ATTRIBUTIONS FOR ACHIEVEMENT: DIFFERENCES AS A FUNCTION OF SEX AND RACE

THESIS

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The proposed interaction between race and sex on achievement orientation has not been adequately demonstrated when cognitive measures are used. Therefore, the present study examined the effects of sex and race on attributions for achievement. Elementary level students made attributions to ability, effort, task-difficulty, or luck for 16 academic successes or failures described in a questionnaire. Girls made significantly ($p < .001$) fewer ability and significantly ($p < .001$) more effort attributions on success items than boys, regardless of their race. Six success items that had been sex-typed (3 girl, 3 boy) provided similar results. Sex-typing data indicated these subjects exhibited strong sex-role stereotypy. Results were discussed in terms of sex-typing of the individual and not the task.

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ATTRIBUTIONS FOR ACHIEVEMENT: DIFFERENCES AS A FUNCTION OF SEX AND RACE

Psychological literature has been replete with studies examining a constellation of factors believed to be important in achievement orientation. One of the more interesting results found in a large number of these studies was that sex has been an important variable in determining differences in the construct being measured. A conclusion from many of these studies was that women as a group tended to be less achievement-oriented than men.

Much of the early research focused on the measurement of nonconscious motives that were believed to influence achievement behavior. One of the first of these motives to be investigated was the achievement motive. McClelland, Atkinson, Clark, and Lowell (1953) found that when male college students were told that their performance on a task would be used to judge their intelligence and potential for future success, their achievement scores increased. The same did not occur when identical arousal instructions were given to female college students. The females' scores increased when they were told that their performance was indicative of social skills. The affiliative motive was postulated to explain the increase in achievement scores for females. Motive to avoid success (Horner, 1971) was postulated to

account for the sex differences in achievement motivation. Motive to avoid success arose from the view that successful achievement and femininity were two desirable but mutually exclusive ends. It was thought that the conflict created by the coexistence of the achievement motive and the motive to avoid success might account for women's apparent lower achievement motivation. Research on nonconscious motives frequently has not been borne out empirically, and their validity was often questioned (Frieze, Parsons, Johnson, Ruble, & Zellman, 1978).

Recent work in the area of attribution theory has suggested that perceptions of the causes of success or failures provided a more useful way of understanding achievement oriented behavior. Also, attributions have been considered conscious, and therefore more easily measured than motives.

Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum (1971), in outlining an attribution model of achievement orientation, postulated that individuals utilized four elements of ascription both to postdict (interpret) and to predict the outcome of an achievement related event. The four causal elements were ability, effort, task difficulty, and luck. The elements varied along two dimensions, internal/external, and stable/unstable. Ability and effort were causes originating within or internal to the individual, while task difficulty and luck were causes within the environment or external to the individual. Ability and task difficulty were relatively stable,

while effort and luck were subject to fluctuation, and thus unstable. Since this original formulation, a number of additional causes (mood, fatigue, help from others) have been shown to be important (Weiner, 1979).

Within the framework of the model, consistent sex differences have been found. Weiner et al. (1971) concluded, "In sum, it is stated with some assurance that, among male students, achievement concerns and self-attribution are positively related. . . . On the other hand, the relationship between achievement and locus of control for successful events is undetermined (nonexistent?) for females" (p. 12). One member of the group, Frieze (1975), subsequently provided a review of studies examining sex differences in attributions to achievement related behaviors. Three major areas were identified: (a) numerous studies had shown that females and males made different causal attributions concerning their own successes and failures, (b) other studies had demonstrated that females had lower expectancies for success than males, and (c) still others had shown that causal attributions assigned to female and male actors were different.

The most parsimonious explanation for these sex differences lay in differences in the socialization of females and males (Frieze et al., 1978). That blacks and whites also receive different socialization had led some researchers to speculate that race might prove to be an equally important variable in producing differences in achievement orientation.

Turner and Turner (1971) looked at the influence of sex and race on perceptions of occupational opportunities. They found that black females perceived the greatest amount of occupational discrimination against women, whereas white females perceived less discrimination against women than any of the other three race/sex groups. Subjects in this study were asked four questions concerning their achievement socialization. It was found that white females received significantly later encouragement concerning educational attendance than males, significantly more discouragement concerning educational and occupational aspirations, significantly less pressure from their mothers, and significantly less pressure from their fathers. No significant differences on any of the four questions were found for black females and males. The authors concluded that it was of great interest that, as implied by responses to the four socialization to achievement items in the larger sample, white parents differentiated by sex in socialization to achievement, but black parents did not.

Self-Attributional Style

Sex differences. In assigning causal attributions for one's own successes or failures, it has been found that generally, females were more likely to attribute their successes to effort, while males were more likely to attribute their successes to ability. Females were more likely to attribute their failures to a lack of ability, while males

were more likely to attribute their failures to a lack of effort. Within the internal/external dimension, females tended to make more external attributions for success and more internal attributions for failures than did males (Frieze, 1975; Nicholls, 1975).

Weigers and Frieze (1977) defined white, middle-class, high school seniors along the dimensions of sex, high or low achievers, and for the females, traditionality or nontraditionality. The students were then given an anagrams test in which success or failure was experimentally manipulated. They were asked to make attributions concerning the causes of the success or failure. Females were more likely to attribute their successes to effort, while males were more likely to attribute their failures to lack of effort. They also found that across all situations females used more external causes than males. The hypothesis that the sex differences were mediated by sex-role constraints received some support by the fact that when the causal attributions were rank ordered, ability was used relatively more by the nontraditional females for success, while luck was more highly rated for the traditional females.

Feather and Simon (1973) had college sophomores work on an anagrams test following either high- or low-expectancy induction. They found that females attributed success more externally and failure more internally than did males. It was also found that males were more sensitive to the induction

procedure used in this study, as initial confidence was lower for females than males following high-expectancy induction and higher for females than males following low-expectancy induction. Bar-Tal and Frieze (1976) found that among college sophomores, women attributed their outcomes more to luck, had lower satisfaction ratings, and had lower expectancies for future performance than men.

Nicholls (1975) studied fourth-grade children and found that girls showed a significant self-degragatory bias which was not evident for boys. The girls, more than boys, attributed failure to a lack of ability. Boys, more than girls, attributed failure to bad luck. Boys showed a defensive bias in luck attribution while girls did not.

These sex differences in attributional style of children appeared to be manifested only when the evaluator or experimenter was an adult. Dweck (1976) had fifth-grade students work at a task with either a female or male peer or adult evaluator. When an adult evaluator delivered the failure feedback, there was no improvement in performance for the girls. When the evaluator was a peer and delivered failure feedback, there was sustained and immediate improvement for the girls. The opposite pattern was found for boys. The attributional style of these children was also strongly influenced by the age of the evaluating agent. The girls attributed failure more to a lack of ability and less to a lack of effort with adult agents. The boys exhibited the

same pattern when the evaluating agent was a peer. Dweck concluded that the characterization of boys as relatively independent of external evaluation and striving for success despite failure feedback and of girls as dependent on social evaluation and debilitated by failure feedback was something of an oversimplification.

Race differences. The previously summarized studies used primarily white, middle-class students as subjects. Murray and Mednick (1978) reviewed motivational and cognitive factors in black women's achievement orientation. From preliminary findings, they suggested that the patterns for black women may differ somewhat from those of white women. They believed that black women with high achievement motivation employed ability and effort attributions in a manner that resembled men in other studies. Sex comparison among these subjects could not be made, as the attributional styles of the black men did not reveal a consistent pattern.

Expectancies for Success

Sex differences. The second major attribution to achievement-related topic to reveal consistent sex differences was expectancy for success. The attribution of an outcome was influenced by whether it was expected or unexpected. An unexpected outcome would be more likely to be attributed to unstable or external causes than an expected outcome. Females have been shown to have lower initial expectancies for success than males across many different task conditions, and across

different ages. Crandall (1975) found that among children from 7 to 12 years old, the females had significantly lower expectancies for success than males on eight different intellectual tasks. The possibility that these expectancies might be reality based was not supported as the females had a significantly higher mean IQ. Among college freshpersons, the females had significantly lower expectancies when estimating grade point average. Here again the higher expectancy of the males was not reality based. On a nonintellectual task for 18-26 year olds, the females had lower expectations for success than males. Among eighth-grade students, who completed a novel intellectual task, the pattern was the same. Rosenfield and Stephen (1978) found that females had lower expectancies than males on tasks labeled "Feminine Design Coordination Task" and "Masculine Design Coordination Task."

Race differences. Gurin and Epps (1975) reported that black college women and men did not differ in their expectancies for success. But, they also reported large differences in level of aspiration between the women and the men. More women expected to end graduate work at the masters level than men. Murray and Mednick (1978) reported two pilot studies, in which students were asked to predict the grade they would receive in the course they were taking. In one class (statistics), the men had significantly higher expectancies than the women. This finding was consistent with the data among white women and men. However, in the other course (personality

theory) the women's median expectation was a grade of "B," while that of the men was "C."

The data on sex differences for expectancies for success among black women and men did not reveal a consistent picture. It could be that expectancies were influenced by the sex-typing of the task, as statistics was viewed by Murray and Mednick's sample as a masculine subject. However, the sex-typing of the task had not been shown to be a significant factor among white women and men (i.e., Rosenfield and Stephen found that females had lower expectancies than males on a task labeled "Feminine Design Coordination Task").

Attributional Style Assigned to an Actor

Sex differences. The third area of attributions to achievement-related behavior that has reliably shown sex differences was in attributional style assigned to an actor who succeeded or failed. Briefly, the findings of these studies were similar to those where subjects were asked to make attributions regarding their own successes and failures. Females were attributed more effort for their successes, while males were attributed more ability (Etaugh & Brown, 1975; Etaugh & Hadley, 1977; Feldman-Summers & Keisler, 1974). It also has been found that females were attributed to having luck for their successes, while males were attributed ability (Deaux & Emswiller, 1974; Bar-Tal & Frieze, 1976).

Race differences. The variable of race has not been manipulated in any studies of attributional style assigned

to an actor in an achievement situation. Perhaps race might prove to have an effect, as several studies have shown that race was a significant variable when assigning attributions for deviant behaviors (Hawkins & Tideman, 1975).

Implications of Attribution Theory for Academic Settings

The implications of attribution theory for academic achievement situations were summarized by Weiner (1979) who asserted that, research in the attributional domain had proven definitively that causal ascriptions for past performance were an important determinant of goal expectancies. Expectancy shifts after success and failure were dependent upon the perceived stability of the cause of the prior outcome; ascriptions of an outcome to stable factors produced greater typical shifts in expectancy (increments in expectancy after success and decrements after failure) than did ascriptions to unstable causes. Attributions were also linked to affect. The student who ascribed a successful outcome to stable internal causes would be more likely to experience positive feelings of pride, self-confidence, high self-esteem, and happiness. Failure ascribed to stable internal causes resulted in the affects of depression, apathy, and resignation.

The affect experienced directly influenced the degree of goal persistence. Weiner stated that ascriptions of nonattainment of a goal to lack of effort resulted in the sustaining of hope and increased persistence to the goal, while ascription of nonattainment of a goal to low ability

resulted in giving up and the cessation of goal-oriented behavior.

Sex-Typing of the Task

Rosenfield and Stephen (1978) believed that the previously shown sex differences in attributional style were a result of the sex-typing of the task. They had college sophomores complete a figuregram matching task and then make attributions concerning the success or failure. They interpreted the results to be, "on masculine tasks, males make more internal attributions for success and more external attributions for failure than do females, however, the present experiment found that on a feminine task, females made more internal attributions for success and more external attributions for failure than did males. . . . Thus, it appears that there are no real differences between males and females in how egotistical they are" (p. 257).

When one examined the instructions given to the subjects prior to testing, the conclusion of sex differences in attributional style being a result of sex-typing of the task was tenuous at best. The feminine task was labeled "Feminine Design Coordination Task" and subjects were told that basically the task was designed to yield information about the "feminine personality." The masculine task (actually the same task) was labeled "Masculine Design Coordination Task" and subjects were told that basically the task was designed to yield information about the "masculine personality." It was not likely

that many males would attribute themselves as having much ability in "feminine personality." Just as few females would attribute themselves with ability in "masculine personality." Perhaps, Rosenfield and Stephen gave their subjects too much information and all they demonstrated was that their subjects had sound gender-identity.

The present study investigated the differences in self-attributional style that occur as a function of sex and/or race. It was hypothesized that white females would make significantly more effort attributions for success items, and significantly more ability attributions for failure items than any other race/sex group. It was further hypothesized that girls would make significantly more effort attributions than boys on girl-typed and boy-typed items (sex-typing of the task would have no effect).

Method

Subjects

Subjects were 387 fourth-, fifth-, and sixth-grade children from the independent school system of a large Texas city. All subjects attended the same school. The students came from low-income homes. There were 85 black girls, 106 white girls, 84 black boys, and 112 white boys.

Procedure

Pilot data were collected from a subsample (N = 20) of the larger sample approximately 2 months prior to testing. The students were presented with 22 situation descriptions,

11 described an academic success and 11 described an academic failure. They were asked to respond to whether they thought the description was of a girl or a boy. By letting the children themselves sex-type the items, rather than telling them the task was feminine or masculine, the bias evoked in Rosenfield and Stephen's study was eliminated. Sixteen (8 success and 8 failure) of the 22 situation descriptions were used as items in the questionnaire. Girls were chosen over the boys for most of the success situation descriptions and boys over the girls for most of the failure situation descriptions. Because of this, only three success items for each sex were examined for the affect of sex-typing.

Subjects were given the questionnaire booklets containing 16 items (see Appendix A). Each item was an incomplete sentence with four choices to complete the sentence. The four answer choices attributed the success or failure to ability, effort, task difficulty, or luck. These causes were chosen because they effectively tap both the internal/external and stable/unstable dimensions, and the age of the subjects precluded the use of more than four answer choices. Subjects were instructed to select one answer for each item (see Appendix B). They were told that there were no right or wrong answers and asked to think carefully before selecting the one that described them best. Questions and answers were read aloud by a female experimenter for half of the subjects and by a male experimenter for the other half. Testing took

place in their normal classroom for that period. Data were collected on four successive days. Each class was approximately sexually and racially balanced, therefore time of testing was not systematically different across groups. Report card grade and national rank on the Iowa Test of Basic Skills (verbal, math, and composite) were obtained from the subjects' school records.

Results

A 2 X 2 analysis of variance is computed on mean number of attributions for each of the four causes. Table 1 presents the mean number and percentage of attributions to each of

Table 1

Mean Number and Percentage of Attributions to Each Cause for Success Items

Cause	Girls		Boys	
	Black	White	Black	White
Ability				
Mean	1.55	1.33	2.15	1.79
Percentage	19.4	16.6	27.0	22.4
Effort				
Mean	5.5	5.57	4.63	4.79
Percentage	69.5	69.7	58.0	60.0
Task Difficulty				
Mean	.54	.71	.95	.75
Percentage	7.0	9.0	12.0	9.4
Luck				
Mean	.31	.36	.26	.66
Percentage	4.0	4.6	3.0	8.2

the four causes for success items. For ability attributions, there is a significant main effect of sex (F = 10.390, df = 1, $p < .001$). Girls make significantly fewer ability attributions for success than boys. A significant effect of race is not found, and no significant interactions are obtained. For effort attributions, there is a highly significant main effect of sex (F = 17.035, df = 1, $p < .001$). Girls make significantly more effort attributions for success than boys. No significant effect of race, and no significant interactions are obtained.

For attributions to task difficulty, there are no significant main effects and no interactions. For attributions to luck, there is a significant main effect of race (F = 6.788, df = 1, $p < .01$). White children make significantly more attributions to luck than black children. This effect is due primarily to the white boys, as a significant interaction is also found (F = 4.034, df = 1, $p < .05$). White boys make significantly more luck attributions for success than any other race/sex group. A significant effect of sex is not found.

A 2 X 2 analysis of variance is computed on mean number of attributions for each of the four causes. Table 2 presents the mean number and percentage of attributions to each of the four causes for failure items. No significant effects on failure items are found.

Table 2

Mean Number and Percentage of Attributions to Each Cause for Failure Items

Cause	Girls		Boys	
	Black	White	Black	White
Ability				
Mean	1.30	1.51	1.36	1.71
Percentage	16.2	18.8	17.0	21.3
Effort				
Mean	5.49	5.14	5.25	5.01
Percentage	68.6	64.2	65.6	62.6
Task Difficulty				
Mean	.90	1.02	.96	.75
Percentage	11.2	12.7	12.0	9.3
Luck				
Mean	.32	.31	.41	.46
Percentage	4.0	3.8	5.1	5.7

Reliability of the questionnaire is estimated using coefficient alpha. Reliability for total items is .59, success is .56, and failure is .52. Acceptable reliability for a hypothesized measure of a construct is .70 or higher (Nunnally, 1978).

Six scores of the questionnaire are computed for each subject. An internal/external ratio is obtained for success items and for failure items. The mean internal/external score for success items for all subjects is 2.0107. The mean internal/external scores for failure items for all subjects

is 2.2747. A stable/unstable ratio is obtained for success items and for failure items. The mean stable/unstable score for success items for all subjects is .7497. The mean stable/unstable score for failure items for all subjects is .7754. An ability/effort ratio is obtained for success items and for failure items. The mean ability/effort score for success items for all subjects is .5703. The mean ability/effort score for failure items for all subjects is .5034.

Each subject's national rank on the Iowa Test of Basic Skills (Iowa) which is divided into verbal, math, and composite scores, and her/his report card grades are obtained from the school records. The mean ranking on the Iowa-verbal for black girls is 40.74, white girls 44.21, black boys 26.16, and white boys have a mean of 37.99. The mean ranking on the Iowa-math for black girls is 20.50, white girls 29.85, black boys 15.91, and white boys have a mean of 29.97. The mean ranking on the Iowa-composite for black girls is 28.67, white girls 36.53, black boys 20.36, and white boys have a mean of 36.42. Report card grades are given so that 1 = A and 4 = D (lower report card grade is indicative of high achievement). The mean report card grade for black girls is 2.01, white girls 1.88, black boys 2.43, and white boys 2.30.

The four achievement measures (Iowa-verbal, Iowa-math, Iowa-composite, and report card grade) are each correlated with the six scores of the questionnaire (success--internal/external, failure--internal/external, success--stable/unstable,

failure--stable/unstable, success--ability/effort, failure--ability/effort). Pearson correlation coefficients of these measures for all subjects are shown in Table 3.

Table 3

Correlation Coefficients Between Achievement Scores and Attributional Style for All Subjects

	Iowa Test of Basic Skills			Grade
	Verbal	Math	Composite	
Success--Internal/External	-.0610	-.0526	-.0636	.0690
Failure--Internal/External	-.1446**	-.1406**	-.1781**	.0563
Success--Stable/Unstable	-.0444	-.0023	.0069	.0247
Failure--Stable/Unstable	-.0951*	-.0736	-.1022**	.1401**
Success--Ability/Effort	-.0029	.0350	.0469	-.0060
Failure--Ability/Effort	-.0912*	-.0876*	-.1062**	.1550**

Note. A high grade is a low actual number so the sign would be reversed.

*$p < .05$
**$p < .01$

Attributional style on success items is not significantly correlated with any of the achievement measures. Children who make more external unstable, and effort attributions on failure items score higher on the achievement measures than

children who make more internal stable and ability (lack of) attributions on failure items.

Table 4 presents the Pearson correlation coefficients for black girls. The mean scores, on the attributional style measures, for black girls are success--internal/external 1.6808, failure--internal/external 2.1082, success--stable/unstable .4871, failure--stable/unstable .5479, success--ability/effort .4170, and failure--ability/effort .3547.

Table 4

Correlation Coefficients Between Achievement Scores and Attributional Style for Black Girls

	Iowa Test of Basic Skills			Grade
	Verbal	Math	Composite	
Success--Internal/External	-.0799	-.0692	-.0789	.1510
Failure Internal/External	-.2350**	-.2669**	-.3202**	.1970
Success--Stable/Unstable	-.0565	-.0687	-.0448	-.0336
Failure--Stable/Unstable	-.2325**	-.1657	-.2508**	.2109*
Success--Ability/Effort	-.0423	-.0746	-.0588	-.0646
Failure--Ability/Effort	-.1436	-.1731*	-.2181*	.2592**

Note. A high grade is a low actual number so the sign would be reversed.

*$p < .05$
**$p < .01$

Table 5 presents the Pearson correlation coefficients for black boys. The mean scores for black boys are success--internal/external 2.3993, failure--internal/external 2.5595, success--stable/unstable 1.3215, failure--stable/unstable .9107, success--ability/effort .9642, failure--ability/effort .5868. Attributional style on failure items is not significantly correlated with any of the achievement measures. The significant correlations are between attributional style on

Table 5

Correlation Coefficients Between Achievement Scores and Attributional Style for Black Boys

	Iowa Test of Basic Skills			Grade
	Verbal	Math	Composite	
Success--Internal/External	-.3091**	-.3332**	-.3045**	.1654
Failure--Internal/External	-.1114	-.1695	-.1570	-.0704
Success--Stable/Unstable	.0179	.0340	.0570	-.2161**
Failure--Stable/Unstable	-.1480	-.1044	-.1429	.1043
Success--Ability/Effort	.0906	.1140	.1380	-.2007*
Failure--Ability/Effort	-.1155	-.0394	-.0828	.0269

Note. A high grade is a low actual number so the sign would be reversed.

*$p < .05$
**$p < .01$

success items and the achievement measures. Significant correlations with the Iowa measures are negative, as they are for black girls, however, both the success--ability/effort score and the success--stable/unstable score is positively correlated with report card grades.

Table 6 presents the Pearson correlation coefficients for white girls. The mean attributional style scores for white girls are success--internal/external 2.412, failure--

Table 6

Correlation Coefficients Between Achievement Scores and Attributional Style for White Girls

	Iowa Test of Basic Skills			Grade
	Verbal	Math	Composite	
Success--Internal/External	.1406	.1488	.1104	-.0486
Failure--Internal/External	-.0786	-.0342	-.1184	-.0900
Success--Stable/Unstable	-.2072**	-.1673*	-.1799*	.2165**
Failure--Stable/Unstable	-.0339	-.0007	-.0290	.0639
Success--Ability/Effort	-.1142	-.0898	-.1113	.0249
Failure--Ability/Effort	-.0454	-.0626	-.0768	.1418

Note. A high grade is a low actual number so the sign would be reversed.

*$p < .05$
**$p < .01$

internal/external 2.3781, success--stable/unstable .5116, failure--stable/unstable .8523, success--ability/effort .2976, failure--ability/effort .4956.

Table 7 presents the Pearson correlation coefficients for white boys. The mean attributional style scores for white boys are success--internal/external 1.8071, failure--internal/external 1.9405, success--stable/unstable .8398, failure--stable/unstable .8131, success--ability/effort .7391, failure--ability/effort .6120.

Table 7

Correlation Coefficients Between Achievement Scores and Attributional Style for White Girls

	Iowa Test of Basic Skills			Grade
	Verbal	Math	Composite	
Success--Internal/External	-.0036	-.0631	-.0508	.0250
Failure--Internal/External	-.2390**	-.2264**	-.2198**	.1889*
Success--Stable/Unstable	.0671	.1544*	.1572*	-.0202
Failure--Stable/Unstable	-.0880	-.1131	-.1148	.1661*
Success--Ability/Effort	.0670	.1450	.1538*	-.0193
Failure--Ability/Effort	-.0876	-.1234	-.1126	.1462

Note. A high grade is a low actual number so the sign would be reversed.

*$p < .05$
**$p < .01$

The actual magnitudes of all correlations are low and significance is probably due to the large number of subjects. As such, interpretation should be with caution.

A 2 X 2 analysis of variance is computed on mean number of attributions to each cause for girl-typed items. Table 8 presents the mean number and percentage of attributions to each of the four possible causes for girl-typed items. For ability attributions, there is a highly significant main effect of sex ($F = 17.419$, $df = 1$, $p < .001$) and a significant main effect of race ($F = 9.308$, $df = 1$, $p < .001$) No significant

Table 8

Mean Number and Percentage of Attributions to Each Cause of Girl-Typed Items

Cause	Girls		Boys	
	Black	White	Black	White
Ability				
Mean	.60	.40	1.00	.69
Percentage	20.0	13.0	33.0	23.0
Effort				
Mean	2.14	2.21	1.60	1.82
Percentage	71.0	73.0	53.0	60.0
Task Difficulty				
Mean	.18	.20	.44	.25
Percentage	6.0	6.0	14.0	8.0
Luck				
Mean	.07	.16	.07	.22
Percentage	2.0	5.0	2.0	7.0

interactions are obtained. Girls make significantly fewer ability attributions than boys, and white children make significantly fewer ability attributions than black children on girl-typed items. For effort attributions, there is a significant main effect of sex ($F = 23.432$, $df = 1$, $p < .001$). A significant effect of race is not found, and no significant interactions are obtained. Girls make significantly more effort attributions than boys on girl-typed items.

No significant effects are found for attributions to task difficulty. For attributions to luck, there is a significant main effect of race ($F = 9.398$, $df = 1$, $p < .01$). A significant effect of sex is not found and no significant interactions are obtained. White children make significantly more luck attributions than black children on girl-typed items.

A 2 X 2 analysis of variance is computed on mean number of attributions to each cause. Table 9 presents the mean number and percentage of attributions to each of the four causes for boy-typed items. For effort attributions, there is a significant main effect of sex ($F = 12.786$, $df = 1$, $p < .001$). A significant effect of race is not found, and no significant interactions are obtained. Girls make significantly more effort attributions than boys.

For attributions to task difficulty, there is a significant main effect of sex ($F = 6.110$, $df = 1$, $p < .01$). A significant effect of race is not found and no significant interactions are obtained. Girls make significantly fewer

Table 9

Mean Number and Percentage of Attributions to Each Cause for Boy-Typed Items

Cause	Girls		Boys	
	Black	White	Black	White
Ability				
Mean	.55	.66	.73	.71
Percentage	18.0	22.0	24.0	24.0
Effort				
Mean	2.15	2.14	1.79	1.78
Percentage	71.0	71.0	59.0	59.0
Task Difficulty				
Mean	.15	.15	.33	.24
Percentage	5.0	5.0	11.0	8.0
Luck				
Mean	.14	.10	.13	.25
Percentage	5.0	3.0	4.0	9.0

attributions to task difficulty than boys on boy-typed items. No significant effects are found for luck attributions on boy-typed items.

Data concerning the degree of adherence to sex-role constraints were obtained from one of the art teachers at the school. He had asked the children to draw what they wanted to be when they grew up. From these drawings it was found that among the girls (N = 103) the most frequent choices of adult occupations were (in order): teacher, nurse, secretary, housewife, police officer, beautician, and singer. Among

the boys (N = 112) the most frequent choices of adult occupations were (in order): truck driver, football player, racer, police officer, boxer, and stuntman.

Discussion

The hypothesis that white girls would make significantly more effort attributions for success items than any other group is not supported. The main effect of sex indicates that girls make more effort attributions than boys, regardless of their race. A similar main effect of sex in mean number of ability attributions for success items strengthens the finding that differences in the attributional style of these subjects are a function of sex and not of race. That girls make more effort and fewer ability attributions for success than boys is consistent with the previous findings. The prediction that black girls would not share this style is not supported.

The literature suggesting that black females are more like white males than white females in their achievement orientation primarily involves the measurement of nonconscious achievement related motives (Fleming, 1978; Murray & Mednick, 1975; Weston & Mednick, 1975). The present study employs a cognitive factor to measure achievement orientation and finds that black girls attributional style is not different from that of white girls, and that both groups of girls are significantly different from boys. The similarity between white and black girls attributional style found in this study

is inconsistent with the studies of motivational factors in achievement orientation. It should be noted that there is a trend towards use of cognitive measures over motivational measures to assess achievement orientation, as the latter has been criticized for measurement difficulties (Frieze et al., 1978). It remains for future research to rectify the difference between the present study and those measuring non-conscious motives, and determine the influence of race on achievement orientation when cognitive measures are used instead of motivational measures.

The hypothesis that white girls would make significantly more ability attributions for failure items is not supported. The absence of any significant finding for failure items is regretable. The reliability of the failure items is lower than that for success items and total items, it is possible that this lower reliability accounts for the lack of significance of those items.

White girls have the highest mean rank on the Iowa measures (verbal, math, and composite) and the highest mean report card grade (lowest actual number), yet they make the fewest ability and the most effort attributions for success items. The opposite pattern is found for black boys. They have the lowest mean ranks on the Iowa measures and lowest mean report card grade, yet they make the most ability and the fewest effort attributions for success items. White girls, who possess the most ability, are least likely to attribute their successes

to ability, while black boys who possess the least ability are most likely to attribute their successes to ability.

Black males receive little attention in most studies investigating the effect of race on achievement orientation. Weston and Mednick, and Fleming use only female subjects. Murray and Mednick find that, in their samples of black college women and men, the attributional style of women differed from that of the men, but the sex comparisons are tenuous since no consistent attributional patterns emerged for the men. In contrast, the present study provides a clear picture of black male's attributional style. Black boys attribute their successes more to ability and less to effort than any other group. They attribute their successes less to luck than any other group, and they make more stable attributions than any other group. In general, black boys seem the most self-confident, most likely to continue achievement strivings, and the most likely to experience the positive affects of pride, high self-esteem, and happiness. The disconcerting fact is that their confidence and perseverance exist despite their exceptionally low achievement scores.

One puzzling result of this study is the white boys' unusually high number of luck attributions for success items. Previous research indicates that females make greater use of luck attributions for both success and failure (Bar-Tal & Frieze, 1977). Aside from speculating sampling error, no attempt at explanation can be made.

The hypothesis that sex-typing of the task would not alter attributional style receives strong support. The theoretical explanation of sex differences in attributional style being a result of sex-typing of the task as Rosenfield and Stephen (1978) postulate, receives no support. Girls make significantly more effort and significantly fewer ability attributions than boys on items thought to be most representative of situations where girls would succeed more than boys. That girls do not make fewer ability attributions than boys on boy-typed items further supports the contention that sex-typing of the task has no effect. Girls make more ability attributions on boy-typed items (20%) than on girl-typed items (16.5%) or total success items (18%).

Perhaps a more viable explanation of the sex differences lies not in the sex-typing of the task, but in the sex-typing of the individual. Weigers and Frieze (1977) finding, that traditional females were less likely to attribute success to ability than nontraditional females, supports this. As measured by the choices of adult occupation, these subjects exhibit a high degree of sex-role stereotypy and traditionality. It is contended that a female who conforms to sex-role expectations is likely to lack confidence and perseverance in her achievement orientation.

Historically, the socialization by sex that contributed to these differing attributional styles was functional--women were measured by their husbands' achievement. A successful

woman was one who attracted (i.e., through appeals to his ego) and married a successful man. But, for a society in which women comprise over 40% of the non-home-based work force, conforming with sex-role expectations can have the dire consequences of women being less self-confident, and less achievement oriented.

Appendix A

Attributional Style Questionnaire

Name _____

_____ 1. I am in the _____ grade.

1. 4th
2. 5th
3. 6th

_____ 2. I am a _____.

1. girl
2. boy

_____ 3. I am _____.

1. black
2. white
3. other

_____ 4. If I make a 4 on a math test is is because . . .

1. I'm not good at math.
2. I didn't try very hard.
3. it was a hard test.
4. I wasn't lucky.

_____ 5. If a teacher tells me that I don't follow instructions well it is because . . .

1. I'm not able to understand them.
2. I don't try hard to understand them.
3. it is hard for me to understand them.
4. I'm unlucky.

_____ 6. If I get a 4 on a spelling test it is because . . .

1. I can't spell well.
2. I didn't try very hard.
3. it was a hard test.
4. I'm unlucky.

_____ 7. If I get a check for handwriting it is because . . .

1. I'm good at handwriting.
2. I was very careful.
3. handwriting is easy.
4. I was lucky.

_____ 8. If I get an X on my report card for art it is because . . .

1. I'm not good at art.
2. I don't try hard in art class.
3. art is a hard class.
4. I was unlucky.

_____ 9. If I make a 1 on my spelling test it is because . . .

1. I'm good at spelling.
2. I practiced the words a lot.
3. they were easy words to spell.
4. I was lucky.

_____10. If I get mostly 4's on my report card it is because . . .

1. I'm not very smart.
2. I didn't work very hard.
3. schoolwork is hard.
4. I'm not lucky.

_____11. If a teacher tells me that I follow instructions well it is because . . .

1. I'm good at understanding teacher's instructions.
2. I try hard to follow instructions.
3. it is easy.
4. I am lucky.

_____12. If I make a 1 on my short story it is because . . .

1. I'm good at writing short stories.
2. I worked very hard on it.
3. it was an easy assignment.
4. I was lucky.

_____13. If a teacher tells me I don't read well it is because . . .

1. I can't read well.
2. I don't spend much time practicing reading.
3. reading is hard.
4. I'm not lucky.

_____14. If I get an X in handwriting skills it is because . . .

1. I can't write well.
2. I didn't try very hard.
3. handwriting is hard.
4. I wasn't lucky.

_____15. If I get a 1 on my math test it is because . . .

1. I'm good at math.
2. I studied a lot.
3. it was an easy assignment.
4. I was lucky.

_____15. If I make a 1 on my science fair project it is because . . .

1. I'm good at science.
2. I worked hard on it.
3. it was an easy assignment.
4. I was lucky.

_____16. If I make a 1 on my art fair project it is because . . .

1. I'm good at art.
2. I worked hard on it.
3. it was an easy assignment.
4. I was lucky.

_____17. If I make a 1 on my book report it is because . . .

1. I'm good at writing book reports.
2. I tried very hard.
3. it was an easy assignment.
4. I was lucky.

_____18. If I make a 4 on my art fair project it is because . . .

1. I'm not good at art.
2. I didn't try very hard on it.
3. it was a hard project.
4. I was unlucky.

Appendix B

Instructions Given Prior to Testing

Today you will be taking a test. You will not get a grade on this test and it will not affect your grades in any class. There are sixteen questions, each having four answer choices. I want you to select the answer that best describes you. There are no right or wrong answers, so just think carefully about each one and then pick the answer that best describes you. No one in the school will know how you answer. I'm going to pass out the booklets now, please put your name and section on the front in the space marked name. I will read each question and the four answer choices aloud. Please read along with me and then answer each question. Pick only one answer for each question. Are there any questions?

Debriefing

This test was designed to see what you think are the causes of your successes or failures. The way that a person sees the causes of their successes or failures is related to achievement.

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