier reviewed. This is a notable contrast to studies dependent upon stimuli incapable of change (i.e., anagrams, dots, achievement tests). Also, neither the Beckman (1970) nor the Harvey et al. (1974) studies used all four of the attributional categories of ability, effort, task difficulty, and luck. Therefore, while these and other studies dealing with the Jones and Nisbett (1971) model are suggestive, they are clearly not yet comparable to the typical performance outcome attributional studies.

There has been a paucity of research concerned with the general

relationship between achievement behavior as viewed by observers and the process of causal inference. There is particular uncertainity as to the circumstances under which observers make attributions to each of the four factors of ability, effort, task difficulty and luck. It is still unknown what underlies different perceived causes of performance. However, it is apparent that expected outcomes are attributed to different causes than are unexpected ones,by both actors and observers. The attributions offered by observers in achievement situations are particularly relevant in American society. In these situations one's performance is commonly evaluated, and the evaluations with the greatest impact are those made by others.

Sex and Sex Differences as Related to Expectations and Attributions

Inasmuch as experimentally-manipulated expectations about success and failure affect attributions of causality, societal or widely held expectancies about different groups may also influence causal ascription. As previously noted, Menapace and Doby (1976) found this to be the case with psychiatric rehabilitees. Societal expectations were apparently consonant with the individual's expectations for these individuals, and did indeed influence causal attributions. It might well follow that societal expectations about males and females may also affect attributions of causality. This is an area of research which has received relatively little attention, particularly with sub-college populations.

There is some evidence suggesting that societal expectations about male and female performance influence causal ascription. A

number of studies have found that boys have higher expectancies of success than girls (Crandall, 1969; Feather, 1969). Crandall, Katkovsky, and Preston (1962) not only found that male first-, second- and third-graders expected to perform better on certain intellectual tasks than age-mate girls, but blamed others for their failure at these tasks when it occurred. Girls, on the other hand, tended to accept blame for their failure. Feldman-Summers and Kiesler (1974) have suggested that these results may be viewed within the framework of attribution theory. That is, males, whose expectations of success were disconfirmed, tended to make external attributions for their failure while females, whose expectations of failure were confirmed, accounted for outcome in terms of internal factors.

Stein, Pohly, and Mueller (1971) found that sixth grade boys had higher expectancies of success on a test presented as masculine, intermediate expectations on a neutral test, and lowest on a feminine test. Girls did not hold differential expectancies for feminine or neutral tests, but had significantly lower expectancies on the masculine test. It appears that children's sex-role standards are related to their expectancies of success. Stein (1971) came to the same conclusions by having sixth- and ninth-grade students state expectancies in certain school subjects they felt to be masculine or feminine. Stein additionally found that the importance children ascribed to tasks was more influenced by sex-typing in the older children. As differential expectancies are held regarding male and female performance and as expectancies are held to reflect causal attributions (Weiner, 1972), one might reasonably expect attributions

to vary with the sex of the actor. Feather (1969), in fact, found sex differences in the attributions offered by college students to account for their performance on an anagrams task. In this study women tended to have lower expectancies of success and attribute their success to more external (luck) factors.

Nicholls (1975) hypothesized that girls would have lower expectancies of success in an experimental task, resulting in self-derogations of their abilities. Using the four factors of ability, effort, task difficulty and luck, he found that boys attributed failure at an angles matching task to luck, while girls attributed failure to poor ability. Boys also held higher expectancies when feedback was limited. Effort was preferred by all subjects as an explanation for success. Results are not wholly consistent with either the internal-external or variable-stable mode of analysis, although failure can be accounted for by either model; unexpected male failure was attributed to luck (external, unstable) and expected female failure was attributed to poor ability (internal, stable).

Taynor and Deaux (1973) found that attributions of causality were indeed affected by the sex of the person whose behavior was being explained by others. They first constructed a hypothetical emergency situation and found it to be rated as more masculine than feminine. Male and female subjects then read descriptions of either a male or female stimulus person performing well in this situation. In half of the situations a non-acting other was also present. Using the two attributes of effort and ability, all men were viewed as potentially more capable (i.e., having greater ability, a stable,

internal attribute), whereas the superior performance of the female stimulus person was seen as resulting from her increased effort (unstable, internal attribute). As only two attributional categories (i.e., ability and effort) were used and the task was quasi-achievement-oriented, it is difficult to compare this study directly to those performance outcome investigations using the four attributional categories of ability, effort, task difficulty, and luck. However, that different attributions were offered to explain the confirmed and disconfirmed expectations of men and women is apparent.

Hypothesizing that widely-accepted beliefs or expectations about the performance of men and women should influence causal ascriptions of men and women, Feldman-Summers and Keisler (1974) designed two experiments in order to ascertain the attributions offered for identical performance. In both experiments, subjects made attributions along the four dimensions of ability, motivation (effort), task difficulty, and luck. In the first experiment, undergraduates evaluated fictional men and women who performed well or poorly on a set of logical and mathematical problems. It was found that subjects expected men to perform better. In addition, women were viewed as trying harder than men at all levels. In the second experiment, subjects were asked to evaluate fictional male or female physicians. Male subjects used ability attributions to explain the success of a male physician more than that of a female physician. Female medical success was seen as resulting from greater effort or task ease. Women subjects, on the other hand, felt female physicians were more motivated than the males and that the males had an easier

task. These effects occurred regardless of the specialty of the physician: surgery, at which men were expected to do better on the basis of pilot work, and pediatrics, at which the sexes were not expected to differ. Regardless of general expectations, female subjects did not themselves expect to be as competent as men at pediatrics.

As males tend to dominate the top level positions in nearly every occupation (Alpenfels, 1962; Bayer, 1972; Joreen, 1970), including both surgery and pediatrics, it is conceivable that subjects view extraordinary success, as opposed to typical performance, as a masculine characteristic. And as mathematics (Study 1) is one academic area that is clearly perceived as male-superior by college age (Dreger & Aiken, 1957), it is conceivable to view both of the Feldman-Summers and Kiesler (1974) studies as involving confirmed or disconfirmed performance expectancies. Males would therefore be expected to succeed and females to fail. In this case, the variable-stable dimension would best account for observed results. Briefly, combining both studies and sexes: disconfirmed expectancies (female success) were attributed to effort (unstable); confirmed expectancies (male success and female failure) were attributed to stable factors (task difficulty and ability).

Feather and Simon (1975) designed an experiment to study the evaluations subjects make for occupational success or failure when the stimulus person is a member of an occupation which is consistent or inconsistent for his/her societally conceived sex role. All subjects were female students in one of the last two years of high

school. The occupations used varied in their masculine dominance (medicine, teaching, or nursing). Results indicated that subjects tended to see ability (internal, stable) as a more important cause of male success than female success. Lack of ability was seen as a more important cause of female failure than of male failure. For medicine when the female, rather than male character succeeded, subjects were more likely to explain her success in terms of an easy course of studies.

Sedwick (1972) investigated numerous occupations and was unable to find a single occupation in which females were expected to be more successful than males. In fact, men were expected to be more successful and competent than women at the three occupations of medicine, teaching, and nursing used in the Feather and Simon (1975) study. In this case, these results may also be viewed in terms of confirmed or disconfirmed expectancies. The internal-external model is seen as slightly superior in describing performance outcome: expected male success and expected female failure were both seen as resulting from ability (internal and stable), and unexpected female medical success resulting from task ease (external and stable).

Deaux and Emswiller (1974) hypothesized that performance on a sex-consistent task should be attributed more often to internal factors such as ability while performance on a sex-inconsistent task should be more often attributed to external factors such as luck. To test this basic hypothesis they first constructed two tests; a masculine test, upon which subjects expected males to perform better than females, and a feminine test, upon which females were expected

to do better than males. Male and female subjects were then led to believe that they were observing a male or female perform in an above average manner on the masculine or feminine test. As predicted, performance by a male on a masculine task was more often attributed to skill, where equivalent performance by a female was seen as being more influenced by luck. However, comparable results were not found on the feminine test. On this test, no differences were found between the ratings of male and female stimulus persons. In addition, performance on the masculine task was seen as better than equivalent performance on the feminine task.

The Deaux and Emswiller (1974) study has been the only one thus far to define explicitly the expectancies about males and females within the confines of achievement situations, and analyze the attributions offered by subjects for confirmed or disconfirmed performance outcomes. As the predicted relationships did not uniformly hold, one is left wondering if the nature of the tasks themselves or overriding sex-role stereotypes and biases produced this deviation from expectancy. And given that the ability-luck dimension alone was used in the Deaux and Emswiller (1974) study, one cannot say on the basis of their results if it was the external or unstable characteristic of the luck attribute that accounted for its use in explaining an unexpected outcome. As the study was also not designed to provide attributions for failure as well as success, additional investigations of the problem are called for. Finally, it may simply be that, as suggested earlier, subjects may view extraordinary success as a masculine characteristic. That is, they may view typical male

and female performance differently, but reserve marked success for the male. This study was in part a conceptual replication of the Deaux and Emswiller (1974) investigation, one of the purposes of which was also to respond to the questions just raised. A further purpose was to examine these expectancies about males and females in achievement situations, in terms of causal attribution theory, with a sub-college population. There is a paucity of attributional studies with pre-college students, particularly in terms of attributions offered for the performance of others, magnifying the utility of such an endeavor.

A few tentative speculations may be offered as to factors that possibly had some effect in the study by Deaux and Emswiller (1974).

1) Given adequate support for a visual-spatial sex difference in favor of males (Maccoby & Jaklin, 1974), description of the tasks as involving these abilities (e.g., "a series of pictures of familiar objects embedded in a camouflaged background and shown on a video screen..." p. 81) may have introduced a subtle influence on attributions subsequently offered.

2) The tasks may have been viewed as differentially important, also possibly causing some unspecified effect on attributions. This speculation is made in part on the basis of a later study by Taynor and Deaux (1975), in which it was found that the majority of feminine tasks were seen as less important than the tasks rated as being masculine, and in part because there are some suggestions that perceived importance affects causal ascription

(Miller, 1976).

3) Finally, as earlier suggested, marked success may simply be viewed as masculine, regardless of the sex-designation of the tasks.

In this investigation an attempt was made to control for these first two variables, and to assess the third.

In summary, the following conclusions may be drawn from previous research.

1. Males and females are expected to perform differently from one another on various tasks.
2. There is a tendency toward differential evaluation of male and female performance, with female performance often regarded as poorer than equivalent male performance unless clear evidence of superior performance is available.
3. Expectations of male and female performance influence evaluations made and attributions offered to account for performance.
4. Confirmed and disconfirmed expectancies are accounted for on the basis of different attributions. Confirmed expectancies tend to be accounted for on the basis of either stable or internal variables, while disconfirmed expectancies tend to be accounted for on the basis of variable or unstable attributes.

Hypotheses

On the basis of the research reviewed, it was hypothesized that generally accepted expectations about male and female performance

would affect causal ascription, such that confirmed expectancies would result in different attributions than would disconfirmed expectancies.

Second, when differential expectations about male and female performance do not exist, attributions were not expected to vary as a function of sex of the stimulus person.

Confirmed and disconfirmed expectancies had the following meanings in this study.

1. On a masculine task a boy is typically expected to do well and a girl poorly, and expectancies are confirmed when this occurs. A boy doing poorly on a masculine task or a girl doing well on such a task produces disconfirmed expectancies.
2. On a feminine task, a girl is expected to do well and a boy poorly, and expectancies are confirmed when this occurs. Either poor performance by a girl on a feminine task or good performance by a boy on a feminine task is not expected and therefore disconfirms expectancies.
3. On a neutral task, boys and girls are not expected to perform differently from one another. Therefore, superior performance should be no more confirming or disconfirming of expectancies about boys than those of girls, nor should inferior performance be any more or less confirming of expectancies of girls than boys. Any disconfirmation would involve children in general who deviate from average performance, and would be expected to affect boys and girls equally.

Either the variable-stable or the internal-external attributional model was expected to account for attributions based on confirmed or disconfirmed expectancies. As neither model has produced conclusive results, the only predictions that it was felt could reasonably be made were:

A) Confirmed expectancies should more often result in attributions to ability (internal and stable) than disconfirmed expectancies.

B) Disconfirmed expectancies should result in a greater proportion of attributions to luck (external and unstable) than confirmed expectancies.

No predictions were made regarding the dimensions of effort and task difficulty.

As noted, it may be that marked success is considered a masculine characteristic. Whether or not this is the case and how this would interact with the evaluations of performance on the designated masculine, feminine, and neutral tasks could not be hypothesized. However, appropriate data were collected to analyze this factor.

Pilot Study

In order to test the hypotheses concerning the role of sex-typed achievement in causal attribution, it was necessary to determine specific tasks or achievement areas that are clearly viewed as masculine or feminine; that is, tasks in which males were expected to perform better than females, and tasks in which females were expected to perform better than males. In addition, it was desired

to define a neutral task to use as a base line; an area in which males and females were expected to perform equally well. When differential performance expectations based on sex were not available, attributional sex differences were not expected.

As the present investigation was concerned with pre-college students and achievement situations, it was believed that the school environment would be an achievement situation with which subjects would be equally familiar. Previous research has shown that children of various ages view boys as performing better in some school subjects, and girls as better in others. (Clark, 1967; Dreger & Aiken, 1957; Wiggins, 1973). However, studies were not reported for a wide grade range, and often neutral categories were ommitted.

As the literature does not provide a recent empirical determination of neutral and sex-typed school subjects, a pilot study was conducted. A questionnaire was devised consisting of three parts (see Appendix II). One part consisted of eight school subjects commonly taught in the fifth through twelfth grades, each subject preceded by a blank upon which students were instructed to place an "M" if males their age generally performed better in that subject, an "F" if females their age generally performed better, and a "B" if both males and females tended to perform the same in that subject. A second section consisted of the same eight subjects, which students in essence ranked in terms of their importance. This was accomplished by presenting incomplete statements dealing with the importance of a school subject on the left hand side of a page, which the subject completed by drawing a line to the school subject which best completed the sentence on

the right. Finally, as an additional procedure, a third questionnaire of essentially the same format was presented, only dealing with personal abilities. The presentation of the last two questionnaires was counterbalanced. When further literature review suggested that a connection between personal abilities and ascription to others was unlikely, it was decided not to analyze this particular questionnaire for pilot purposes. All instructions were given in an oral administration by the investigator (see Appendix I), and as printed on each sheet. An example relevant to the two "sentence completion" tasks was also orally presented with visual demonstration.

All questionnaires were administered to entire classroom units at one time, using two classrooms of pupils at each of the fifth, seventh, ninth, and eleventh grades; with 45, 48, 53, and 43 students respectively. The sex-typing of classroom subjects was evaluated with z-tests. Several z-tests were computed for each school subject within each grade. The category with the greatest proportion of responses was compared to each of the remaining two categories, and required to reach statistical significance before the category classification for that subject was accepted. That is, for a task to be viewed as masculine, a significantly greater proportion of pupils needed to designate it as masculine than as feminine or neutral. A feminine task was required to be viewed by significantly more individuals as feminine than masculine or neutral, and a neutral task was required to be viewed by significantly more students as neutral than masculine or feminine. Statistical significance was established at the 95 per cent confidence level. In addition, the sex-designation

of the school subject was not accepted unless the sexes agreed on the ratings.

On this basis, the following school subjects were selected:

Grades 5 and 7; gym (masculine), music (feminine), art (neutral).

Grades 9 and 11; science (masculine), spelling (feminine), art (neutral).

No differences were found between fifth and seventh graders in any of the ratings provided. Comparisons of ninth and eleventh graders also indicated no grade-specific differences.

In addition, it was found that the mean importance ratings of the masculine and feminine areas for fifth- and seventh graders were essentially identical, failing to vary by sex or grade. The importance ratings of the masculine and feminine school subjects for the ninth and eleventh graders were also basically equivalent, and failed to vary by sex and age.

It was decided that the number of subjects available for testing in the four grades sampled would not be adequate. Therefore, the decision was made to combine consecutive grade levels for experimental purposes. Due to the lack of any significant differences between the fifth- and seventh grade groups, the assumption was made that had sixth graders as well been sampled the data obtained from these subjects would not have been very different from the fifth and seventh grade. This further appeared reasonable as sixth graders were students at the same grade schools as the fifth- and seventh graders, and their ages overlapped considerably with the older of the fifth-graders and the younger of the seventh-graders, whose data did not differ.

On these same bases, it was also assumed that tenth graders would have responded to the questionnaires similarly to the ninth and eleventh grade groups, which did not differ from one another.

On this basis, two different populations were considered: upper grade school (grades five through seven) and high school (grades nine through eleven). An intention in including two distinct grade ranges in this study was to investigate the possibility of developmental trends, or grade-specific responses in terms of attribution use. As pilot results indicated that different tasks were seen as masculine and feminine at the two grade levels under consideration, it was aknowledged that results indicating certain lacks of comparability between the grades in these tasks would have to be evaluated with these differences in mind. However, it was also understood that these differences would affect only a portion of the data analyses.

CHAPTER II

METHODS

Summary of Design

The study was based on a 2X2X3X2X2 factorial between-subjects design, with Sex of Subject, Sex of Stimulus Person, Performance Level of Stimulus Person (success or failure), Sex-Designation of Task (masculine, feminine, neutral), and Grade Level of Subject (grade school, high school) being the independent variables. The subjects read a brief description of a male's or female's superior or inferior performance on a masculine, feminine, or neutral task and then evaluated that individual's performance on the dimensions of ability, effort, task difficulty, and luck.

Subjects

The subjects were 480 western Montana school students. One hundred twenty were grade school males, 120 were grade school females; 120 were high school males and 120 were high school females. Both public and parochial school administrators in the city of Missoula, Montana were requested to assist in acquiring the necessary number of grade school subjects. This resulted in a near-equal representation of public and parochial grade school students at each of the fifth, sixth, and seventh grade levels. Of the 240 high school subjects, the majority (204) were ninth-graders enrolled in the Career Education program at a Missoula high school. The remaining 36 high school subjects were ninth, tenth, or eleventh grade study

hall students from the Frenchtown High School (located 24 miles from Missoula). High school subjects were also recruited through their school administrators. All grade school and high school subjects were tested in classroom units by one of two female experimenters. Entire classrooms were tested until the necessary 120 grade school male, 120 grade school female, 120 high school male, and 120 high school female students had participated.

Materials

Subjects were given a packet of testing materials at the beginning of the testing session. The first item consisted of a sheet upon which was printed a brief description of a male or female stimulus person who was said to perform in an above- or below-average manner in art, music, or gym class for grade school subjects; or art, science or spelling for high school subjects (Appendix IV). All statements were of the following form, with appropriate substitutions for name (gender), performance level, and school course of interest:

> Susan L. goes to school in this area and has lived here since she was two years old. She has one brother and one sister. Most people who know Susan describe her as likeable.
>
> Susan's teacher just told her that she is one of the very best students in the music class.

Within each sex, various names were used to represent the stimulus persons in order to decrease the liklihood of a student observing that he and a classmate were evaluating the same individual.

On the same page the four categories to which success or failure could be attributed were listed, worded appropriately for the success or failure of the stimulus person. The order in which

these causes were presented was counterbalanced.

Following this page was an "attribution wheel" upon which was fixed a sheet containing directions as to its use, followed by three questions asking: 1) the name of the individual being evaluated, 2) the level of performance of this individual (i.e., good, average, poor), and 3) the school subject in which the stimulus person was being evaluated (Appendix IV). These questions were asked in order to ensure that the subject attended to the sex of the stimulus person, his performance level (good or poor), and the task in which this stimulus person was being evaluated (i.e., masculine, feminine, or neutral).

The attribution wheels were a slight modification of a device developed by Nicholls (1975), who reported that fourth-graders were both intrigued by the attribution device and clearly understood its use. The devices were similar to a pie graph which subjects could adjust to show the relative importance of the four possible causes of the stimulus person's performance. Sixty such wheels were constructed. Each attribution wheel was constructed of four 7-inch (17.5 cm.) discs of lightweight cardboard. Upon each disc a 2"X1" (5.1cm.X2.5 cm.) discs of lightweight cardboard. Upon each the four discs that made up one wheel was a different color; pink, green, brown, or yellow. The discs were cut along the radius which extended to the immediate left of the tab. The four differently colored discs were then slipped together to make up each wheel; each through the cut radius of the others in such a way that they could be moved to expose 360 degrees of any one color, or any possible

combinations of one or more colors. Each set of four discs was attached to an 11"X14" (27.9 cm. X 35.5 cm.) sheet of white poster board by a 1-inch (2.5 cm.) brass paper fastener through their centers. Each wheel was positioned in such a way as to allow 5 3/4" (14.6 cm.) of white poster board to be exposed above it. Adjustments of the wheels could be made by using the tab on each disc as a handle. Parallel and next to each exposed radius was printed one of the four possible causal explanations. Of the 60 devices, 30 were worded appropriately for the success condition and 30 were worded for the failure condition. For subjects whose stimulus person was successful (i.e., one of the very best students in a particular class), the following alternatives were printed on the discs: "The student is smart or talented at this," "The student tried hard," "The subject was easy," and "The student had good luck." For subjects whose stimulus person had been unsuccessful (i.e., one of the very worst students in a particular class), the following alternatives were printed: "The student is not smart or talented at this," "The student didn't try hard," "The subject was hard," and "The student had bad luck." The causes were printed on the different colors of each wheel in counterbalanced order in order to control for the possibility that a color preference would influence results. As a further insurance against this, the four colors selected for the wheels were muted and relatively drab.

A final page following the attribution wheel listed the same three questions subjects had completed before making the earlier attributions (i.e., name, performance level, and school subject of stimulus person. See Appendix IV). In addition, it included

five 6¼-inch lines, on four of which subjects rated the importance of each of the four causes in explaining the stimulus person's performance. The line was equally divided into 11 segments labeled "0" through "10", with the zero point labeled "not at all important," the "10" point labeled "very, very important," and the statement "somewhat important" in the middle of each line. Instructions concerning the use of the scales were printed on the top of the sheet. Subjects evaluating successful stimulus persons received sheets upon which each scale bore one of the following headings: "The student is smart or talented at this," "The student tried hard," "The subject was easy," and "The student had good luck." Subjects evaluating failing stimulus individuals found their scales labeled: "The student is not smart or talented at this," "The student didn't try hard," "The subject was hard," and "The student had bad luck." These four attribution scales were included for exploratory purposes. No attempt was made to include controlled comparisons between the two methods of measuring attributions, in part because of sample size limitations making counterbalancing between the two methods impossible. attribution wheels were considered the primary measure.

The final scale was used to determine if the extraordinary success or failure of the stimulus persons was either more or less confirming dependent upon the stimulus person's sex. Preceding the final scale, a question read, "Did you find the student's performance surprising?" Immediately below was an 11 point scale, with scale values ranging from "0" to "10". Printed below the zero point was the statement, "not at all surprising." Printed below the "10"

point were the words, "very, very surprising." Finally, in the mid-range was printed, "somewhat surprising."

Procedure

Students in the fifth, sixth, and seventh grades in four Missoula, Montana elementary schools, two public and two parochial, were recruited via their school administrators and classroom teachers to serve as the grade school subjects. High school subjects were all recruited from public schools through the school administrators and classroom teachers of these students. All members of each class present at the time of testing participated as subjects. The 12 separate forms of the test for each grade level were distributed randomly among male and female subjects. That is, all test forms were randomly arranged before testing and were distributed in this random arrangement by passing them out in correspondence to the rows of desks in each classroom. Experimental assistants kept a running tally of the number of subjects in each experimental category following each classroom test administration. When any particular category had received the appropriate number of subjects they removed further copies of that test form from the main body of tests awaiting distribution.

Subjects were told that they were participating in a study concerned with how students judge the performance of other students. Students were then asked to read about the student described on the sheet before them, including the causes that would account for that performance, and to spend a few moments using the information provided and their imaginations to attempt to account for this performance. Anonymity was

also assured.

At this point, subjects were introduced to their "attribution wheels", and instructed in their use. The wheels were presented with the four reasons equally exposed. Written instructions appeared on the upper portion of the wheels' bases, and similar oral instructions were given for clarity. Subjects were told the four causes that account for success and the four causes that account for failure. The order in which these causes were presented was counterbalanced across different classrooms. It was pointed out where on the wheels the relevant dimensions were printed. At this point, a visual demonstration was conducted by the experimenter, who altered a sample wheel in various ways, pointing out that large portions signified important causes and smaller portions less important causes. Questions on the use of the wheel were invited, followed by subjects' being requested to fill in the questions on the sheet attached to the wheel before using it. Students were encouraged to work independently, and told that as they were evaluating different students on different subjects, it was expected that they would come up with different answers.

When students had completed this task and all wheels had been collected, they were instructed to look at the sheet labeled "Rating Scales," which remained on their desks. Subjects were told that there was another way to rate the importance of the four causes in explaining a student's performance -- by marking on a scale just how important that cause was. Again, instructions were presented both in written and oral form. The "zero" and "ten" points were defined, with instructions given to circle a higher number the more

important the cause appeared. (See Appendix III for a verbatim transcript of all experimental instructions.)

Due to the necessity of testing different classrooms of children at different times, at the end of the experimental task subjects were told neither of the manipulations nor of the intent of the study. However, after all data were analyzed, school personnel were provided with written feedback which they could communicate to the students involved in the study if they chose.

CHAPTER III

RESULTS

Correlations Between Attribution Wheels and Attribution Rating Scales

Scores on both attributional measures, the attribution wheels and attribution rating scales, increased as a function of ascending ascription to the causal dimension in question. Attribution wheel scores ranged from zero to 360 for each of the four causal factors with the limitation that the four scores for each subject sum to 360, representing the number of degrees in the total circular wheel. Scores on the attribution rating scales ranged from zero to ten for each factor.

These two methods of measuring subject attributions were not strongly correlated (Table 2), as evidenced by the calculation of point-biserial correlation coefficients. Thus, the methods are neither identical nor interchangeable. Correlation coefficients across all subjects for the four attributional categories ranged from .434 for the category of effort to .590 for the attributional category of ability. Low to modest correlations were also achieved when analyzed by grade level, performance level, and subject's sex. In no case was any single correlation large enough to account for more than 43 percent of the associated variance. Such correlations are inadequate in indicating the equivalence of two assessment devices (Brown, 1976).

As earlier noted, this study was not designed to include controlled

TABLE 2

CORRELATIONS BETWEEN ATTRIBUTION WHEEL AND
RATING SCALE MEASURES OF ATTRIBUTIONS

	Ability	Effort	Task Difficulty	Luck
All Ss	.590	.434	.456	.465
Male Ss	.541	.443	.451	.579
Female Ss	.632	.428	.460	.216
Ss Rating Successful Stimulus Persons	.456	.463	.544	.402
Ss Rating Failing Stimulus Persons	.650	.455	.360	.542
Grade School Ss	.576	.345	.391	.383
High School Ss	.607	.530	.539	.557

comparisons between the two methods of obtaining attributions. Since the attribution wheels were intended as the principle method of measuring subject attributions and were appropriately counterbalanced, full discussion of analyses and interpretations will be limited to those data. Comparable analyses on the rating scale data are presented in Appendices V through VIII.

Analyses of Attribution Wheels

The Ss' attributions to the four causal dimensions of ability, effort, task difficulty, and luck, when these causes were simultaneously presented as the four labeled components of an adjustable wheel, were separately analyzed in a 2X2X3X2X2 analysis of variance. Factors included in the analyses were: Sex of Subject (male, female); Sex of Stimulus Person (male, female); Sex-Designation of Task (masculine, feminine, neutral); Performance Level of Stimulus Person (good performance = success, poor performance = failure); and Grade Level of Subject (grade school, high school). Scores on each of the four portions of the wheel ranged from zero to 360 as a function of increasing ascription to the relative causal dimension, corresponding to the number of degrees of each portion of the attribution wheel left exposed by the S.

Ability

Table 3 displays the results of the analysis of variance for attributions made to the causal source of ability. A significant main effect of sex of stimulus person was found. Ability was seen as having a significantly ($p < 0.05$) greater influence on the per-

TABLE 3

SUMMARY TABLE FOR ANALYSIS OF VARIANCE
WITH THE ATTRIBUTION WHEEL CAUSAL SOURCE OF ABILITY
AS THE DEPENDENT MEASURE

Source	df	SS	MS	F	
S(B)	479	4424119.5			
B1	1	16477.6	16477.6	1.974	
B2	1	37914.1	37914.1	4.543	*
B12	1	1864.5	1864.5	0.223	
B3	2	53807.9	53807.9	6.447	**
B13	2	3531.6	1765.8	0.212	
B4	1	167329.1	167329.1	20.050	****
B14	1	39958.0	39958.0	4.786	*
B5	1	1576.9	1576.9	0.189	
B15	1	19177.5	19177.5	2.298	
B23	2	12011.3	6005.6	0.720	
B123	2	43768.8	21884.4	2.622	
B24	1	3477.5	3477.5	0.417	
B124	1	22140.9	22140.9	2.653	
B25	1	3652.1	3652.1	0.438	
B125	1	1613.1	1613.1	0.193	
B34	2	7630.5	3815.3	0.457	
B134	2	21750.5	10875.3	1.303	
B35	2	2140.5	1070.3	0.128	
B135	2	41815.9	20907.9	2.505	
B45	1	18901.3	18901.3	2.265	
B145	1	65540.2	65540.0	7.857	**
B234	2	32548.3	16277.1	1.950	
B1234	2	15782.9	7891.9	0.946	
B235	2	10459.3	5229.5	0.627	
B1235	2	510.6	255.3	0.031	
B245	1	606.0	606.0	0.073	
B1245	1	1880.3	1880.3	0.225	
B345	2	62808.6	31404.3	3.763	*
B1345	2	12773.6	6386.8	0.765	
B2345	2	27811.4	13905.7	1.666	
B12345	2	15684.1	7842.0	0.940	
T(S)12345	472	3935297.5	8345.6		

Source: 1=Sex of Subject, 2=Sex of Stimulus Person, 3=Sex-Designation of Task, 4=Performance Level of Stimulus Person, 5=Grade Level of Subject

*p< 0.05
**p< 0.01
****p< 0.0001

formance of females ($\bar{X}$=142.004) than on the performance of males ($\bar{X}$=124.229). Because of the dichotomous nature of this variable (i.e., ability vs. lack of ability), this indicates that succeeding females ($\bar{X}$=157.983) were seen as having more ability than succeeding males ($\bar{X}$=145.952), while failing females ($\bar{X}$=126.025) were seen as having less ability than failing males ($\bar{X}$=102.867). It should be noted that ability scores for success increased as a function of greater ascription to ability, while ability scores for failure increased as a function of greater ascription to lack of ability.

A significant ($p < 0.01$) main effect of sex of task was also found, indicating a tendency to view performance on the neutral task ($\bar{X}$=149.881) as most influenced by ability, performance on the feminine task ($\bar{X}$=135.938) second-most influenced by ability, and performance on the masculine task ($\bar{X}$=113.531) as least influenced by ability. However, this was qualified by a significant three-way interaction (Sex of Task X Performance Level X Grade Level) discussed below, and when considered in view of all relevant variables, no consistent pattern emerged.

A significant ($p < 0.0001$) main effect of performance level was found. Overall, success ($\bar{X}$=151.788) was much more likely to be attributed to ability than was failure ($\bar{X}$=114.446). However, this effect was qualified by the two significant three-way interactions which also emerged, which are discussed below.

A significant ($p < 0.05$) two-way interaction, Sex of Subject X

Performance Level, also emerged, and is presented in Table 4.

TABLE 4

SEX OF SUBJECT X PERFORMANCE LEVEL OF STIMULUS PERSON INTERACTION--
MEAN NUMBER OF DEGREES OF TOTAL CAUSE ATTRIBUTED TO ABILITY

Sex of Subject	Performance Level of Stimulus Person	
	Success	Failure
Male	136.817	117.700
Female	166.758	111.192

Males and females both felt that ability was a greater component of success than failure overall, although females judged ability to be an even greater aspect of success than did males. However, this interaction was qualified by the Sex of Subject X Performance Level X Grade Level interaction, the results of which follow.

There were two significant three-way interactions: the Sex of Subject X Performance Level X Grade Level interaction ($p < 0.01$), and the Sex of Task X Performance Level X Grade Level interaction ($p < 0.05$). A graphic illustration of the Sex of Subject X Performance Level X Grade Level interaction can be found in Figure 1. Grade school females, high school females, and grade school males reacted in much the same way toward success and failure in another; they viewed ability as a much greater component of another's success than of another's failure. High school males, on the other hand, tended to see ability as playing a greater part in another's failure than

ABILITY ATTRIBUTIONS AS A FUNCTION OF SEX OF SUBJECT, GRADE LEVEL OF SUBJECT, AND PERFORMANCE LEVEL OF STIMULUS PERSON

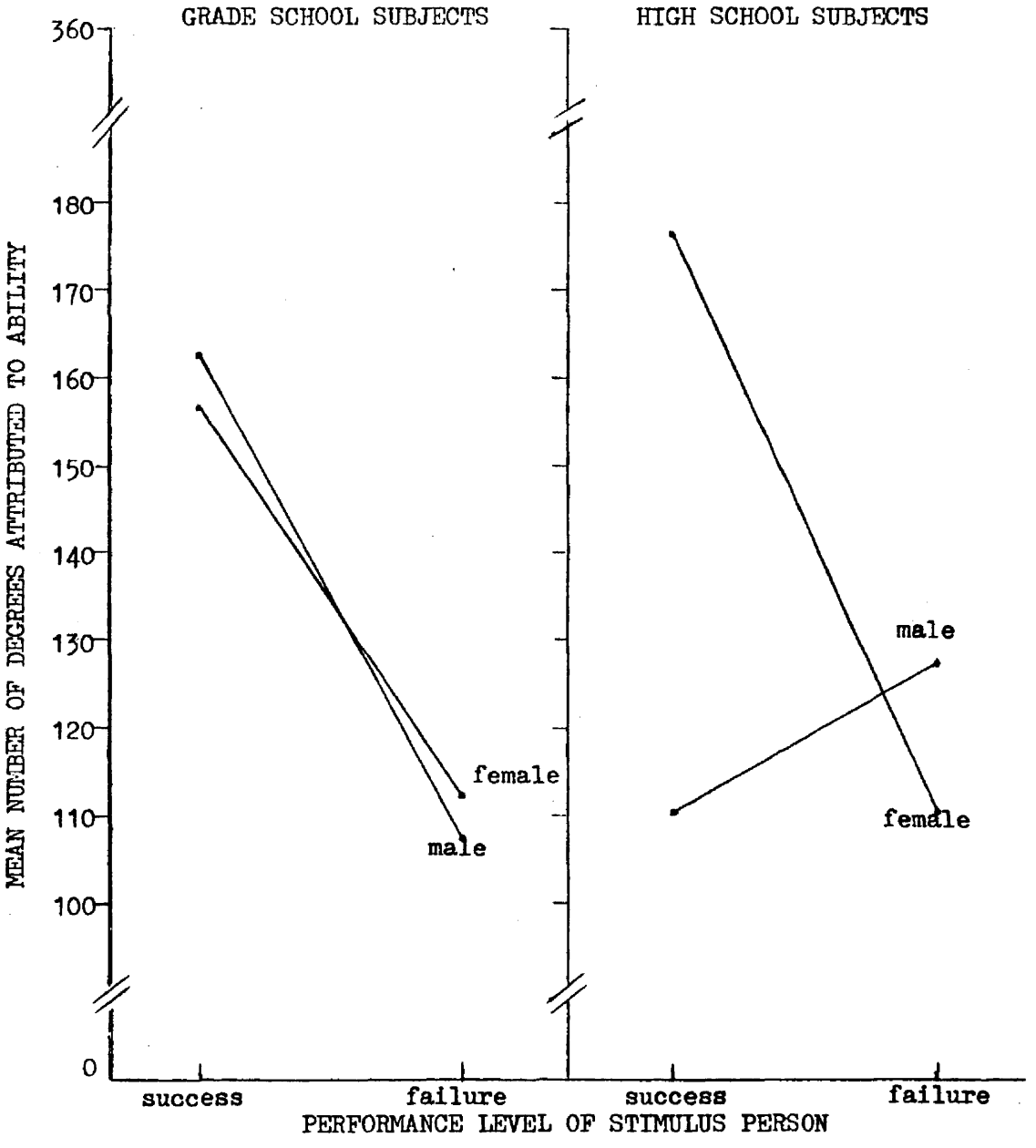

Figure 1.

in their success.

Figure 2 displays the significant Sex of Task X Performance Level X Grade Level interaction. Grade school and high school students both reacted in much the same fashion when using ability attributions for another's performance in a masculine or feminine task: ability was again viewed as a greater component of success than of failure. However, ability attributions differed markedly for the neutral task between the grade school and high school students. Grade school subjects again saw ability as a greater component of success than of failure. High school subjects, when considering the neutral task, saw ability as playing a greater part in failure than in success.

Interpretation of these two seemingly conflictual three-way interactions necessitates studying in particular the high school means for Sex of Subject X Sex of Task X Performance Level. These are presented graphically in Figure 3 for both grade levels. As earlier indicated, high school females, along with all grade school students, saw ability as a greater part of success than of failure, an effect which was maintained at each sex of task level (see Figure 3). High school males, on the other hand, saw ability as a larger component of failure than of success. This effect was observed at each of the sex of task levels (see Figure 3), but only marginally so at the masculine and feminine levels, and dramatically so at the neutral level. To summarize these findings, high school females and all grade school subjects viewed ability as a greater aspect of success than of failure at all (i.e., masculine, feminine,

ABILITY ATTRIBUTIONS AS A FUNCTION OF SEX OF TASK, PERFORMANCE AND GRADE LEVEL OF STIMULUS PERSON

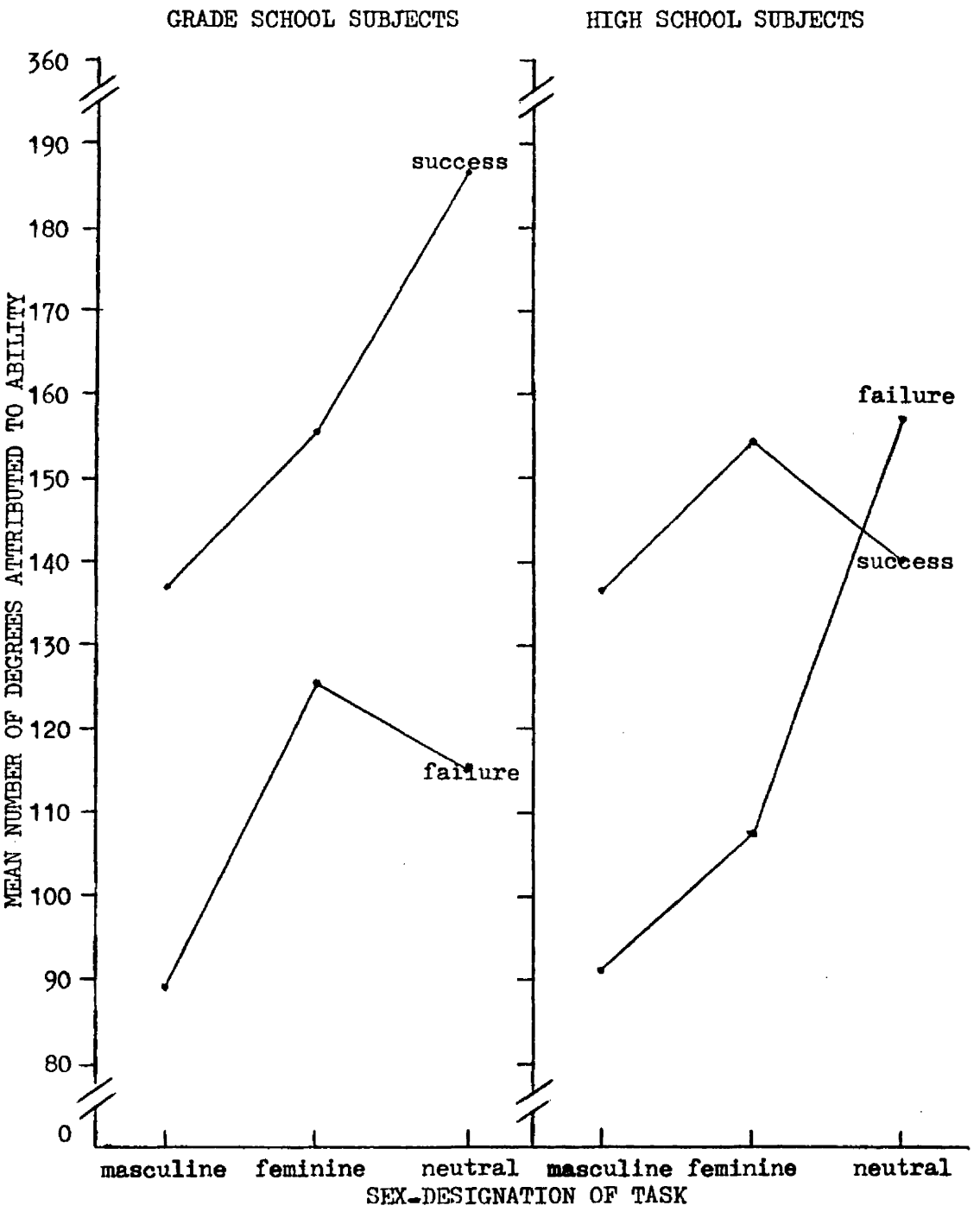

Figure 2.

ABILITY ATTRIBUTIONS AS A FUNCTION OF SEX OF SUBJECT, SEX OF TASK, PERFORMANCE LEVEL OF STIMULUS PERSON, AND GRADE LEVEL OF SUBJECT

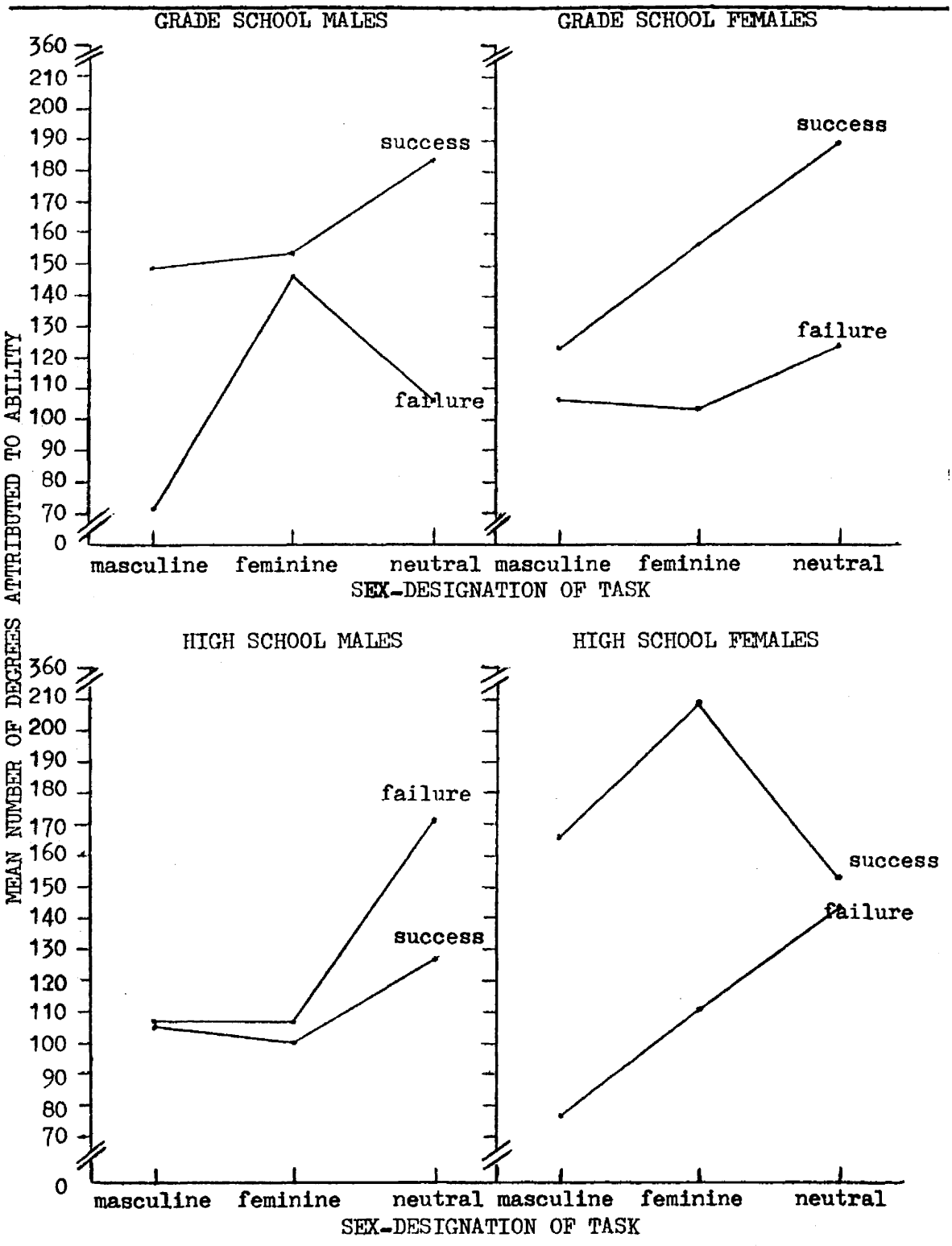

Figure 3.

and neutral) tasks. High school males, conversely, maintained ability to be a greater component of failure than success, an effect only marginally evidenced for masculine and feminine tasks, but clearly apparent at the neutral task level.

Effort

Effort was seen as a significantly ($p < 0.01$) greater aspect of failure ($\bar{X}=159.3$) than of success ($\bar{X}=133.583$). That is, the stimulus persons were more likely to be seen as failing because they didn't try hard, than succeeding because they did. The summary of this analysis is presented in Table 5.

Task Difficulty

The summary of analyses for task difficulty is presented in Table 6. A significant ($p < 0.05$) Sex of Subject X Performance Level of Stimulus Person interaction was found in examining these attributions. This interaction is presented in Table 7. Overall, males saw task difficulty as a greater component of another's success than of another's failure, while females saw task difficulty as a larger aspect of another's failure than of another's success. However, this interaction was subsumed within the confines of a larger significant three-way interaction, which is presented below. Therefore, the results of the Sex of Subject X Performance Level interaction were qualified.

A significant ($p < 0.05$) Sex of Subject X Grade Level of Subject X Performance Level of Stimulus Person interaction was also found. Figure 4 displays this interaction in graphic form. Grade

TABLE 5

SUMMARY TABLE FOR ANALYSIS OF VARIANCE
WITH THE ATTRIBUTION WHEEL CAUSAL SOURCE OF EFFORT
AS THE DEPENDENT MEASURE

SOURCE	DF	SS	MS	F
SUBJ	479	4523124.4		
B1	1	23.5	23.5	0.002
B2	1	19533.[illegible]	19533.[illegible]	2.033
B12	1	1044.3	1044.3	0.109
B3	2	50629.5	25314.8	2.635
B13	2	124.8	62.4	0.006
B4	1	79361.8	79361.8	8.262**
B14	1	4380.0	4380.0	0.456
B5	1	4876.9	4876.9	0.508
B15	1	5122.1	5122.1	0.533
B23	2	9271.3	4635.0	0.483
B123	2	8705.4	4352.7	0.453
B24	1	11710.1	11710.1	1.177
B124	1	24596.3	24596.3	2.561
B25	1	17666.1	17666.1	1.839
B125	1	4380.4	4380.4	0.456
B34	2	4425.6	2212.8	0.230
B134	2	16544.1	8272.1	0.861
B35	2	5071.4	2535.7	0.264
B135	2	40603.1	20301.6	2.113
B45	1	5187.6	5187.6	0.540
B145	1	5174.6	5174.6	0.539
B234	2	43523.1	21761.6	2.266
B1234	2	23111.4	11555.7	1.203
B235	2	4851.6	2425.8	0.253
B1235	2	1056.5	528.3	0.055
B245	1	7300.9	7300.9	0.760
B1245	1	1122.1	1122.1	0.117
B345	2	24321.9	12161.4	1.266
B1345	2	3135.0	1567.5	0.163
B2345	2	32621.1	16310.6	1.698
B12345	2	14736.9	7168.4	0.746
ERR12345	472	4140714.4	9605.9	

Source: 1=Sex of Subject, 2=Sex of Stimulus Person, 3=Sex-Designation of Task, 4=Performance Level of Stimulus Person, 5=Grade Level of Subject

**p < 0.01

TABLE 6

SUMMARY TABLE FOR ANALYSIS OF VARIANCE
WITH THE ATTRIBUTION WHEEL CAUSAL SOURCE OF TASK DIFFICULTY
AS THE DEPENDENT MEASURE

SOURCE	DF	SS	MS	F
S(BJ	479	2135160.9		
B1	1	78.4	78.4	0.018
B2	1	2403.1	2403.1	0.538
B12	1	9.1	9.1	0.002
B3	2	12978.1	6489.4	1.452
B13	2	1491.3	745.2	0.167
B4	1	91.7	91.7	0.018
B14	1	231882.7	231882.7	6.306*
B5	1	0.9	0.9	0.000
B15	1	10868.0	10868.0	2.432
B23	2	12722.9	6361.4	1.423
B123	2	995.1	497.5	0.111
B24	1	5599.4	5599.4	1.275
B124	1	1197.0	1197.0	0.268
B25	1	4864.1	4864.1	1.088
B125	1	1165.6	1165.6	0.261
B34	2	26326.2	13163.0	2.945
B134	2	1282.2	641.1	0.143
B35	2	8810.3	4405.2	0.986
B135	2	1244.0	622.0	0.139
B45	1	6.5	6.5	0.001
B145	1	29767.5	29767.5	6.661*
B234	2	17479.5	8739.7	1.956
B1234	2	1903.2	951.6	0.213
B235	2	8343.6	4171.8	0.934
B1235	2	2196.2	1098.1	0.246
B245	1	5936.1	5936.1	1.328
B1245	1	213.3	213.3	0.048
B345	2	5713.9	2856.9	0.639
B1345	2	3889.5	1944.8	0.435
B2345	2	6214.1	7102.0	0.694
B12345	2	3252.3	1626.2	0.364
S(B12345	472	1970555.7	4468.9	

Source: 1=Sex of Subject, 2=Sex of Stimulus Person, 3=Sex-Designation of Task, 4=Performance Level of Stimulus Person, 5=Grade Level of Subject

*p < 0.05

TABLE 7

SEX OF SUBJECT X PERFORMANCE LEVEL OF STIMULUS PERSON INTERACTION--
MEAN NUMBER OF DEGREES OF TOTAL CAUSE ATTRIBUTED TO TASK DIFFICULTY

Sex of Subject	Performance Level of Stimulus Person	
	Success	Failure
Male	63.425	48.925
Female	47.292	63.442

TASK DIFFICULTY ATTRIBUTIONS AS A FUNCTION OF SEX OF SUBJECT, GRADE LEVEL OF SUBJECT, AND PERFORMANCE LEVEL OF STIMULUS PERSON

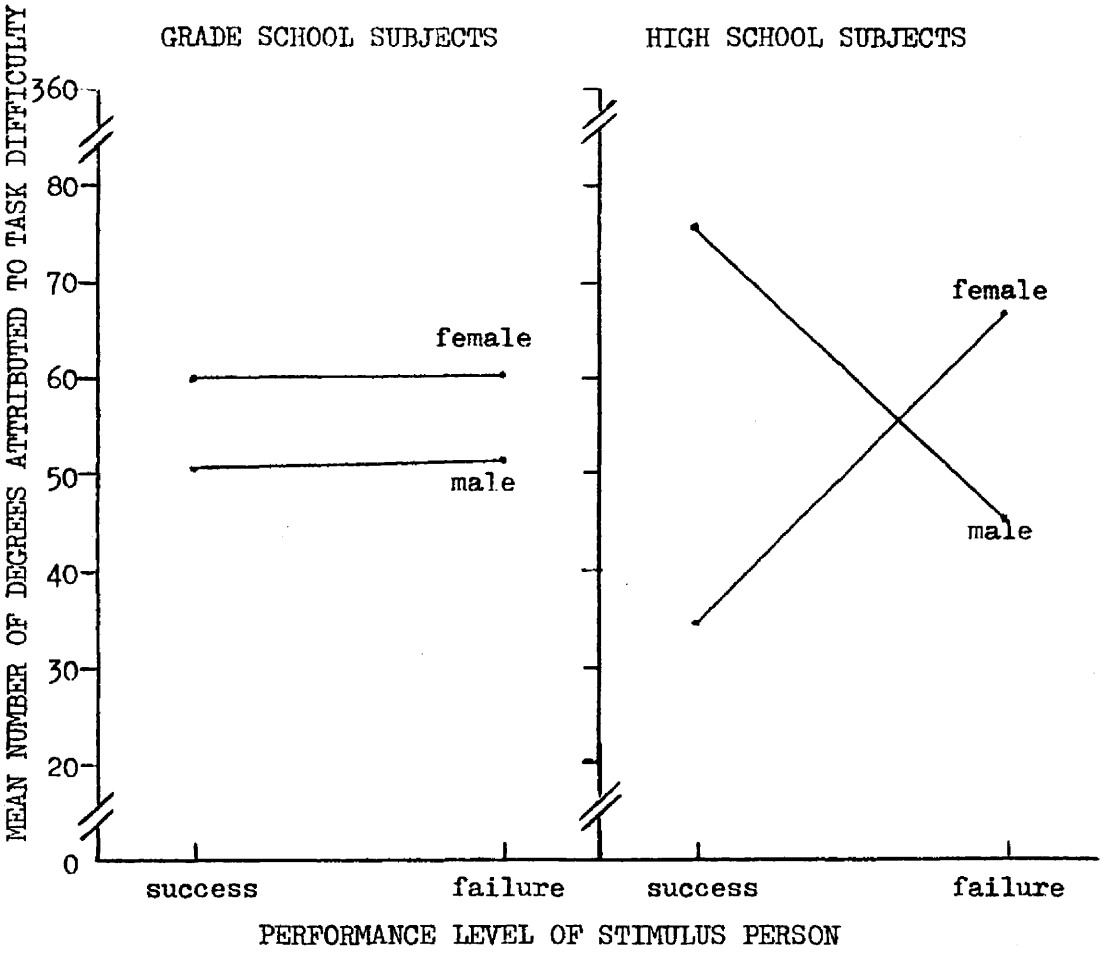

Figure 4.

school students did not clearly differentially use difficulty attributions based on performance level, although females were somewhat more likely to make use of such attributions. At the high school level, males used task difficulty to account for success more than for failure, while high school females used difficulty to account for failure more than for success.

Luck

Table 8 displays the results of the analysis of variance for attributions made to luck. A significant main effect of sex of subject was found. Males ($\bar{X}$=31.417) saw luck as a significantly ($p < 0.01$) more important part of another's performance than did females ($\bar{X}$=18.946).

A significant ($p < 0.05$) main effect of performance level was also found. Overall, luck was seen as a larger component of failure ($\bar{X}$=29.904) than of success ($\bar{X}$=20.458). However, this effect was qualified by the significant four-way interaction presented below.

A significant ($p < 0.05$) Sex of Stimulus Person X Sex of Task X Performance Level of Stimulus Person X Grade Level of Subject interaction emerged. This interaction is presented graphically in Figure 5.

As predicted, on a masculine task grade school Ss saw luck as more involved in the success of girls than of boys, and more involved in the failure of boys than of girls. Also in line with predictions, on a feminine task grade school girls were seen as somewhat

TABLE 8

SUMMARY TABLE FOR ANALYSIS OF VARIANCE
WITH THE ATTRIBUTION WHEEL CAUSAL SOURCE OF LUCK
AS THE DEPENDENT MEASURE

SOURCE	DF	SS	MS	F
SUB	479	1192437.2		
B 1	1	18662.6	18662.6	7.500 **
B 2	1	762.6	762.6	0.306
B 12	1	42.9	42.6	0.017
B 3	2	198.6	99.3	0.039
B 13	2	6998.1	7499.0	1.406
B 4	1	10706.9	10706.9	4.303 *
B 14	1	146.7	146.3	0.059
B 5	1	1.7	1.3	0.001
B 15	1	0.0	0.0	0.000
B 23	2	6768.7	3384.3	1.360
B 123	2	11436.2	5718.1	2.298
B 24	1	30.5	30.5	0.012
B 124	1	960.5	960.5	0.386
B 25	1	1283.8	1283.8	0.516
B 125	1	379.3	379.9	0.153
B 34	2	1252.1	626.0	0.252
B 134	2	472.8	236.4	0.095
B 35	2	3872.8	1936.9	0.778
B 135	2	398.3	199.2	0.080
B 45	1	5043.2	5043.2	2.789
B 145	1	949.2	949.2	0.381
B 234	2	1022.4	511.7	0.206
B 1234	2	452.1	226.0	0.091
B 235	2	3303.2	1651.6	0.664
B 1235	2	1350.4	675.2	0.271
B 245	1	0.1	0.1	0.000
B 1245	1	1257.8	1257.8	0.505
B 345	2	29.4	14.7	0.006
B 1345	2	4280.9	2140.4	0.860
B 2345	2	19107.4	9553.7	3.840 *
B 12345	2	5655.5	2827.7	1.136
E B12345	472	1174957.6	2488.2	

Source: 1=Sex of Subject, 2=Sex of Stimulus Person, 3=Sex-Designation of Task, 4=Performance Level of Stimulus Person, 5=Grade Level of Subject

*p < 0.05
**p < 0.01

LUCK ATTRIBUTIONS AS A FUNCTION OF SEX OF STIMULUS PERSON, SEX OF TASK, PERFORMANCE LEVEL OF STIMULUS PERSON, AND GRADE LEVEL OF SUBJECT

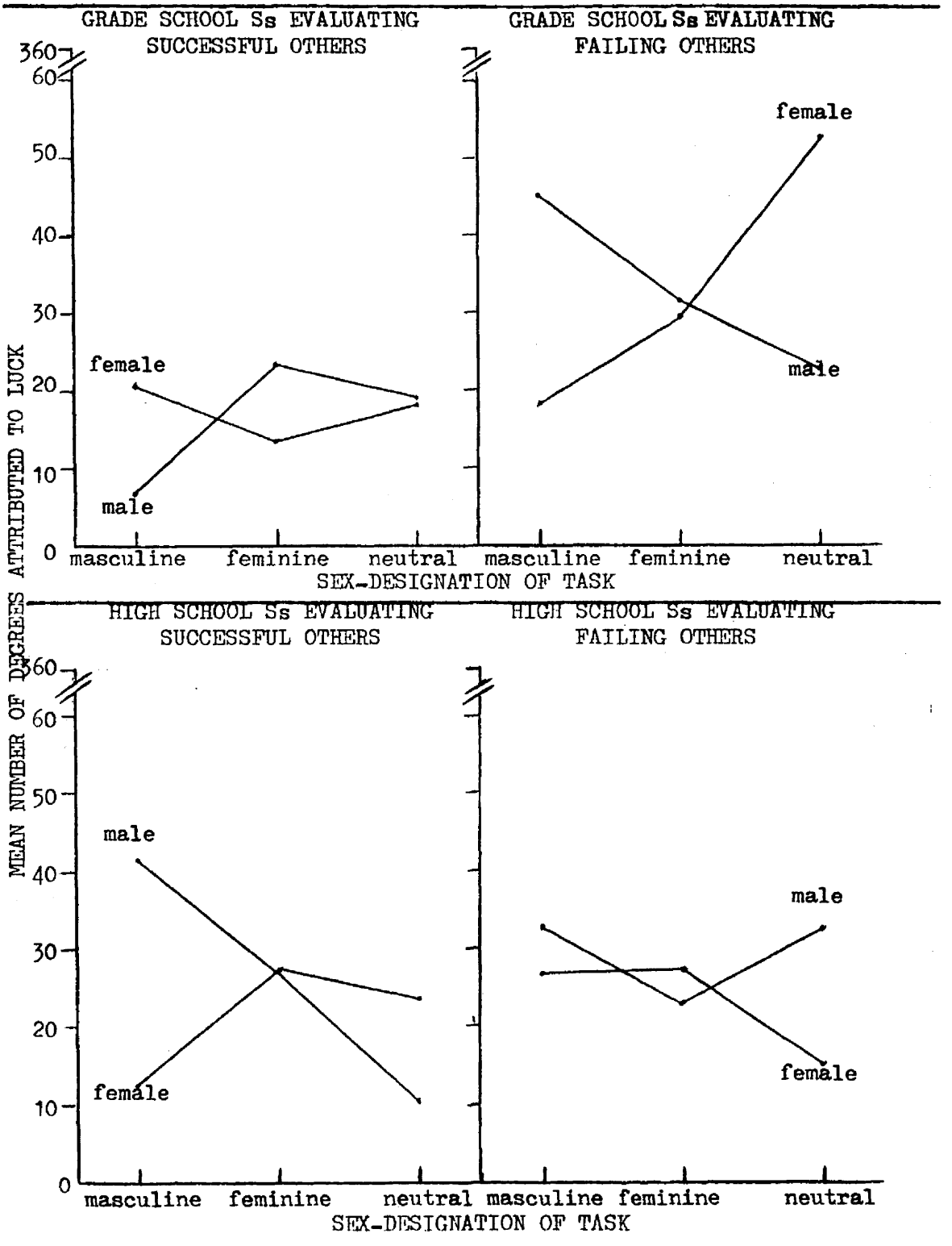

Figure 5.

less likely to succeed because of luck than of boys. However, luck attributions were not differentially used for failure. On the neutral task, grade school students did not differentially ascribe luck to successful male and female performance, but saw luck as a greater component of a girl's failure than of a boy's failure, an unanticipated finding.

Contrary to prediction, high school subjects saw a male's success on a masculine task as more influenced by luck than the success of a female. Luck attributions for failure were not clearly differentially used. High school males and females did not differ markedly in their use of luck attributions for performance on a feminine task, although the marginal differences were in line with predictions. Also contrary to expectations, on the neutral task girls were seen as somewhat more likely to succeed because of luck than boys were, while boys were seen as more likely than girls to fail because of luck. It had been hypothesized that attribution ascription would not vary by sex of stimulus person on the neutral task, as neither success nor failure would be any more confirming for either sex.

Expressed Surprise Over the Observed Performance of the Stimulus Person

The Ss' reaction of degree of surprise in the observed performance of the stimulus person was measured by a rating scale ranging from zero to ten as a function of Ss' increasing surprise in the observed performance. A significant ($p < 0.001$) main effect of grade level of subject was observed (Table 7). Grade school students ($\bar{X}=4.429$) found whatever performance they observed to be more surprising than did the high school students ($\bar{X}=3.429$). A second

TABLE 9

SUMMARY TABLE FOR ANALYSIS OF VARIANCE
WITH THE RATING SCALE FACTOR OF SURPRISE
AS THE DEPENDENT MEASURE

SOURCE	DF	SS	MS	F
SUBJ	479	4386.2		
1	1	1.5	1.5	0.171
2	1	3.2	3.2	0.358
12	1	2.6	2.6	0.288
3	2	3.7	1.7	0.187
13	2	41.9	21.9	2.365
4	1	115.1	115.1	12.999 ***
14	1	35.9	35.9	4.037 *
5	1	105.5	105.5	11.908 ***
15	1	1.3	1.3	0.147
23	2	10.7	5.3	0.602
123	2	5.8	2.9	0.326
24	1	5.6	5.6	0.668
124	1	3.9	3.9	0.435
25	1	9.4	9.4	1.056
125	1	1.3	1.3	0.147
34	2	11.9	5.9	0.664
134	2	6.5	3.3	0.367
35	2	12.9	6.5	0.729
135	2	0.7	0.4	0.041
45	1	15.1	15.1	1.699
145	1	4.2	4.2	0.476
234	2	18.0	9.0	1.019
1234	2	21.3	10.4	1.173
235	2	22.8	11.4	1.287
1235	2	2.6	1.3	0.144
245	1	11.1	11.1	1.253
1245	1	3.9	3.9	0.435
345	2	37.7	18.8	2.127
1345	2	11.9	5.9	0.670
2345	2	4.8	2.4	0.268
12345	2	33.8	16.9	1.908
Residual	472	3826.3	8.9	

Source: 1=Sex of Subject, 2=Sex of Stimulus Person, 3=Sex-Designation of Task, 4=Performance Level of Stimulus Person, 5=Grade Level of Subject

*$p < 0.05$
***$p < 0.001$

significant ($p < 0.001$) main effect of performance level was also revealed. Overall, failure ($\bar{X}=4.450$) was found more surprising than success ($\bar{X}=3.371$). Finally, a significant ($p < 0.05$) Sex of Subject X Performance Level of Stimulus Person interaction was found, which is represented graphically in Figure 6.

Failure was found to be always more surprising than success. However, males were comparatively more surprised than females about success, and less surprised than females about failure.

The failure to find a significant Sex of Stimulus Person X Performance Level interaction indicates that subjects were neither more surprised over extraordinary female success than over extraordinary male success, nor more surprised over extraordinary male failure than over extraordinary female failure.

RATED SURPRISE ABOUT PERFORMANCE OF STIMULUS PERSON
AS A FUNCTION OF SEX OF SUBJECT
AND PERFORMANCE LEVEL OF STIMULUS PERSON

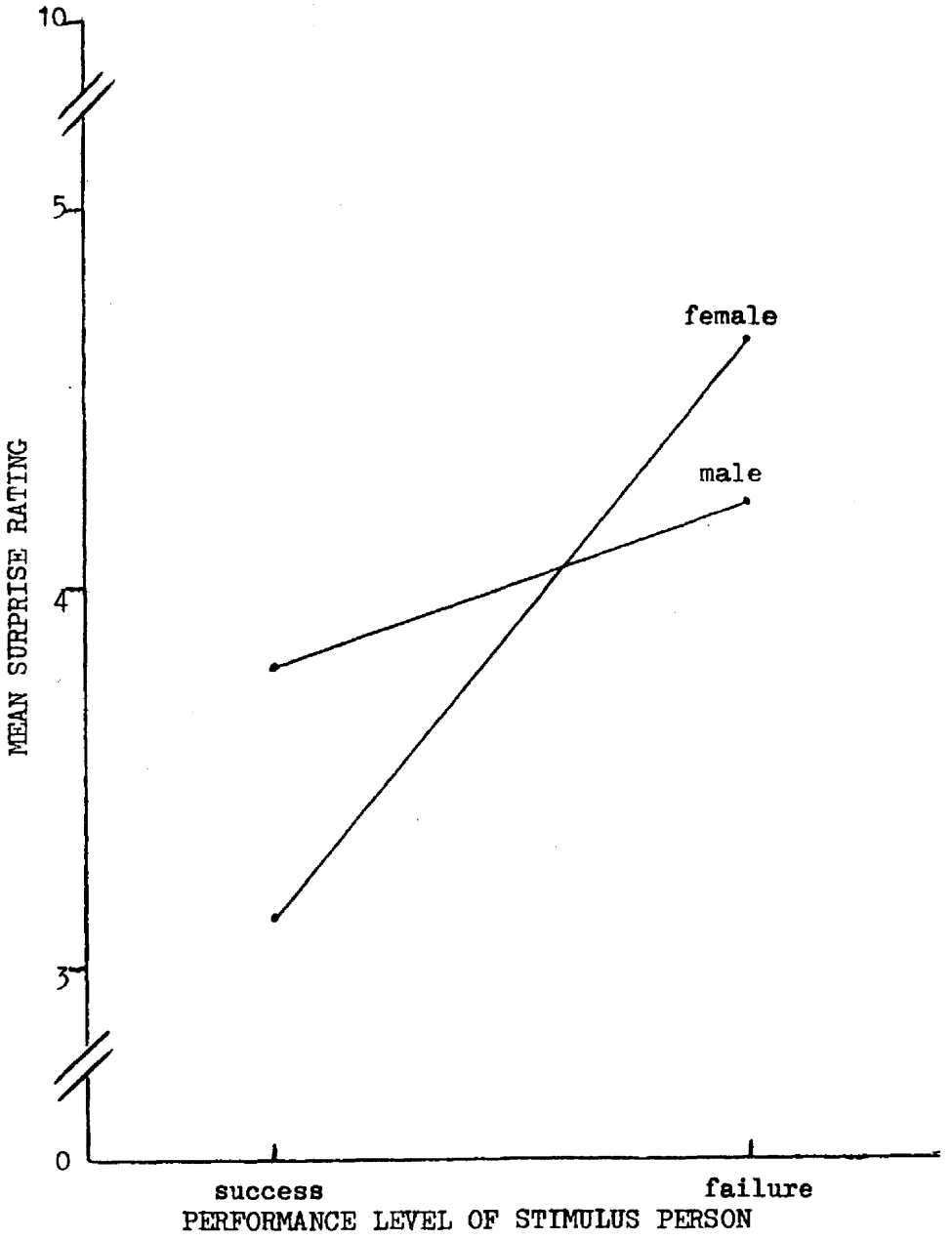

Figure 6.

CHAPTER IV

DISCUSSION

The process of causal attribution has received a great deal of recent research attention. However, the primary thrust of such investigations has been upon understanding this process in adults, among whom the phenemenon has been studied from the perspective of both the subject-as-actor and the subject-as-observer. To date, those investigations focusing upon the child-as-subject (Dweck, 1975; Dweck & Bush, 1976; Dweck & Reppucci, 1973; Nicholls, 1975) have done so by gathering the subject's attributions concerning his own performance. Investigations concerned with the child's causal explanations of another child's performance are virtually non-existent. Finally, previous studies of causal judgments after success and failure do not all make the distinction between internal-external and stable-unstable causes; therefore not all employ the four causal dimensions of ability, effort, task difficulty and luck. These features of previous research make comparisons of results across studies difficult. This is particularly evident in comparing past studies with the present, which employed child observer-subjects who evaluated success or failure to the four causal dimensions noted earlier. This investigation also considered the impact of prior expectancies upon the specific causal attributions offered, when these prior expectancies were based upon differential beliefs regarding anticipated male and anticipated female performance.

Results revealed that several of the attributional dimensions, as determined by attribution wheel data, varied significantly as a function of experimental manipulations. The significant variations will be discussed below, and their theoretical implications will be given consideration. In addition, further research implications will be explored.

Hypotheses

The major intent of this study was to examine the causal attributions made by children and adolescents following an expected or unexpected performance by another child on a school-related task. This study was a conceptual replication and extension of Deaux and Emswiller's (1974) investigation. In both studies attributions based upon performance in masculine and feminine (i.e., sex-linked) tasks were considered. However, the present investigation also included: a neutral task for comparative purposes; failing as well as succeeding stimulus persons; and attributions to the four causal categories of ability, effort, task difficulty and luck (as opposed to the ability-luck dichotomy in the Deaux and Emswiller investigation.) Finally, the present study was concerned with a sub-college population, whereas the Deaux and Emswiller (1974) study was concerned with college-age adults.

It was hypothesized in this study that generally accepted expectations about male and female performance would affect causal ascription, such that confirmed expectancies would result in different attributions than would disconfirmed expectancies. It was anti-

cipated that either the variable-stable or internal-external attributional model would account for such attributions. As neither model has produced conclusive results, only the following specific predictions were made:

1. Confirmed expectancies should more often result in attributions to ability (internal and stable) than disconfirmed expectancies.
   a) A boy's superior performance at a masculine task should more often be attributed to ability than a girl's superior performance at a masculine task.
   b) A girl's superior performance at a feminine task should more often be attributed to ability than a boy's superior performance at a feminine task.
   c) A boy's inferior performance at a feminine task should more often be attributed to ability than a girl's inferior performance at a feminine task.
   d) A girl's inferior performance at a masculine task should more often be attributed to ability than a boy's inferior performance at a masculine task.
2. Disconfirmed expectancies should result in a greater proportion of attributions to luck (external and unstable) than confirmed expectancies.
   a) A boy's inferior performance at a masculine task should more often be attributed to luck than a girl's inferior performance at a masculine task.
   b) A girl's inferior performance at a feminine task

should more often be attributed to luck than a boy's inferior performance at a feminine task.

c) A boy's superior performance at a feminine task should more often be attributed to luck than a girl's superior performance at a feminine task.

d) A girl's superior performance at a masculine task should more often be attributed to luck than a boy's superior performance at a masculine task.

3. Lack of expectancies should result in no differential use of attributions toward male and female stimulus persons.

a) A boy's superior performance at a neutral task should be attributed to the same sources as a girl's superior performance at a neutral task as neither confirmed nor disconfirmed expectancies are involved.

b) A boy's inferior performance at a neutral task should be attributed to the same sources as a girl's inferior performance at a neutral task as neither confirmed nor disconfirmed expectancies are involved.

Hypothesis 1 was not supported in this study. In terms of ability attributions based upon the sex of the stimulus person, what in fact occurred was that: 1) Successful girls were seen as more able than successful boys and, 2) Failing girls were seen as less able than failing boys. A succeeding girl was seen as "smarter," a failing girl as "dumber." This effect was observed regardless of the sex-designation of the task. A girl's performance was seen as more influenced by her actual ability than was the performance

of a boy. Prior performance expectancies based on common beliefs about the performance of boys and girls did not alter the pattern of ability attributions toward specific boys and girls in the manner anticipated.

It may have been that prior expectancies even more powerful than the sex-designation of the task operated to produce the observed effects. Children may simply be trained under the prevailing educational system to expect a girl's ability to have a greater influence upon her performance in any aspect of the school environment.

In considering previous research, Dweck and Bush (1976) conclude that when failure feedback is being perceived as contingent upon the intellectual quality of her work, a girl will consider this a valid assessment, therefore often attributing the failure to lack of ability. Boys, in the same circumstances, have available the explanation of lack of motivation. Briefly, the reasoning going into these predictions involves: teachers' more indiscriminant feedback to boys encompassing a variety of nonintellectual behaviors, thereby causing this feedback to often fail to convey information about the academic quality of their work; the teacher's greater liklihood to attribute a boy's failure to lack of motivation; the more cooperative, task-oriented behavior exhibited by girls, and their greater conscientiousness in their academic work. Dweck and Bush (1976) argue that given these factors, boys can more easily attribute their failures to lack of motivation. Girls, more "adult-oriented" than boys and with a more favorable history of teacher-child interactions, accept the feedback as an accurate assessment of their

abilities, thereby attributing failure more often to lack of ability. It would seem, accordingly, that the acceptance in a girl of her teacher's evaluations would imply that she take the good along with the bad; that is, accept positive feedback as reflecting her true superior abilities and negative feedback as reflecting her true inferior abilities. Given that all children are able to observe such teacher-child interactions, these may serve to foster general stereotypes in the children. School-age children may therefore through these means accept the notion that a girl's performance is more influenced by her abilities, as was indicated in this investigation. Given the above analysis it would also seem that a boy's performance, particularly his failure, would be viewed as more influenced by the effort he expended. Although this was not observed as a statistically significant outcome in this study, the pattern of results is clearly in line with this speculation. Successful males ($\overline{X}$=135.108) were seen as nonsignificantly trying harder than successful females ($\overline{X}$=132.058), while failing males ($\overline{X}$=170.533) were nonsignificantly seen as trying less than unsuccessful females ($\overline{X}$=148.067). It should be noted that for the success conditions, scores increased as a function of increasing ascription to effort, while for the failure condition scores increased as a function of greater ascription to lack of effort.

The preceding is one possible way to view both the differential treatment of boys and girls by peers with regard to the attribute of ability, and the nonsignificant, though consistently different treatment of the sexes with regard to the attribute of effort.

Girls may in fact, for example, be expected to do worse on a masculine task and better on a feminine, and these expectancies might well guide a child's general predictions. In general, then, girls may be seen as more able in feminine areas and less so in masculine. But when a child observes any particular girl perform and sees that she does not behave in a manner consonant with his performance expectancies, he may view her as simply exhibiting a unique ability pattern. For a girl, observed performance seems to be viewed as a relatively accurate index of true ability.

Hypothesis 2, involving luck attributions, received partial confirmation, but only for grade school subjects. Considering these grade school subjects, as predicted, luck was seen as more involved in the success of girls than of boys on a masculine task, and more involved in the failure of boys than of girls on this task. Also in line with predictions, girls were seen as somewhat less likely to succeed because of luck than boys were on a feminine task. Luck attributions were not differentially offered for failure on the feminine task. Thus, three of the four predicted relationships were found, which were within the confines of a significant ($p < 0.05$) four-way interaction (Sex of Stimulus Person X Sex of Task X Performance Level X Grade Level). Therefore, in this study the predictions based upon luck attributions were largely supported for grade school subjects. As opposed to the causal explanations of ability and effort, there may be no compelling reasons for school-age subjects to believe luck to influence one sex more than the other overall. Because of the random and uncontrollable nature

of luck, there is little logical basis for seeing it as singling out one sex more than the other. This may have given subjects the freedom to ascribe luck differentially on the bases of confirmed or disconfirmed outcomes.

These same effects were not observed in the high school sample. In fact, in a manner opposite to what had been predicted, high school subjects saw a male's success on a masculine task as more influenced by luck than the success of a female. No pattern was observed for failure on a masculine task. The small attributional differences on the feminine task were in line with predictions. Nonetheless, high school Ss clearly differentially used luck attributions only for stimulus others who succeeded on the masculine task, and then by attributing more of a male's success to luck.

This unanticipated finding is worthy of consideration. High school students responded to male success on a masculine task in a manner opposite to what had been anticipated, and in a manner contrary to the responses of grade school subjects.

One way to view these data is from the observer's orientation toward the actor. Feather and Simon (1971a) have suggested that if the observer assumes a competitive orientation toward the actor, one should expect external attributions for success and internal attributions for failure. However, when the orientation is one of cooperation, one would expect the observer to give internal reasons for success and external reasons for failure. It may have been that the salient cues for subjects to take a competitive stance were the masculinity of the task coupled with a succeeding male

performer. This may have come about, in part, due to the more competitive high school atmosphere, and the greater liklihood of male cues being viewed as competitive.

This derogatory bias may represent a developmental trend occurring between the upper grade school and high school levels. Such a speculation must be tempered in accordance with the cross-sectional as opposed to longitudinal nature of this study. On the other hand, this effect could be task-specific in that the masculine task that surfaced at the grade school level was gym, while the masculine task that surfaced at the high school level was science. It is therefore conceivable that the different effects on the masculine tasks observed at the two grade levels were due to different responses to different tasks. Future investigations directed toward further comparisons of the two grade levels on other sex-designated tasks would help clarify this issue.

The third hypothesis predicting no differential attributional use toward male and female stimulus persons in neutral tasks was not confirmed. Such differences were observed in judgments made along the causal dimension of luck. Specifically, grade school students saw bad luck as a greater component of a girl's failure on a neutral task than of a boy's. High school students saw girls as somewhat more likely to succeed because of good luck than were boys, while boys were seen as more likely than girls to fail because of bad luck. Therefore, even when subjects expected males and females to perform the same, they gave different causal explanations for the observed performance. When expectancies are not available to

guide attributions, perhaps certain general beliefs about the sexes take over. For grade school students these took the form of essentially providing an excuse for the failure of girls by blaming their failure on bad luck. High school students, on the other hand, were much harsher toward girls and more lenient toward boys. A girl's success was more often credited to good luck, while a boy's failure was more often blamed on bad luck.

Differential Evaluations Based on Sex of Subject -- Considerations and Implications

Deaux and Emswiller (1974) found that successful performance by a male on a masculine task was more often attributed to skill, whereas equivalent performance by a female was seen as more influenced by luck. Contrary to prediction, the reverse did not hold for performance on a feminine task. As certain distinct differences exist between the present investigation and that of Deaux and Emswiller(1974), direct comparisons are difficult. Specifically, this investigation was conducted with younger Ss; considered both success and failure; and included, in addition to ability and luck attributional categories, those of effort and task difficulty. With these differences in mind, certain comparisons will be made. Most important, in direct contradiction to the finding of Deaux and Emswiller (1974), performance by a female was always more often attributed to skill -- regardless of the sex-designation of the task involved or the performance level of the actor. This appears to reflect a tendency among school-age subjects to view a girl's observed performance as a more direct index of her actual ability. The sex-designation of the task was

not a cogent cue to subjects in evaluating a specific peer along the dimension of ability. When given information suggesting that a specific girl had performed in a manner unlike that expected of most girls, subjects seemed to prefer to view the girl as simply a more (or less) talented deviate. Perhaps the sex-of-task cue would have had some impact upon ability attributions had subjects been confronted with explaining the performance of a great number of out-of-role females. Simply on a normative basis, it might have been more difficult to view them all as peculiarly talented (or non-talented).

In this investigation the sex-of-task cue did appear to appect subjects' ascriptions of luck to males and females. Grade school subjects saw a girl's superior performance on a masculine task as more influenced by luck than equivalent male performance. Deaux and Emswiller (1974) reported this finding with their college sample. Contrary to the Deaux and Emswiller (1974) findings but in line with prediction, in this investigation grade school boys were seen as more likely than girls to succeed because of luck on a feminine task. However, these same effects were not observed with high school students. In most marked contrast to Deaux and Emswiller's (1974) findings and the predictions of this investigation, high school subjects saw a male's success on a masculine task as more influenced by luck than the success of a female.

It was earlier suggested that certain features of the school environment may operate to encourage ability attributions for a female's performance regardless of prior expectancies, features which do not affect attributions along the dimension of luck.

In the Deaux and Emswiller (1974) study, high ability was consistently more often attributed to successful males. As a failure condition was not included in that investigation it is not known how that population would have judged the influence of ability upon failing males and females. In this study, while succeeding females were credited with more ability than succeeding males, failing females were credited with less ability than failing males. Only further research will be able to determine more clearly what effect ability is seen as having upon older individuals of both sexes. The results of one investigation (Feather & Simon, 1975) using high school girls generally older than the subjects in the present study found males to be credited with more ability for success and females to be credited with less ability for failure. However, these girls were not evaluating their peers, nor were they evaluating in areas with which they had considerable personal familarity as they were in the present investigation. Thus, the beliefs about a female's ability are unclear. It is nonetheless a possibility that beliefs regarding the abilities of males and females undergo a marked change some time during the high school years. This is at least tentatively suggested by the tendency of subjects in this investigation to credit succeeding females with more ability than succeeding males, while Feather and Simon (1975) found older high school girls to credit succeeding males more than females with ability. Subjects in both studies agreed that failing females had less ability than failing males. Such a change as postulated would help explain the marked academic success of girls in early years, followed by a steady decline beginning

in the high school years. This effect would be made particularly effective when coupled with the change in use of luck attributions between grade school and high school for non-sex-linked tasks (as the majority of academic tasks may well be, as the pilot work of this investigation suggests.) At the grade school level, bad luck was used to explain a girl's poor performance more than a boy's in a non-sex-linked task. Previous research has indicated that individuals who attribute failure to variable factors, such as effort or luck (Weiner, 1972,1974) tend to show improvements in performance. Uniform beliefs by significant others in the performance situation might have a similar impact, particularly in both establishing and maintaining these belief patterns in students. Thus, when a grade school girl fails, at least in a non-sex-linked area, her academic environment has provided her with a way to excuse this performance and still attempt improvement. High school students, on the other hand, allow males more than females to excuse poor performance (in a non-sex-linked task) on the basis of luck, perhaps now giving <u>them</u> a greater reason to persist (i.e., bad luck will change.) Girls, however, seen as both more limited by their abilities and now less influenced by luck (in non-sex-linked tasks), may begin to be subtly encouraged to stop trying to overcome their failures. If, then, there is a shift toward crediting successful boys with more ability than successful girls, pressure may also be exerted on the highly successful girl (from within and without) to "quit while she's still ahead." Such processes are clearly speculative, particularly as they are based on the findings of studies with both different subject populations and different

experimental manipulations. However, such speculations do raise a number of questions to which future research may well profitably be directed, such as:

1) What do subjects believe to be the relative influence of ability for males and females in various performance situations (including high and low achievement)?
2) What is the effect of age upon ability ascriptions to and by members of each sex?
3) What is the effect of stereotypic performance expectancies held by peer group members upon the performance of an individual student?

A number of investigators (i.e., Nisbett & Schachter, 1966; Ross, Rodin, & Zimbardo, 1969; Valins & Nisbett, 1971) have discussed the possibility of "attribution therapy," where new attributions are taught for certain symptoms in order to lead to the lessening of the undesirable side-effects of such symptoms. Considering the decline in academic achievement of older girls and young women, one wonders how effective such a procedure would prove, when the debilitating attributions may well be held not only by the individual, but by the members of her social and academic environment as well.

Other Findings

The two methods of measuring subject attributions, the attribution wheels and the attribution rating scales, did not produce comparable results. As the rating scales were included simply for exploratory purposes and the order of presentation between the two

methods was not counterbalanced, it is not possible to determine the causes of non-comparability of methods. The consistent presentation of the rating scales second may have influenced results. It may also be that there are different eliciting qualities of the two types of instruments. As both types of instruments have been individually used in previous studies, a controlled investigation aimed at determining whether or not the methods provide the same information would be in order.

The possibility was suggested that extraordinary success, as opposed to typical performance, may be viewed as a masculine characteristic. This was not found to be the case in this study, as extraordinary male success was rated as no less surprising than female success, and marked male failure was seen as no more surprising than comparable failure by a female. Grade school students, perhaps as a function of less exposure to the school system than high school students, found whatever performance they observed as more surprising. All subjects also found failure more surprising than success, suggesting that success is more expected. Females appeared to hold higher expectancies of success for peers, being more surprised than males about failure, and less surprised about success.

McArthur (1976) found that females tended to make more causal ascriptions to luck than did males in the evaluation of others, poisiting a generalized tendency for females to make such ascriptions. The present investigation suggests re-evaluation of this hypothesis. It appears that under certain circumstances, males may find a situation as more chance-determined. The school may be such a situation, as results from this study indicated that males saw luck as a greater aspect of another's performance than did females. This finding may be a re-

flection of boy's attitudes toward school and experiences in the school situation. Perhaps by being more subject to feedback which is not contingent upon their intellectual endeavors, they have developed an impression of school as being a more chance-determined environment than have girls.

Subjects were more likely to blame inferior performance on a student's failure to try hard than credit superior performance to a student's efforts. In order not to fail, subjects seem to agree that one needs to expend a certain (unspecified) amount of effort. But to do markedly well, subjects favor other factors. For grade school subjects and high school females, ability was seen as a more important determinant of success than of failure. However, high school males tended to see ability as a greater component of failure than success. For the majority of Ss, lack of effort was seen as helping to account for failure more than effort was for success, and ability was seen as more important to success than lack of ability was to failure. It may be that high school males were more likely to adopt a competitive stance (Feather & Simon, 1971a) when considering the ability of a peer, while other subjects tended to adopt a cooperative position. That is, a competitive position would involve blaming failure on lack of ability, while a cooperative position would involve crediting ability for success. High school males appeared to be adopting a competitive stance as well when evaluating another along the dimension of task difficulty. Again removing credit from the actor, they credited task ease for success more often than they credited task difficulty for failure. High school girls, on the other hand, were as cooperative as boys were com-

petitive, more often blaming failure on task difficulty. Feather and Simon (1975), using only female Ss, found high school girls to adopt this same cooperative position with regard to task difficulty; i.e., using task difficulty attributions for failure more than task ease for success. It has been suggested that adolescents are particularly concerned with emitting sex-typed behavior. Stein (1971) found adolescents more likely than older children to adopt behavior viewed as sex-appropriate. It has further been indicated (i.e., Spence, Helmreich & Stapp, 1975) that cooperation is considered a feminine characteristic, and competition a masculine one. High school males may thus be more likely to behave in a competitive manner when evaluating a peer, in comparison to younger males and particularly female peers, while high school females might be more likely than younger girls and particularly male peers to behave cooperatively in such evaluations. This adoption of a competitive stance by the older boys in particular might further help explain the academic edge taken by males around this age. Males may be either more willing to compete academically with classmates, or by giving less-valued causes to the performance of classmates, view them as potentially weaker academic threats.

The only statistically significant Sex of Stimulus Person effects were observed on the attributes of ability (internal, stable) and luck (external, unstable). As these are the areas of predicted overlap between the two attributional models considered in this investigation (i.e., the variable-stable vs. internal-external), neither model was more confirmed than the other by the findings.

CHAPTER V

SUMMARY

A number of investigators have found a tendency toward differential evaluation of male and female performance (i.e., Bem & Bem; Goldberg, 1968; Rosen & Jerdee, 1973; Shaw, 1972). Male and female performance has therefore been characterized as involving confirmed or disconfirmed expectancies (Feldman-Summers & Kiesler, 1974). This study was designed to assess the effect of prior expectancies about male and female performance upon causal attributions, when these prior expectations were found to result from clear beliefs about differential performance of males and females. Feather and Simon (1971b) found that subjects' unexpected performance outcomes were likely to be attributed to external causes such as task difficulty and luck while subjects' expected performance outcomes were likely to lead to internal causal explanations, such as ability and effort. Freize and Weiner (1971), however, postulated that a variable-stable, as opposed to internal-external attributional model best accounted for expected and unexpected outcomes. They found that observers ascribed predicted performance by another to such stable sources as ability and task difficulty while attributing the unexpected performance of another to the variable factors of effort and luck. Subsequent research has failed to produce conclusive results in favor of one model over the other. Reasoning that inasmuch as experimentally created expectations of success

or failure affect causal ascription then widely held expectations about male and female performance should have similar effects, some investigators began manipulating performance expectancy by manipulating the sex-of-actor cue. Feather and Simon (1975) reported that their female subjects tended to see ability as a more important cause of male success than of female success, and lack of ability as more important to female, than to male, failure. The results of two additional investigations (Feldman-Summers & Kiesler, 1974; Taynor & Deaux, 1973) indicated females to be seen as exerting greater effort than males when succeeding and as having less ability under success. Deaux and Emswiller (1974) regarded findings of this sort as resulting from the evaluation of females in masculine tasks, such that high performance was unexpected and poor performance was anticipated. Using experimentally created masculine and feminine tasks and the two attributes of ability and luck, they found that successful males were still seen as more able regardless of the sex-designation of the task. Overall, males have been upgraded, females downgraded. The current investigation was a conceptual replication and extension of the Deaux and Emswiller (1974) investigation in an attempt to determine the relative importance of ability, effort, task difficulty, and luck attributes in the evaluations made by male and female grade school and high school students toward superior and inferior peer-performance in masculine, feminine, and neutral school subjects. One intent of the study was to apply the results to the best-fitting of the two attributional models.

Forty-five fifth-graders, 48 seventh-graders, 53 ninth-graders

and 43 eleventh-graders were administered questionnaires designed largely to determine the sex-designation of various school subjects. On the basis of this investigation, the following subjects were selected: Grades 5 and 7 -- gym, masculine; music, feminine; art, neutral; Grades 9 and 11 -- science, masculine; spelling, feminine; art, neutral. Based on these pilot results grades five, six, and seven were combined to represent the grade school sample and grades nine, ten, and eleven were combined to represent the high school sample.

Four hundred eight western Montana school students -- 120 male and 120 female grade school students, and 120 male and 120 female high school students -- read a brief description of a male or female stimulus person said to have performed in an above- or below-average manner in a masculine, feminine, or neutral school subject. A 2X2X3X2X2 factorial analysis was used, the independent variables consisting of: sex of subject, sex of stimulus person, sex of task, performance level of stimulus person, and grade level of subject. Dependent measures consisted initially of both attribution wheels and attribution scales, but a lack of consistency between the two methods in analyses forced reliance on the principal method in data presentations, the attribution wheels. These wheels were movable devices, similar to pie graphs, in which each of the four causal sources was printed on a differently-colored axis serving as a handle. The Ss adjusted the relative proportion of each color to represent the relative ascription to the cause it represented. Subjects also rated their surprise in

the observed performance.

Successful girls were seen as possessing more ability than successful boys, while failing girls were seen as possessing less ability than failing boys, regardless of task. As predicted, grade school Ss saw luck: as more involved in a girl's success than a boy's at a masculine task; as more involved in a boy's success than a girl's at a feminine task; and as less involved in a girl's failure than a boy's at a masculine task. The predicted effect for luck attributions concerning failure on a feminine task were not found. Contrary to prediction, high school Ss saw luck as more involved in the success of a male than of a female in a masculine task. Grade school girls who failed in a neutral task were seen as more influenced by bad luck than failing boys while high school girls failing at this task were seen as less influenced by luck than equally performing males, but more influenced by luck than equally performing males if they succeeded. Boys generally used luck as an explanation more than girls. Males were also less surprised than females about failure and more surprised than females over success.

These findings were discussed in terms of specific properties of the educational system that might encourage boys more than girls to see educational situations as luck influenced, and might encourage students to see girls as generally more influenced by their ability. The possible effects of this latter view upon a girl's academic performance were also discussed, particularly in association with the differing pattern of luck attributions between the grade school and high school years for neutral tasks. Predicted relationships

found for the luck variable among grade school students were viewed from the perspective of fewer constraints in the educational setting to force ascription elsewhere.

The finding of greater luck attributions for successful males at a masculine task among high school subjects was viewed from the possibility of a competitive stance toward the actor by these subjects. This was also suggested, more specifically for high school males, when they were seen to: attribute another's failure to lack of ability more often than their success to ability; and to attribute success to task ease more often than failure to task difficulty. The opposite pattern exhibited by high school females for task difficulty was viewed in terms of cultural reasons for a female's development of a cooperative stance and a male's development of a competitive stance, particularly during adolescence. The impact of such stances upon student performance was also discussed.

The results of this investigation did not support one attributional model more strongly than the other.

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APPENDIX I

PILOT STUDY --

VERBATIM INSTRUCTIONS

EXPLANATION GIVEN TO CHILDREN FOR PILOT

A lot of teachers and psychologists have tested the abilities of students your age. This whole area of achievement is one that I am quite interested in. For example, it happens that guys and girls don't perform the same when it comes to certain subjects. For people your age, guys do better at some subjects and girls do better at others. And, there are some subjects where they do the same. What I'm trying to find out is if you know which areas guys do better in, which areas girls do better in, and where they're the same. I'm passing out a few pages stapled together, but only look at the first page now -- I'll explain the rest later. The first page is a short quiz -- please read the directions and do the best you can. Remember to fill in your name, age, and grade. All you have to do is look at each school subject, and mark down an M in the blank if males your age are usually better at it, an F if females your age are usually better at it, and a B if they're both the same. You can use each letter as little or as much as you think it applies. Remember, I'm not asking about you in particular, but about most guys your age, and most girls your age. So, an M means that males your age are usually better at that subject, an F tha females your age are usually better at that subject, and a B that they're both the same. Please turn your paper over when you are finished, so that I will know when everybody is done. Only do the first page. Any questions?

Has everybody finished the first page? O.K. -- on the next two pages I'm going to ask you to complete some sentences that will tell me something of your opinions about different subjects. So, there are no right or wrong answers, but please complete the statements carefully so they represent your true feeling.

As an example, say that the sentences were like this: (A large sheet of construction paper with the following sentences was shown.)

A. My <u>favorite</u> food is	a. liver
B. My <u>second most</u> favorite food is	b. meat loaf
C. My <u>third most</u> favorite food is	c. steak
D. My <u>least</u> (fourth most) favorite food is	d. pot roast

O.K., since my favorite food is steak, I'd complete the first sentence by drawing a line from it to steak. (Illustrate). My second choice would be pot roast, so I'd draw a line from the second incomplete sentence down to pot roast. My third choice would be meat loaf, so I'd draw a line from here (illustrate) to meat loaf. And finally, since I hate liver, I'll draw a line from "my least favorite food is" to "liver". Of course, your choices might have been different, so you would complete your sentences differently and draw your lines to different choices.

All right, please turn now to the second page of your questionnaire. You will see a list of eight sentence beginnings, similiar to the ones I just illustrated, on the left, and a list of eight school subjects on the right that will complete these statements. I'd like you to read each sentence-beginning on the right and complete that sentence by drawing a line from it to a subject on the right. Make sure you complete each sentence by drawing a line, and try to have the com-

pleted sentences represent your own feelings. Check your answers when you are finished with the second page, and then go on to the third page. Once you have turned the page you may not go back. When you are all done, turn your paper over. If you have any questions after you have read the instructions, raise your hand and I will answer them.

(After all papers were collected)

I would like to point out in conclusion, that although guys your age do better at some subjects and girls do better at others, boys are no smarter than girls, and girls are no smarter than boys. Although this might sound confusing since I just told you there were differences, psychologists have found that intelligence is made up of a lot of different things. A guy might do a little better at one thing, and a little poorer at another, while a girl might do a little poorer at the first and a little better at the second. So, overall, those differences cancel out. There are both bright and dull guys and girls, but as a group, girls and guys are equally bright.

APPENDIX II

PILOT STUDY --

TESTING MATERIALS

Name _____

Age _____ Grade _____

SUBJECT QUIZ

Fill in each of the blanks below with one of the following letters:

M Males my age generally perform better in this area

F Females my age generally perform better in this area

B Both males and females my age perform the same in this area

_____ Music

_____ Arithmetic (Mathematics)

_____ Spelling

_____ Gym

_____ English

_____ Social Studies

_____ Art

_____ Science

Do not go on to the next page. Turn your paper over when you are through.

SUBJECT IMPORTANCE

I'm going to ask you to complete some statements about how important you feel that different school subjects are. On the left is a list of incomplete sentences discussing the most important to least important school subject for you. These sentences can be completed by the list of school subjects on the right. You will be selecting the most important, second most important, third most important, fourth most important, fifth most important, sixth most important, seventh most important, and least (eight most) important school subject. Draw a line from each of the sentence beginnings on the left to the subject on the right that best completes each statement. Complete every statement, making sure that you draw a line from the first incomplete sentence to the subject you feel is most important, and so on, until you finally draw a line from "eighth most important" to the subject on the right you feel is least important.

A.	The most important school subject is	a.	Art
B.	The second most important school subject is	b.	Spelling
C.	The third most important school subject is	c.	English
D.	The fourth most important school subject is	d.	Gym
E.	The fifth most important school subject is	e.	Arithmetic (Mathematics)
F.	The sixth most important school subject is	f.	Music
G.	The seventh most important school subject is	g.	Social Studies
H.	The least (eighth most) important school subject is	h.	Science

Please check your answers, and go on to the next page. You may not return to work on this page.

MY PERSONAL ABILITIES

I'm going to ask you to complete some statements about how well you do in certain school subjects. On the left is a list of incomplete sentences discussing your best to worst subject. These sentences can be completed by the list of subjects on the right. You will be selecting your best, second best, third best, fourth best, fifth best, sixth best, seventh best, and worst (eighth best) school subject. Draw a line from each of the sentence beginnings on the left to the subject on the right that best completes each statement. Complete every statement, making sure that you draw a line from the first incomplete sentence to the subject you do the very best in, and so on, until you finally draw a line from "eighth best" to the subject on the right you do poorest in.

A. My best subject is	a. Social Studies
B. My Second best subject is	b. English
C. My Third best subject is	c. Art
D. My Fourth best subject is	d. Science
E. My Fifth best subject is	e. Music
F. My Sixth best subject is	f. Spelling
G. My Seventh best subject is	g. Gym
H. My Worst (eighth best) subject is	h. Arithmetic (Mathematics)

Please check your answers, and turn your paper over. You may not return to work on other pages.

APPENDIX III

VERBATIM EXPERIMENTAL INSTRUCTIONS

I'm a graduate student in psychology at the University and I'm interested in how students judge the performance of other students. We know a lot about how teachers and other adults judge the work of students your age. But, we don't know as much about how students judge their fellow students.

I'm passing out a lot of things to you. Right now please don't do anything with these materials until I ask you to. You don't need to write your name on any of the sheets. No one will be able to know how you answered on any question. Still, I'd like you to be as careful as you possibly can in answering all questions.

On the first page you'll see a very brief description of a certain student who is in the same grade in school as you are. This description tells you a little bit about this person. As you read on, you will find out how well this student is doing in one of the subjects in school. I'm going to be asking you to judge why you think this student performed in the way described. Since I'm only giving you a very short description of this person, you will have to use quite a lot of imagination in answering these questions. You will notice that four reasons are suggested to explain the student's work. Please read your statements now and spend a few moments just thinking about the students, the class involved, and the reasons they might have performed as they did. Please read only your own sheet and do not talk with your classmates. I'll give you more instructions in a moment.

(Pause)

Now that you've read and thought about the students, I want

you to try and figure out why they performed as they did. As you've already read, there are four causes that can explain a student's performance. If the person you read about did a good job, it could be: 1) because the subject was easy, 2) the student is smart or talented at that subject, 3) the student tried hard, or 4) because the student had good luck. Or maybe your student didn't do very well. There are four causes that can explain that, too. It could have been: 1) because the subject was hard, 2) the student didn't try hard, 3) the student was not smart or talented at that subject, or 4) because the student had bad luck. (All causes were presented in counterbalanced order across different classrooms.)

For the student <u>you're</u> rating, some of these might be important reasons and others might not. What you need to do is decide how important each of the four causes is in explaining your student's work.

This is what the wheel you have been passed out can be used for. Take off just the middle paper clip. If you look at the wheel, you will see that there is a sheet clipped to it explaining how to use it. I'll go over those instructions with you. Each color on the wheel stands for one of the four reasons. Please look at each color -- you will see that each color has a reason printed on it. You just hold onto the handles and adjust the colors however you want to. Give important reasons a large piece and less important reasons a small piece. Let me show you how you do this. Please look at the wheel I'm holding -- you will see that it is just like yours. I can make any section as large as I want. (Illustrate).

So if I thought this was an important reason, I might make it this big (illustrate), or even this big (illustrate). Or maybe I didn't think it was too important. I could make it very small (illustrate), and make some other reasons bigger or more important (illustrate).

Are there any questions? All right, I want you to go back and read the discription. Then, please answer the questions on the sheet attached to your wheel before using it. Remember, most of you are rating different students on different subjects, so I don't expect you to have the same answers. Please work alone. When you're sure you're done, raise your hand and I'll collect the wheel. Don't go on to the final sheet until I collect all the wheels and give instructions.

(E collected wheels, unobtrusively putting a "check" on the wheels of boys and a "circle" on the wheels of girls to designate the subject's sex.)

(After all wheels were collected.....) O.K., please look at the sheet marked "Rating Scales." The instructions are printed on this sheet, but I'll explain how to use them as well. Using rating scales is another way to explain why the students you're judging performed as they did. A different scale can be used for each of the four causes we've talked about. Look at the cause printed before each scale and decide how important it was. Circle a number between zero and ten on each scale to stand for how important that reason was in explaining the performance of the student you're judging. For example, if it was really important, circle a ten. If it wasn't at all important, circle a zero. If it was somewhere

in between, circle whatever other number best says how important the cause was. The more important the cause seems, the bigger the number you should circle.

Are there any questions? Again, please work alone. I want you to re-read the descriptions again, then answer the questions on the sheet before using the scales. When you're all done, please wait. I'll collect them all at once.

(Pause)

Is everybody done? I want to thank you for your help in this study.

APPENDIX IV

TESTING MATERIALS -- EXPERIMENTAL PHASE

Susan L. goes to school in this area and has lived here since she was two years old. She has one brother and one sister. Most people who know Susan describe her as likeable.

Susan's teacher just told her that she is one of the very best students in the music class.

There are four reasons that will explain why Susan is one of the very best music students.

1) The subject was easy.
2) The student is smart or talented at this.
3) The student tried hard.
4) The student had good luck.

Use what this sheet tells you about Susan and your imagination to figure out exactly why she performed the way she did. You need to figure out exactly how important each of these four causes is in explaining Susan's music performance.

.....

The above is an illustration of the descriptive statement given to students, representing one case of the "confirmation of expectancy for females" condition at the grade school level. At the high school level, "spelling" was substituted for "music" in the above statements. Substitutions for high school subjects follow in parentheses. For the remaining conditions, the following substitutions were made: confirmation-female, Nancy is one of the very worst gym (science) students; disconfirmation-female, Barbara B. is one of the very best gym (science) students, or, Debbie P. is one of the very worst music (spelling) students; lack of expectancy-female, Linda J. is one of the very best art (art) students, or, Alice D. is one of the very worst art (art) students; confirmation-male, Tom F. is one of the very best gym (science) students, or, Jack H. is one of the very worst music (spelling) students; disconfirmation-male, Bob K. is one of the very best music (spelling) students, or, Gary M. is one of the very worst gym (science) students; lack of expectancy-male, John W. is one of the very best art (art) students, or, Fred R. is one of the very worst art (art) students.

For subjects reading about failing stimulus others, the four reasons listed were:

1) The subject was hard.
2) The student is not smart or talented at this.
3) The student didn't try hard.
4) The student had bad luck.

.....

THE WHEEL

You can use the wheel this sheet is attached to to explain the performance of the student you are judging. Each color stands for one of the four reasons. You can see that each color has one reason printed on it. You just take hold of the handles and adjust the colors however you want to. Give important reasons a large piece and less important reasons a small piece.

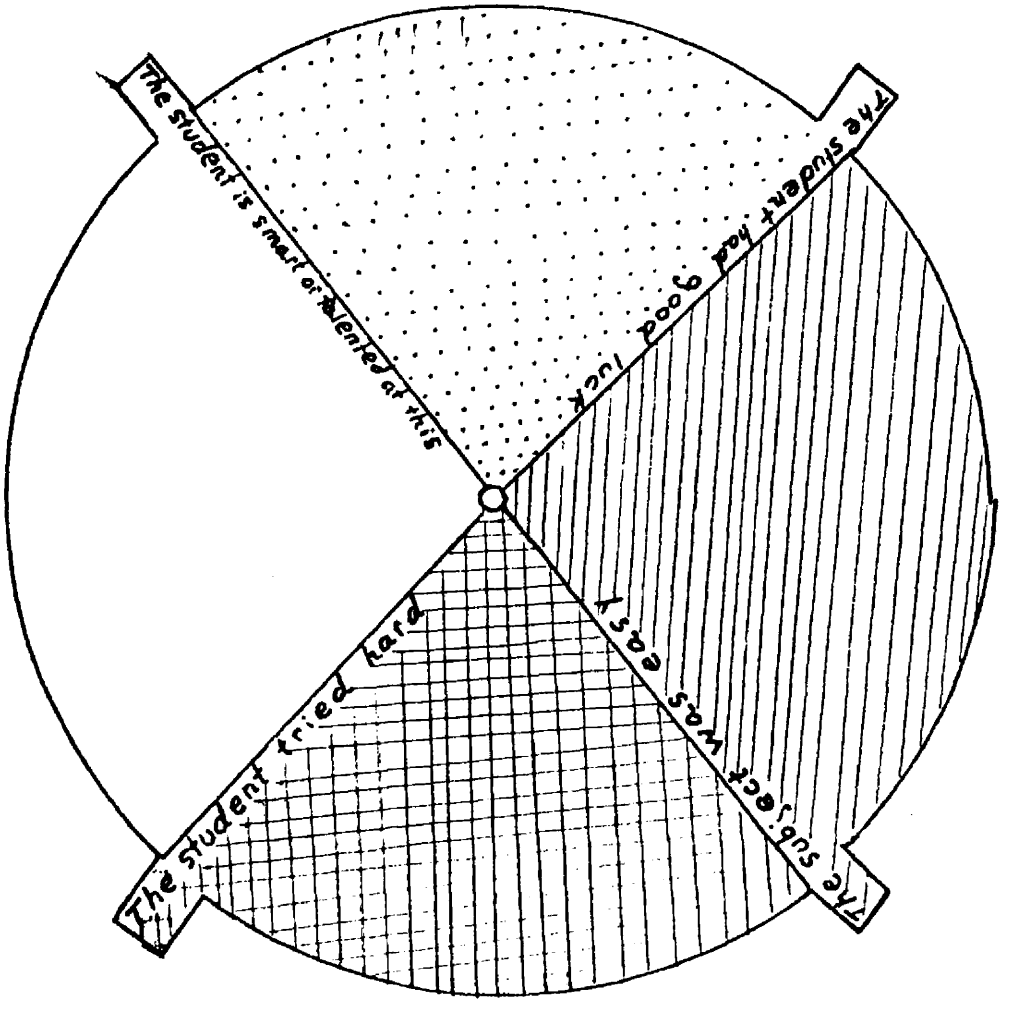
First, answer all the questions below. Then use the wheel to explain the performance of the student you are judging.

Name of person you are judging _____

How well did this student do? (Check one) Good___Average___Poor___

What school subject was this in? _____

(DIAGRAM OF ATTRIBUTION WHEEL FOR SUCCESS CONDITION)



RATING SCALES

There is another way you can use to explain the performance of the student you're judging -- by using scales. A different scale can be used for each of the four causes. Each one of the first four scales below stands for a different cause. Look at the cause and decide how important it was. Circle a number between "0" and "10" on each scale to stand for how important that reason was in explaining the performance of the student you're judging. For example, if it was a really important cause, circle a "10". If it wasn't at all important, circle a "0". If it was somewhere in between, circle whatever other number best says how important the cause was.

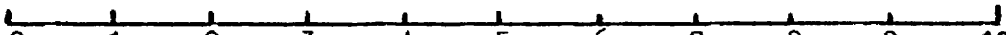
First, answer the questions below, then complete the rating scales.

Name of person you are judging _____

How well did this student do? (Check one) Good___Average___Poor_____

What school subject was this in? _____

THE STUDENT TRIED HARD

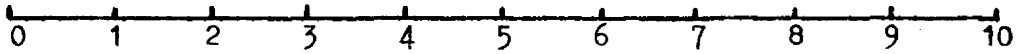


not at all important — somewhat important — very, very important

THE STUDENT HAD GOOD LUCK

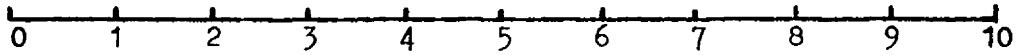
not at all important — somewhat important — very, very important

THE STUDENT IS SMART OR TALENTED AT THIS



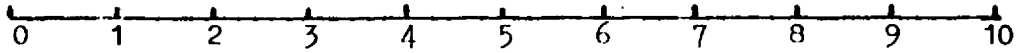
not at all important — somewhat important — very, very important

THE SUBJECT WAS EASY



not at all important — somewhat important — very, very important

Did you find the student's performance surprising?



not at all surprising — somewhat surprising — very, very surprising

(Example of rating scale for the success condition)

APPENDIX V

SUMMARY TABLE AND GRAPHIC PRESENTATIONS OF ABILITY PORTION OF RATING SCALES

SUMMARY TABLE FOR ANALYSIS OF VARIANCE
WITH THE RATING SCALE CAUSAL SOURCE OF ABILITY
AS THE DEPENDENT MEASURE

Source	DF	SS	MS	F
S(G)	470	4041.7		
B1	1	6.1	6.1	0.801
B2	1	23.4	23.4	3.088
B12	1	0.0	0.0	0.004
B3	2	98.1	49.0	6.463 **
B13	2	7.9	4.0	0.522
B4	1	300.8	300.8	39.682 ****
B14	1	33.4	33.4	4.934 *
B5	1	0.0	0.0	0.001
B15	1	1.2	1.2	0.158
B23	2	13.6	6.8	0.899
B123	2	26.2	13.1	1.728
B24	1	18.4	18.4	2.428
B124	1	40.8	40.8	5.386 *
B25	1	0.8	0.8	0.110
B125	1	1.4	1.4	0.186
B34	2	3.2	1.6	0.210
B134	2	1.5	0.8	0.099
B35	2	5.1	2.6	0.337
B135	2	2.5	1.3	0.166
B45	1	4.4	4.4	0.581
B145	1	3.3	3.3	0.440
B234	2	28.5	14.2	1.888
B1234	2	0.9	0.4	0.058
B235	2	38.9	19.4	2.564
B1235	2	16.3	8.2	1.075
B245	1	0.0	0.0	0.004
B1245	1	1.0	1.0	0.133
B345	2	19.3	9.7	1.275
B1345	2	53.8	26.9	3.54 0 *
B2345	2	5.2	2.6	0.343
B12345	2	6.2	3.1	0.408
S(B12345)	432	3276.0	7.6	

Source: 1=Sex of Subject, 2=Sex of Stimulus Person, 3=Sex-Designation of Task, 4=Performance Level of Stimulus Person, 5=Grade Level of Subject

*p < 0.05
**p < 0.01
****p < 0.0001

Main Effect of Sex of Task

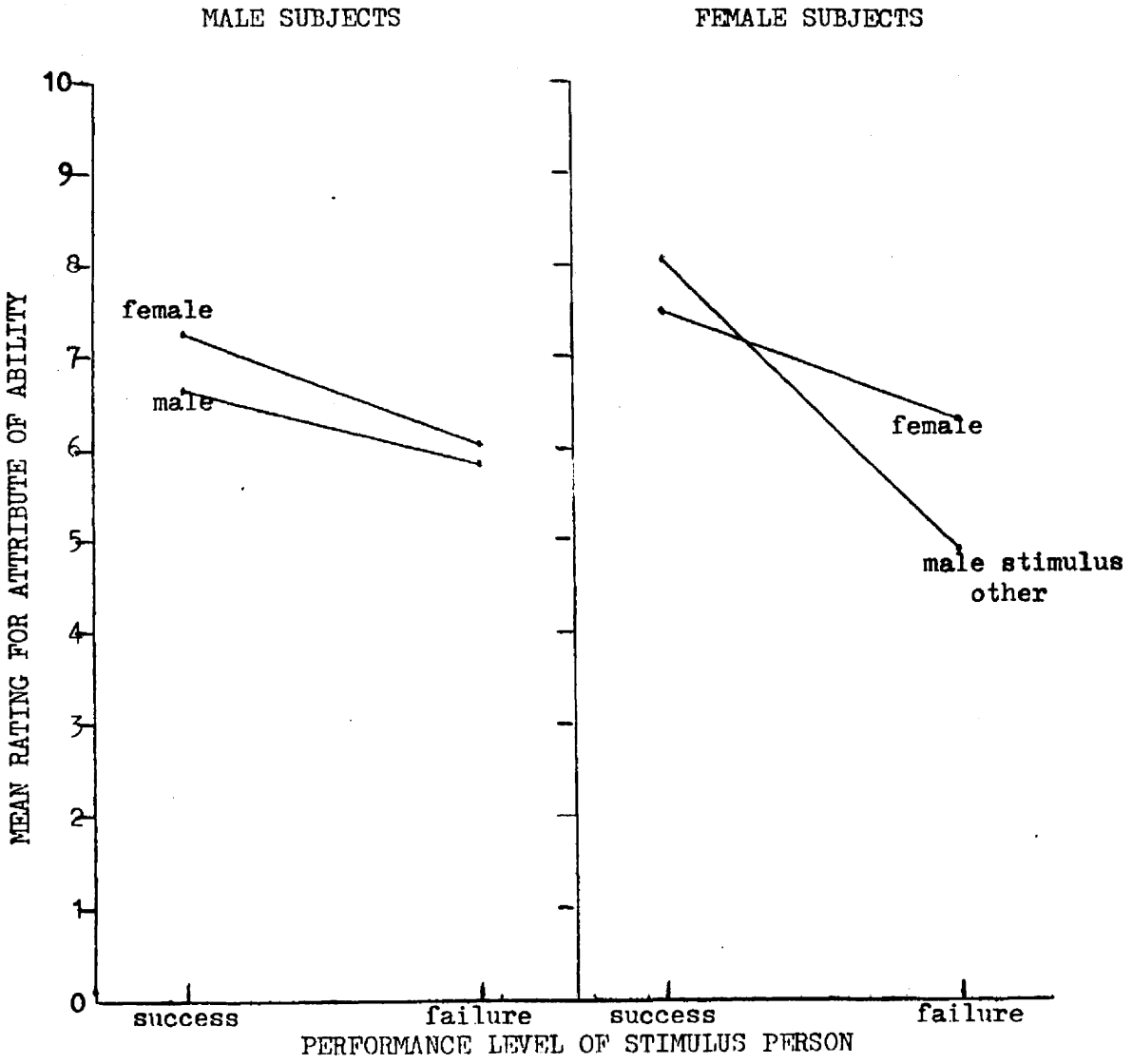
Masculine $\bar{X}$=6.031
Feminine $\bar{X}$=6.556
Neutral $\bar{X}$=7.137

SEX OF SUBJECT X PERFORMANCE LEVEL INTERACTION
(Qualified by Sex of Subject X Sex of Stimulus Person X Performance Level interaction presented on following page)

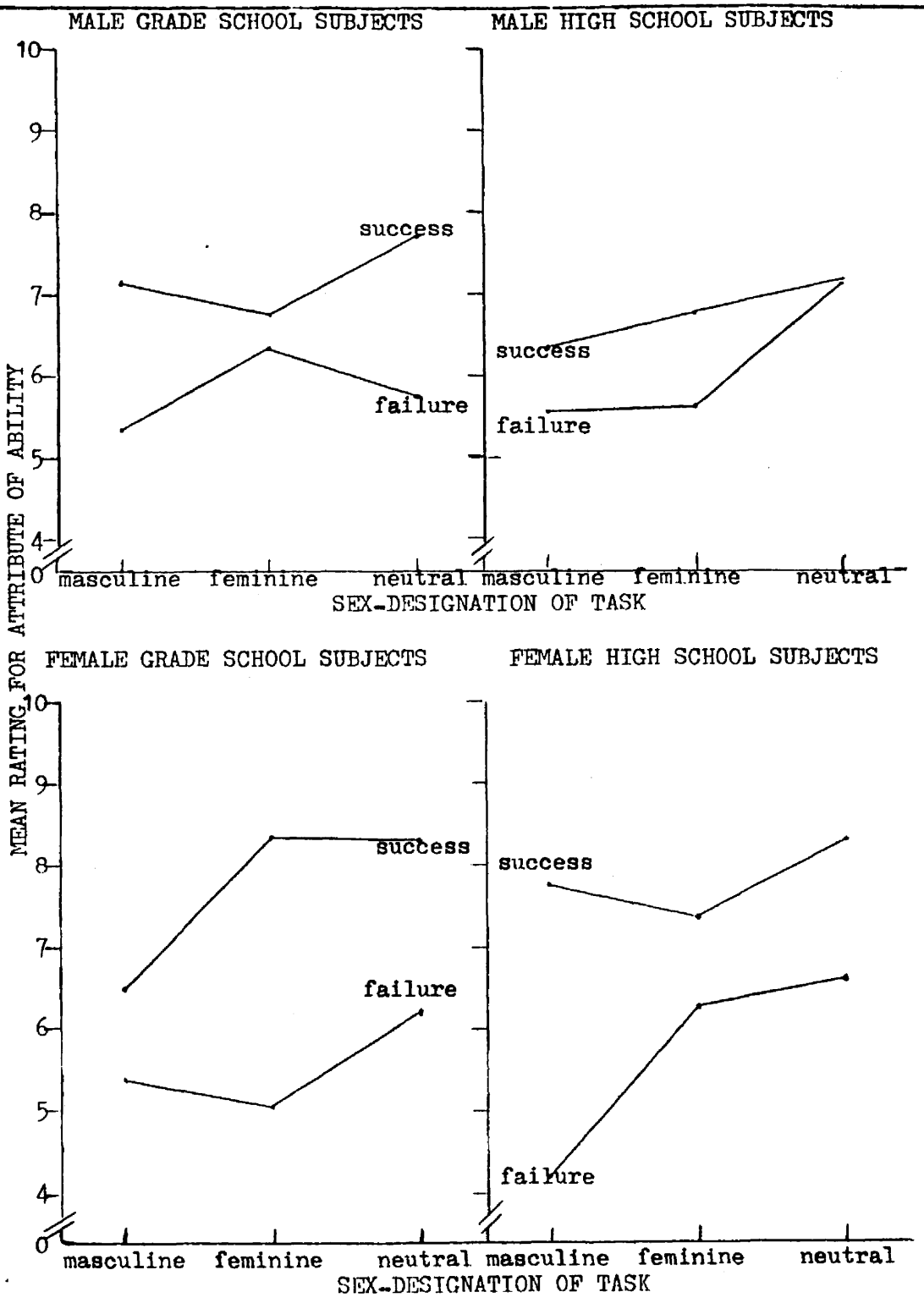
Sex of Subject	Performance Level of Stimulus Person	
	Success	Failure
Male	6.975	5.950
Female	7.758	5.617

Numbers represent mean rating scale ratings which ranged from zero to ten, increasing as a function of greater ascription to the causal dimension in question.

ABILITY ATTRIBUTIONS AS A FUNCTION OF SUBJECT,
SEX OF STIMULUS PERSON, AND PERFORMANCE LEVEL OF STIMULUS PERSON
AS MEASURED BY RATING SCALES



ABILITY ATTRIBUTIONS AS A FUNCTION OF SEX OF SUBJECT, SEX OF TASK, PERFORMANCE LEVEL OF STIMULUS PERSON, AND GRADE LEVEL OF SUBJECT



APPENDIX VI

SUMMARY TABLE AND GRAPHIC PRESENTATIONS OF EFFORT PORTION OF RATING SCALES

SUMMARY TABLE FOR ANALYSIS OF VARIANCE
WITH THE RATING SCALE CAUSAL SOURCE OF EFFORT
AS THE DEPENDENT MEASURE

SOURCE	DF	SS	MS	F
SUBJ	478	[illegible]		
B1	1	10.8	10.8	1.549
B2	1	9.6	9.6	1.382
B12	1	1.0	1.0	0.145
B3	2	85.7	42.8	6.143 **
B13	2	5.9	2.9	0.426
B4	1	56.1	56.0	8.037 **
B14	1	1.4	1.4	0.202
B5	1	4.4	4.4	0.632
B15	1	1.2	1.2	0.172
B23	2	15.7	7.8	1.123
B123	2	5.8	2.9	0.418
B24	1	21.7	21.7	3.109
B124	1	0.5	0.5	0.076
B25	1	4.0	4.0	0.579
B125	1	0.0	0.0	0.001
B34	2	28.3	14.0	2.005
B134	2	2.9	1.5	0.210
B35	2	19.8	9.9	1.420
B135	2	46.7	23.3	3.347 *
B45	1	9.6	9.6	1.382
B145	1	1.0	1.0	0.145
B234	2	38.1	19.0	2.585
B1234	2	1.2	0.6	0.085
B235	2	3.6	1.8	0.212
B1235	2	38.8	19.4	2.788
B245	1	0.0	0.0	0.001
B1245	1	0.0	0.0	0.000
B345	2	3.7	1.9	0.262
B1345	2	0.4	0.2	0.027
B2345	2	48.2	24.1	3.454 *
B12345	2	25.2	12.6	1.808
EB12345	462	3211.8	7.0	

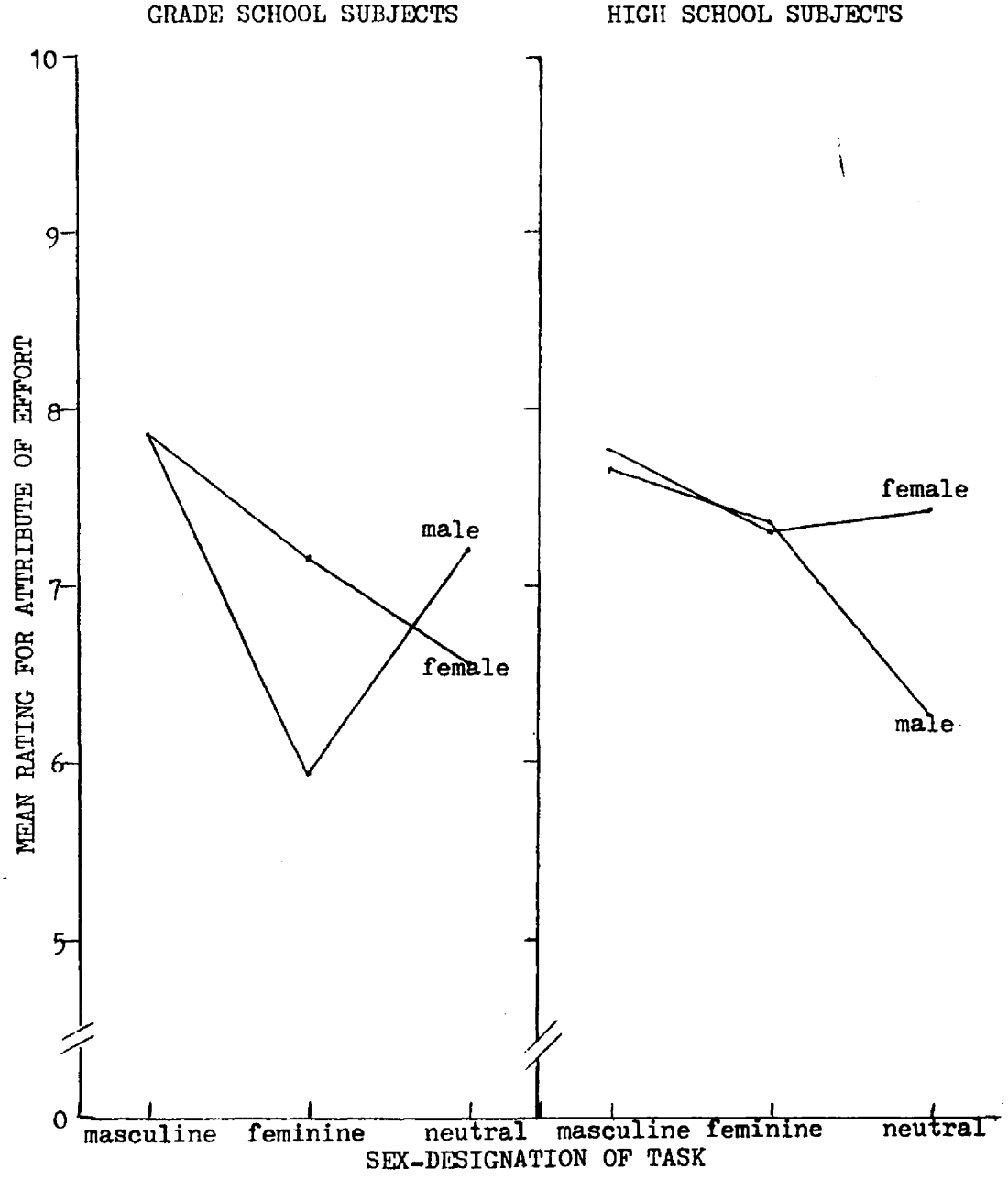
Source: 1=Sex of Subject, 2=Sex of Stimulus Person, 3=Sex-Designation of Task, 4=Performance Level of Stimulus Person, 5=Grade Level of Subject

Sex-Designation of Task: $\bar{X}$=7.8 (masculine), $\bar{X}$=6.944 (feminine), $\bar{X}$=6.869 (neutral)

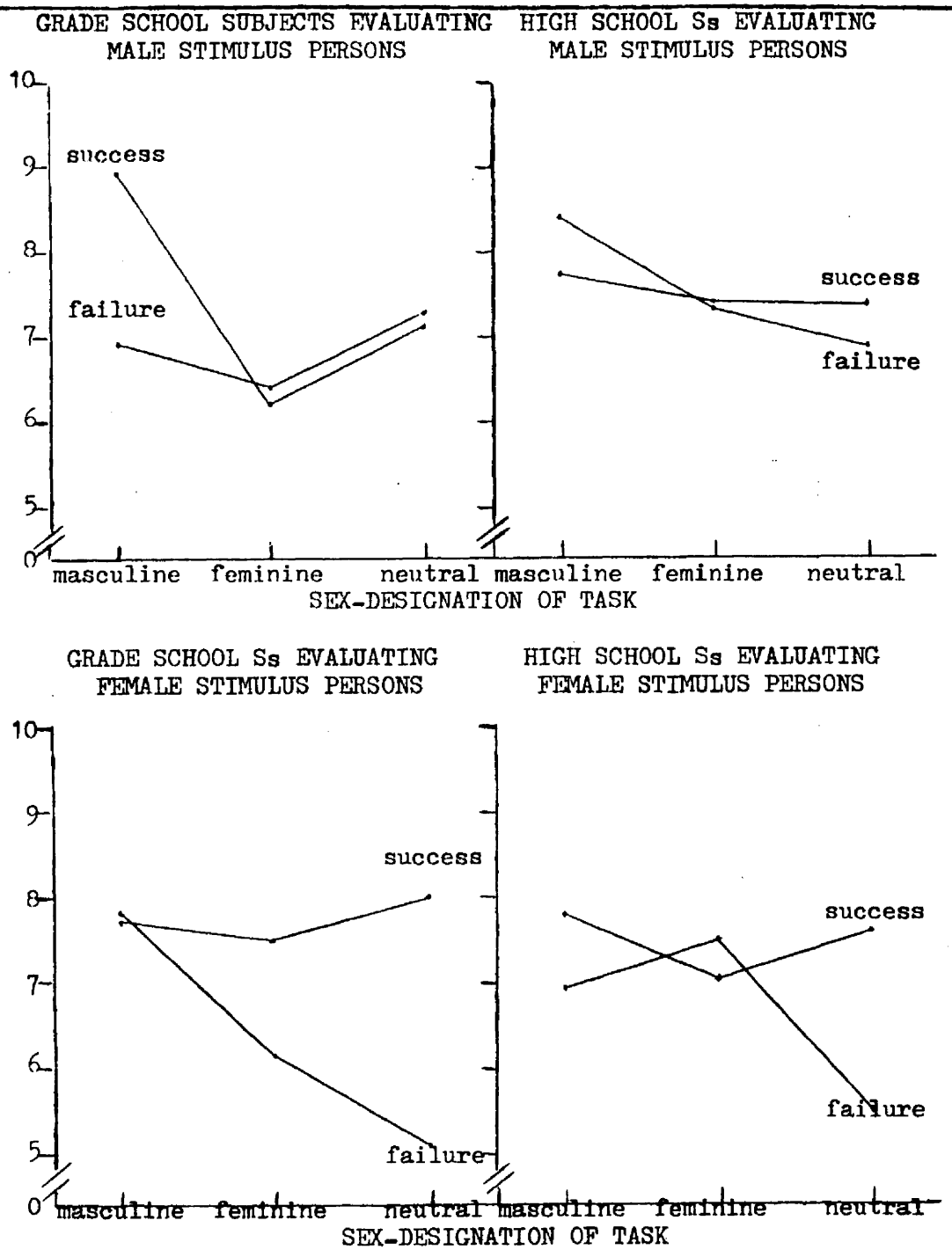
Performance Level: $\bar{X}$=7.546 (success), $\bar{X}$=6.863 (failure)

*$p < 0.05$
**$p < 0.01$

EFFORT ATTRIBUTIONS AS A FUNCTION OF SEX OF SUBJECT,
GRADE LEVEL OF SUBJECT AND SEX OF TASK,
AS MEASURED BY RATING SCALES



EFFORT ATTRIBUTIONS AS A FUNCTION OF SEX OF STIMULUS PERSON, PERFORMANCE LEVEL OF STIMULUS PERSON, SEX OF TASK, AND GRADE LEVEL OF SUBJECT, AS MEASURED BY RATING SCALES



APPENDIX VII

SUMMARY TABLE AND GRAPHIC PRESENTATION OF TASK DIFFICULTY PORTION OF RATING SCALES

SUMMARY TABLE FOR ANALYSIS OF VARIANCE
WITH THE RATING SCALE CAUSAL SOURCE OF TASK DIFFICULTY
AS THE DEPENDENT MEASURE

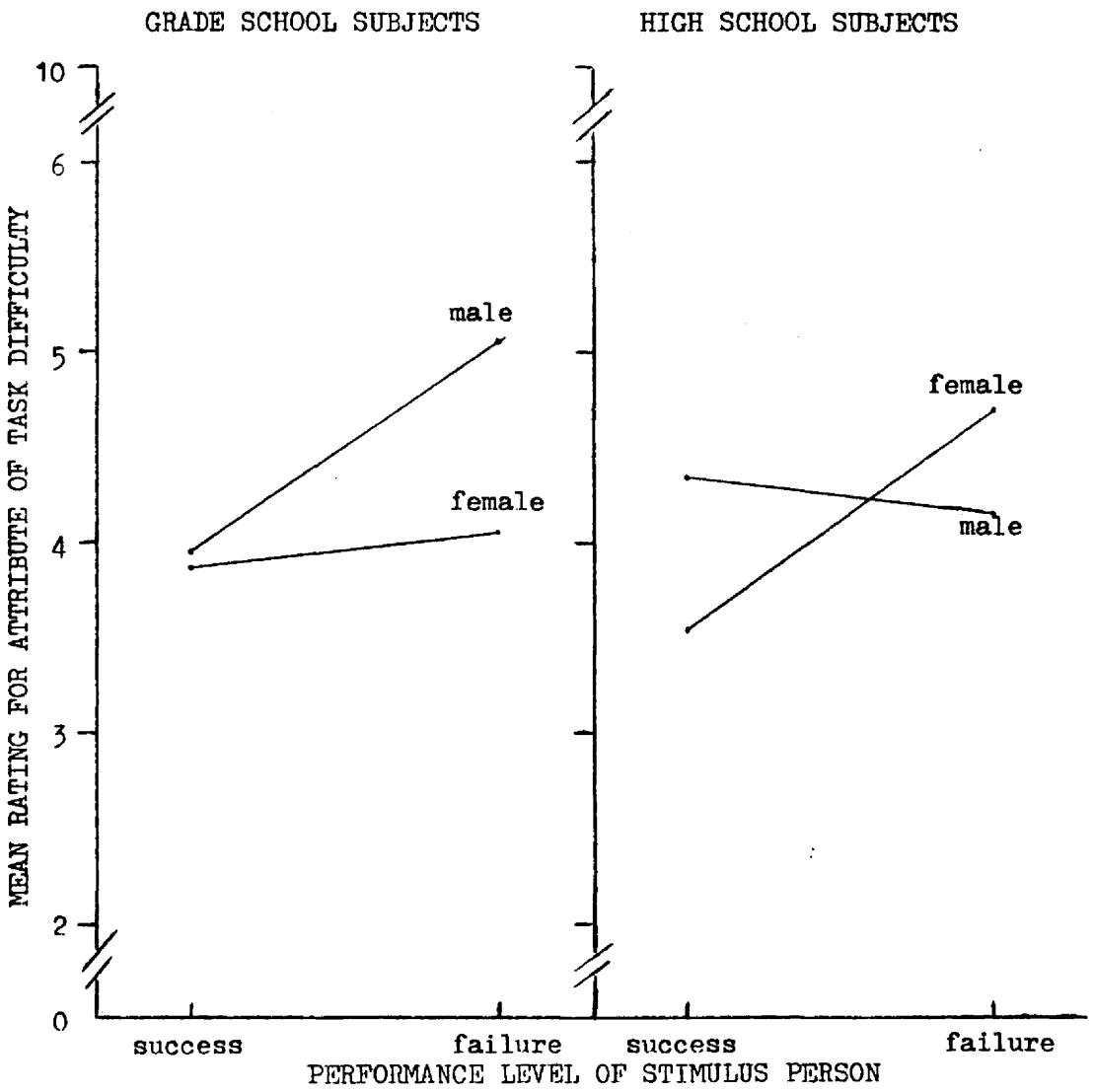
SOURCE	DF	SS	MS	F
SUBJ	470	3571.7		
S1	1	0.1	0.1	0.014
S2	1	17.0	17.0	4.722
S12	1	8.8	8.8	1.166
S3	2	9.2	4.6	0.610
S13	2	20.1	10.0	1.329
S4	1	38.0	38.0	5.028 *
S14	1	27.6	27.6	3.649
S5	1	0.3	0.3	0.033
S15	1	9.4	9.4	1.239
S23	2	13.5	6.8	0.902
S123	2	24.3	12.1	1.607
S24	1	1.1	1.1	0.146
S124	1	0.5	0.5	0.062
S25	1	5.0	5.0	0.662
S125	1	7.3	7.3	0.960
S34	2	11.4	5.7	0.755
S134	2	34.2	17.1	2.266
S35	2	4.3	2.2	0.286
S135	2	37.8	18.9	2.504
S45	1	0.6	0.6	0.080
S145	1	15.8	15.8	2.088
S234	2	8.8	4.4	0.587
S1234	2	16.5	8.3	1.096
S235	2	2.0	1.0	0.134
S1235	2	7.0	3.5	0.465
S245	1	38.0	38.0	5.028 *
S1245	1	0.1	0.1	0.007
S345	2	3.6	1.8	0.239
S1345	2	8.4	4.2	0.559
S2345	2	13.6	6.8	0.904
S12345	2	20.1	14.6	1.928
ERROR	470	3566.7	7.6	

Source: 1=Sex of Subject, 2=Sex of Stimulus Person, 3=Sex-Designation of Task, 4=Performance Level of Stimulus Person, 5=Grade Level of Subject

$\bar{X}$=3.929 for success; $\bar{X}$=4.492 for failure

*$p < 0.05$

DIFFICULTY ATTRIBUTIONS AS A FUNCTION OF SEX AND PERFORMANCE LEVEL OF STIMULUS PERSON AND GRADE LEVEL OF SUBJECT



APPENDIX VIII

SUMMARY TABLE OF

LUCK PORTION OF RATING SCALE

SUMMARY TABLE FOR ANALYSIS OF VARIANCE
WITH THE RATING SCALE CAUSAL SOURCE OF LUCK
AS THE DEPENDENT MEASURE

SOURCE	DF	SS	MS	F
SUBJ	670	2698.5		
B1	1	14.0	14.0	2.550
B2	1	0.7	0.7	0.123
B12	1	16.9	16.9	3.071
B3	2	2.1	1.1	0.193
B13	2	0.1	0.1	0.011
B4	1	2.7	2.7	0.491
B14	1	0.0	0.0	0.006
B5	1	4.4	4.4	0.802
B15	1	0.4	0.4	0.074
B23	2	7.3	3.7	0.660
B123	2	4.7	2.3	0.423
B24	1	0.1	0.1	0.024
B124	1	0.5	0.5	0.097
B25	1	1.0	1.0	0.184
B125	1	4.4	4.4	0.802
B34	2	7.8	3.9	0.710
B134	2	23.1	11.6	2.104
B35	2	28.1	14.0	2.554
B135	2	28.1	14.1	2.559
B45	1	0.0	0.0	0.006
B145	1	4.8	4.8	0.874
B234	2	13.9	6.9	1.260
B1234	2	9.5	4.8	0.866
B235	2	0.9	0.4	0.079
B1235	2	7.6	3.8	0.693
B245	1	9.6	9.6	1.757
B1245	1	0.5	0.5	0.097
B345	2	1.3	0.7	0.120
B1345	2	5.9	2.9	0.532
B2345	2	10.6	5.3	0.966
B12345	2	13.2	6.6	1.203
ERROR	670	3677.6	5.5	

Source: 1=Sex of Subject, 2=Sex of Stimulus Person, 3=Sex-Designation of Task, 4=Performance Level of Stimulus Person, 5=Grade Level of Subject