Journal of Personality and Social Psychology
1981, Vol. 40, No. 3, 562-572

0022-3514/81/4003-0562$00.75

Gender Differences in the Academic Locus of Control Beliefs of Young Children

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A statistical combination was conducted on past research examining gender differences in the locus of control beliefs of elementary school children. The review revealed that females tend to score more internally than males in total- and failure-outcome locus of control, as measured by the Intellectual Achievement Responsibility (IAR) Scale. A new administration of the IAR ($N \simeq 425$) revealed significantly more female internality for both success and failure outcomes—but only at the end of the school year. Also, females cited effort as the cause of success more often than males. These results are at odds with those found in studies that manipulated success and failure events. Possible reasons for the reversal are discussed. The results suggest (a) greater female internality exists in elementary school, but the gender difference is small; (b) the roots of lesser female adult achievement behavior may *not* be found in elementary school belief systems; and (c) it may be improper to conclude that *young* females express a helplessness pattern of attributions with regard to the achievement domain.

Locus of Control and Academic Achievement

The association between locus of control beliefs and the achievement of elementary school pupils has been the focus of much research. This attention is justified by evidence indicating that control beliefs and school achievement are positively associated: Children who take more responsibility for academics tend also to do better in school (cf. Uguroglu & Walberg, 1979). In addition, experimental research (e.g., deCharms, 1972, 1976) has indicated that control perceptions can operate as the causally prior variable. That is, increasing children's sense of personal control has been found to bring about better school achievement. This position is strengthened by Stipek's (1977) cross-lagged panel analysis, which found that students' locus of control had more impact on academic performance than vice versa.

At least two independent reasons have been offered for the locus of control–achievement link. The first states that control beliefs mediate the affective reactions people experience after success and failure. As Phares (1976) states:

> An internal belief system should lead to reactions of pride following success or to a variety of negative emotions following failure. In either case, the effects on subsequent achievement behavior could be positive. The belief system of externals, however, denies them either emotional experience and thus perhaps provides them little basis for the pursuit of excellence. After all, if one ascribes success to outside forces why should one either take pleasure in the attainment of success or make further efforts to achieve it? (p. 114)

An empirical investigation by Weiner, Russell, and Lerman (1978) found that Phares's (1976) hypothesized attribution–affect linkages were essentially accurate.

A second locus of control–achievement relation may involve the motivation to succeed (Atkinson, 1964). It seems that persons high in the need to achieve also hold a strong belief that efforts and outcomes covary (Kukla, 1972). High achievers believe most strongly that hard work pays off. It may be

This research was supported by a grant from the National Science Foundation, Social and Developmental Psychology Directorate (BNS78-08834) to Harris M. Cooper, principal investigator, and Thomas L. Good, co-principal investigator.

Thanks are extended to Virginia Crandall for providing a bibliography used to locate studies for the statistical review portion of this article.

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that such an internal belief must be present before a person will try to achieve.

Gender Differences in Locus of Control

Given that control beliefs are plausible precursors of academic achievement, the next inquiry should pertain to how people develop beliefs about personal causality. Crandall (1969) suggested three antecedents to locus of control beliefs: (a) differential reinforcement histories, (b) differential sensitivity to positive and negative reinforcements, and (c) the learning of verbal statements the culture determines to be appropriate. These antecedents came to light as part of an examination of sex differences in academic expectancies. Since Crandall's work, the possibility that the sexes are socialized to different locus of control beliefs has steadily gained in salience as a social issue. In recent years, awareness has grown of cultural mechanisms that may deter women from achieving their full potential (cf. O'Leary, 1974).

It was the intent of the research reported in this article to examine whether locus of control beliefs differ for young males and females. Obviously, the search for cultural mechanisms that produce gender differences must be preceded by substantial evidence that locus of control beliefs are, in fact, related to gender. Specific interest was taken in the belief systems of young children concerning academic outcomes. Focusing on primary school gender differences should make the present investigation especially valuable, since it has been argued that later school performance is related to performance differences that emerge early in academic careers (e.g., Kraus, 1973; Stein & Bailey, 1973).

Theoretical and Procedural Overview

Theoretical guidance for this study may be provided by work concerning more specific attribution processes. Deaux (1976), for instance, casts potential gender differences into an expectancy framework. She writes:

> Men, who have a higher expectancy for their performance, should . . . attribute that success to their higher ability. Failure, in contrast, would be an unexpected event for the male . . . and the explanation of that failure would be sought among a variety of plausible temporary causes. For women, in contrast, a lower set of expectations would result in a success being discrepant with the set. As a consequence, stable internal explanations would not seem appropriate and explanations would rely on one or more temporary reasons. Failure, if more consistent with the self-stereotype, should in turn be attributed to a stable internal attribute, most typically a lack of ability. (pp. 342–343)

Empirically, Deaux and Farris (1977) found the predicted gender differences in ability attributions as well as evidence that females more often cite "luck" for success, whereas males more often cite "task" for failure. To be consistent with this reasoning and research, then, it should be found that males are more internal than females in attributions for success but more external for failure attributions.

To answer the question, Do elementary school boys and girls differ in their beliefs about academic locus of control? a two-phase project was undertaken. In the first phase, an attempt was made to uncover previous research that addressed the gender difference question. The search was restricted to studies that measured locus of control through the use of the Intellectual Achievement Responsibility (IAR) Scale (Crandall, Katkovsky, & Crandall, 1965). The IAR gauges internal versus external beliefs about academic performance and contains separate success and failure outcome subscales. Although other relevant locus of control measures are available (e.g., Nowicki & Strickland, 1973), the IAR Scale seems to be used most frequently with the population age of interest here. Also, to increase the precision and reliability of results, a statistical combination of the gender difference literature was attempted (cf. Cooper, 1979b; Cooper & Rosenthal, 1980). Focusing on a single measure of locus of control, therefore, meant that all studies used in the statistical combination employed identical operationalizations of the relevant variables (i.e., gender and IAR scores).

In the second phase of the project, a new sample ($N \simeq 425$) of elementary school boys and girls completed the IAR Scale. In contrast to previous gender difference research, the IAR was administered at both the beginning and end of the school year. The dual administration made it possible to examine temporal effects on gender differences not only between grades (third, fourth, and fifth) but also within grades at different times of the academic year.

A Meta-Analysis of Previous Gender Difference Research

Study retrieval procedures. Studies for the meta-analysis were located through a search of *Psychological Abstracts* and through the use of a reference list provided by the first author of the IAR instrument. Studies were included only if they involved the responses of elementary school children[1] and if they specifically reported having tested for the gender effect. The abstracts search uncovered eight analyses of gender differences. The reference list, which contained about 200 studies, added two more gender difference tests. Thus, 10 studies in all were included in the meta-analysis. Although 200 IAR studies are probably fairly exhaustive of this literature, it is also likely that more than 10 of these studies contained a test of the gender effect in their data analysis. Finding the gender effect nonsignificant, most of these studies probably did not bother to report the analysis. Weighing against this potential bias toward significant results is the fact that of the 10 studies, only 2 researched gender effects as a primary objective (determined by whether or not gender effects were mentioned in the research report title).

Although the meta-analysis was performed on the gender difference main effect and for success and failure outcomes separately, it is also important to note studies which found that the gender variable interacted with other research variables. Only 2 of the 10 studies, however, reported significant interactions involving student gender. Specifically, Cunningham and Berberian (1976) reported high self-concept males scored more internally than low self-concept males, whereas high self-concept females scored less internally than low self-concept females. In addition, Johnson and Gormly (1972) reported males designated as "classroom cheaters" were more internal than were female "cheaters," whereas male "noncheaters" were less internal than their female counterparts.

Description of the retrieved evidence. For the 10 studies, the mean year of report appearance was 1972; the median year was 1973. Grades 4 and 5 appeared most frequently in the samples. An average of 110 males and 109 females were tested in each investigation, though the median sample size was only 59 males and 54 females. Table 1 presents the raw data on which this description is based as well as the reported means of the IAR subscales and total scale.

Six of the 10 studies reported means for the success and failure subscales separately. An unweighted average of these means revealed females took slightly more personal responsibility than males for both success (male M = 13.20, female M = 13.62) and failure (male M = 11.97, female M = 12.11). When studies were weighted according to sample size, the average mean of studies indicated a similar direction for the gender effect (for success, male M = 13.17, female M = 13.56; for failure, male M = 12.06, female M = 12.21).

Nine of the studies reported total IAR scores. As with the subscales, the female average mean revealed greater perceived internal control whether the study means were unweighted (male M = 25.00, female M = 25.30) or weighted (male M = 25.06, female M = 25.41) by sample size.

The Stouffer unweighted procedure for combining independent probabilities (cf. Cooper, 1979b) was then performed for each of the three scales. Table 2 presents all the results that follow. For the success and failure subscales, six studies reported either F or t values associated with the gender effect. Neither subscale produced a significant Z_{ma} (for success, Z_{ma} = .49; for failure, Z_{ma} = .29). All 10 studies reported F or t values for the total IAR Scale, but this Z_{ma} also proved nonsignificant (Z_{ma} = .54).

When Z scores for each study were weighted by sample size, more support for a gender effect appeared. Significant gender effects were found on the failure (Z_{ma} = 2.07, p .04, two-tailed) and total (Z_{ma} =

[1] In two studies, seventh-grade pupils were included because data were presented in an aggregate fashion.

Table 1

Summary of Raw Data Reported in Previous Studies Examining Gender Differences in IAR Scale Responses of Primary Grade Children

			Sample size		Success		Failure		Total	
Authors	Year	Grades	Male	Female	Male	Female	Male	Female	Male	Female
Crandall, Katkovsky, & Crandall	1965	3	44	58	12.32	12.88	10.84	10.35	23.16	23.22
		4	59	44	12.41	12.66	12.42	12.04	24.83	24.75
		5	52	47	12.38	12.47	11.65	11.85	24.04	24.36
Solomon, Houlihan, & Parelius	1969	4 & 6	62	63	12.60	13.47	11.75	12.45	24.36	25.92
Crandall & Lacey[a]	1972	2–7	28	22	14.54	14.73	12.64	13.45	27.18	28.18
Dweck & Reppucci	1973	5	20	20	13.40	13.85	12.30	11.90	25.60	25.75
Smith, Tedeschi, Brown, & Lindskold	1973	4–5	55	46	Means were not reported				24.11	22.41
Newhouse	1974	4–6	372	428	Female mean reported as higher than male					
Taub & Dollinger	1975	4	95	97	13.8	14.5	12.3	12.9	26.1	27.4
		5	94	63	14.0	14.2	12.7	13.5	26.7	27.8
Cunningham & Berberian[b]	1976	3–4	28	28	12.42	12.64	10.96	10.43	23.28	23.58
Lintner & DuCette	1974	3–7	154	131	Means were not reported				24.90	25.20
Johnson & Gormly	1972	5	38	43	Means were not reported				25.08	25.14

Note. IAR = Intellectual Achievement Responsibility.

[a] Crandall and Lacey (1972) do not report grades. Instead, children are described as ranging in age from 6 years 10 months through 12 years 5 months. The assumption was made that Grades 2 through 7 were represented.

[b] Cunningham and Berberian (1976) report means and standard deviations for high and low self-esteem groups separately. The *t* value associated with their finding was generated by averaging these two values.

Table 2
Meta-Analysis of Gender Differences in IAR Scale Responses

Statistic	Scale: Success	Failure	Total
Unweighted mean of studies	13.20	11.97	25.00
F	13.62	12.11	25.30
n	6	6	9
Weighted mean of studies[a]	13.17	12.06	25.06
F	13.56	12.21	25.41
n	6	6	9
Standard deviation of study means	.89	.63	1.23
F	.87	1.14	1.82
Unweighted Z_{ma}[b]	.49	.29	.54
n	6	6	10
Unweighted p	.64	.78	.58
Weighted Z_{ma}	1.04	2.07	2.73
n	6	6	10
Weighted p	.30	.04	.01
Average d index	.095	.00	.083
Standard deviation of average d index	.088	.22	.169
Average U_3 index	53.7	50	53.3
Standard deviation of average U_3 index	3.39	9.14	6.65

Note. IAR = Intellectual Achievement Responsibility.
[a] Weighted mean of studies is weighted by sample size.
[b] In generating the Z_{ma}, t values falling between +1 and −1 were treated as exact chance.

2.73, p .01, two-tailed) scales. Thus, when evidence from larger studies was given greater weight than evidence from smaller studies, it was found that elementary school females took more responsibility for academic outcomes, in general, and for failure outcomes, in particular, than their male counterparts.

The magnitude of the average gender effect was next scrutinized. The average d index for the success subscale was .095. This indicates that the average female in these studies took more responsibility for success than 53.7% of the male population. The average d index for failure was zero.[2] Finally, the total IAR Scale revealed a d index of .083, indicating the average female took more responsibility for general academic outcomes than did 53.3% of the male population.

Hypotheses for the Present Study

Based on the meta-analysis, which for success produced results contrary to prediction, it was expected that our new sample of children would reveal that females took more responsibility than males for academic performances. The size of the expected effect, however, was quite small ($d = .083$). This suggested that the power of the analysis would be low. That is, given that the expected effect size was also the "true" effect size, studies with total sample sizes around 400 will produce significant differences ($p < .05$) only about 17% of the time (cf. Cohen, 1977).[3]

It was difficult to translate the review results into predictions about the two outcome subscales. The success subscale produced a larger effect size ($d = .095$) than the failure subscale ($d = .00$), but the failure results produced the more reliable conclusion that some gender effect did exist. Based on the means of previous studies, then, it was expected that the greater overall personal control expressed by females would appear for both success and failure outcomes.

None of the 10 previous studies reported a significant Gender × Grade interaction, although only two studies tested for its existence. It was predicted, therefore, that the gender effect would prove similar across third, fourth, and fifth grade students. Finally, none of the previous studies reported the time of the academic year that the IAR was administered. Empirically based predictions concerning the time of school year factor, therefore, were impossible. We rea-

[2] It is possible to obtain a zero effect size along with a significant *weighted* Z_{ma} because large studies can report minute, yet reliable, findings.

[3] These estimates are based on the assumption that males and females deviate equally around their respective means. The meta-analysis produced some evidence that this assumption was not perfectly met: Female means across studies tended to vary more than male means. However, in the present study, male and female scores exhibited a high degree of variance homogeneity.

soned, however, that IAR scores late in the school year would be similar to the next grade students' early-administration responses. Thus, the gender effect was predicted to be similar at each time of the school year.

Measuring effort attributions. Finally, responses to the IAR Scale in the past have been used to form two subscales that deal only with an effort versus external belief dimension (cf. Dweck & Reppucci, 1973; Weiner, Heckhausen, Meyer, & Cook, 1972). This subscale combines items for which the internal response relates to personal efforts by the student. Effort-related items are combined for success and failure outcomes separately. Since effort–outcome covariation has been used as an explanation for the locus of control–achievement link (Kukla, 1972), these subscales were also subjected to Gender × Grade analyses at each time of the school year. In addition, internal consistency information concerning the effort subscales was generated and evaluated relative to similar information on the total success and failure subscales.

Method

Subjects

Elementary school children drawn from 18 (17 in May) different classrooms in a moderate-size midwestern community were given the IAR Scale to complete. In all 18 classrooms, the teacher was a female. Two hundred males and 235 females took the IAR in September. Two hundred ten males and 215 females took the IAR in May. The first administration involved 175 third graders, 99 fourth graders, and 161 fifth graders. There were 202 third graders, 85 fourth graders, and 138 fifth graders present for the second administration.

Administration Procedure

Approximately 1 month into the new school year, and again approximately 1 month before the end of the school year, each of the students was administered the Intellectual Achievement Responsibility (IAR) Questionnaire (Crandall et al., 1965). The IAR consists of 34 forced-choice items. The items ask the student to select the alternative that best explains the occurrence of success and failure at academic tasks. For example, one question asks, "When you do well on a test at school, is it more likely to be (a) because you studied for it or (b) because the test was especially easy?" Each item presents one internal causal explanation and one external explanation. Responses can be summed (+1 = internal response, 0 = external response) to form a total scale score or separate success and failure subscale scores.

The IAR was administered to each classroom as a group by two experimenters. An experimenter read each item aloud as the students filled out the questionnaires. A second experimenter was present during each administration to help answer any questions and to monitor the classroom. Experimenter pairs varied in gender composition but usually contained one male and one female.[4]

Table 3
IAR Success and Failure Subscale Means by Grade

	Performance outcome			
	Success		Failure	
Grade	September	May	September	May
Third	13.15	13.51	9.79	10.46
Fourth	13.54	13.38	10.73	10.80
Fifth	13.52	13.81	10.71[a]	11.46[b]

Note. IAR = Intellectual Achievement Responsibility.
[a] September fourth- and fifth-grade means are significantly higher than third-grade means on the failure subscale ($p < .05$).
[b] May fifth-grade mean is significantly higher than third-grade mean on the failure subscale ($p < .05$).

Results

Analytic Design

The students' responses on the IAR success and failure subscales were analyzed employing 2 × 3 analyses of variance, with gender and grade level serving as the two between-subjects factors. The mean subscale scores are presented for each grade in Table 3 and for each gender in Table 4. September and May results were analyzed separately. A repeated measurement design could not be used because the school district requested that the tests be completed anonymously at each administration and the experimenters felt it unwise to ask children to record and retain subject numbers.

Success and Failure Subscales

For the September administration, the analyses indicated that females tended to

[4] Dweck and Reppucci (1973) and Crandall and Lacey (1972) used female testers. Other earlier studies did not report the gender of the test administrators.

Table 4
IAR Success and Failure Subscale Means by Gender

	Performance outcome			
	Success		Failure	
Gender	September	May	September	May
Male	13.20	13.35	10.26	10.55
Female	13.52	13.81	10.42	11.15
p level	.13	.03	.64	.05

Note. IAR = Intellectual Achievement Responsibility. *p* levels for September are based on 1 and 429 *df* and for May on 1 and 419 *df*.

score higher than males on the success subscale, although this trend fell short of significance, $F(1, 429) = 2.29, p < .13; d = .15, U_3 = 56\%$. By the May administration, however, females' scores were significantly higher on the success subscale than males' scores, $F(1, 419) = 4.79$, $p < .03$; $d = .21$, $U_3 = 58\%$. However, the actual difference between the genders in September and May was only slight (a 2% shift in the overlap between samples). The grade main effect and the Gender × Grade interaction proved nonsignificant at both administrations.

Female students also tended to score higher than males on the failure subscale. However, this difference reached significance only for the May scores: for May, $F(1, 419) = 3.81, p < .05; d = .19, U_3 = 57\%$; for September, $F(1, 428) = 0.12$, $p < .64$; $d = .03; U_3 = 51\%$. A significant grade effect was also found on the failure subscale in the September administration (see Table 3; $F(2, 429) = 4.73, p < .009$). A subsequent Scheffé test (Myers, 1972) revealed that fourth- and fifth-grade students attributed to themselves significantly more responsibility for failure than did third-grade students ($p < .05$). The fourth and fifth graders did not differ significantly on this measure. A similar grade effect was found on the failure subscale for the May sample, $F(2, 419) = 4.41, p < .01$. Scheffé comparisons revealed that in May only the fifth graders scored higher than the third graders. A significant Gender × Grade interaction failed to appear at either of the two testing periods.

Internal Consistency

The internal consistency of the various subscales was computed using a Kuder-Richardson 20 coefficient (Nunnally, 1967). These analyses revealed $r_{yy} = .52$ and .55 for the success subscale in September and May, respectively, and $r_{yy} = .68$ (September) and .70 (May) for the two failure subscale administrations. It should be noted that although the K-R 20 coefficients are somewhat low, these figures compare favorably with the internal consistency data provided by the instrument's authors (Crandall et al., 1965) and are reasonable, given the age of the respondents.

Two other subscales, composed of effort-related items only, were also examined. The eight effort-related items for successful outcomes (IAR Items 2, 6, 9, 12, 16, 25, 28, 29) comprised the success–effort subscale. Effort-related responses for failure outcomes (IAR Items 3, 8, 11, 14, 15, 19, 23, 33) served as the failure–effort subscale. The Kuder-Richardson 20 coefficients for the success–effort subscale were .44 and .48 for the September and May administrations, respectively, and .60 (September) and .63 (May) for the failure–effort subscale. The reliabilities are quite similar to those for the full internality subscales, though consistently lower (perhaps because they are based on fewer items).

Effort-Related Subscales

Since the internal consistency indices of the two effort-related subscales were comparable to those for the more inclusive subscales, student scores for these two subscales were subjected to 2 (gender) × 3 (grade level) factorial analyses of variance. The means, categorized by gender, can be found in Table 5.

In both September, $F(1, 417) = 5.28$, $p < .02$; $d = .23$, $U_3 = 59\%$, and May, $F(1, 421) = 7.97, p < .005; d = .28, U_3 = 61\%$, females were found to attribute successful outcomes to effort-related causes significantly more often than males. No grade main effect or Grade × Gender interaction was found at either administration. Finally,

Table 5
IAR Success-Effort and Failure-Effort Subscale Means by Gender

	Performance outcome			
	Success		Failure	
Gender	September	May	September	May
Male	6.13	6.23	5.07	5.20
Female	6.45	6.62	5.06	5.39
p level	.02	.005	.99	.33

Note. IAR = Intellectual Achievement Responsibility. *p* levels for September are based on 1 and 417 *df* and for May on 1 and 420 *df*.

there were no significant grade, gender, or Grade × Gender effects found on the failure–effort subscale at either administration: gender effect for September, $F(1, 417) = .02$; for May, $F(1, 420) = .94$, $p < .33$; $d = .09$, $U_3 = 54\%$.

Discussion

In light of both the statistical review and the new data, several conclusions about gender differences in locus of control seem warranted.

First, *elementary school girls take more responsibility for academic outcomes than do their male counterparts. However, the size of this relationship is exceedingly small.* In fact, when findings previous to the present study were examined, the specification of items into success and failure subscales almost totally obviated the statistical significance of the results. We speculate that measurement error may be one reason for this difficulty in generalizing the total IAR result to the separate subscales. The subscales are based on fewer items and may, therefore, be less reliable than the total scale, meaning a widened confidence interval around the subscale estimates of effect size. Whatever the cause, this finding is coupled with very low effect-size estimates. Even for the present study, which produced reliable subscale differences, the largest gender effect uncovered did not exceed $d = .30$—a magnitude Cohen (1977) considers "small." Taken together, then, these results suggest that even though an elementary school gender difference in locus of control may exist, gender is not a potent explanatory variable.

In light of the minimal gender differences uncovered, it could be argued that the general nature of IAR items is potentially masking larger sex effects for particular subject areas. Perhaps boys, on average, assume more responsibility for performance in mathematics (because of their socialization history), whereas girls assume more responsibility for verbal tasks. Future investigations concerning gender differences in locus of control and achievement may be most fruitful, therefore, if IAR-like measures for specific subject areas are developed. It may also be the case that other variables mask or mediate the association between gender and the internality beliefs. For example, Stipek and Hoffman (1980) suggest that high-achieving girls may understate their future academic achievement because of higher anxiety and need for adult approval.

The data also suggest that *for young children locus of control beliefs may be affected to some extent by their immediate environment.* Gender differences, although small in an absolute sense, were found to be most substantial at the close of the school year. Yet no Gender × Grade interaction emerged to indicate that the gender difference increased over a period of years. One possible reason for these seemingly conflicting results may be that children "forget" their gender differences (and potentially other differences as well) during the months they do not attend school. It may be that sustained participation in an academic setting is necessary for the gender difference to be maintained. Alternatively, gender differences may be closely tied to differences in treatment by teachers and may, therefore, emerge only after a long socialization period. At the beginning of the year, students may "suspend" their gender role beliefs until supporting environmental cues become apparent. Finally, the difference may be a methodological artifact. Over the course of the school year, children entered and left the school district. This might have happened in a manner systematically related to the gender effect (e.g., internal males left, internal females entered, etc.). Whatever the cause, the time of year effect was never strong, and September and May means were almost always in the same direction.

Also with regard to temporal sequencing, it appears that *the root of lesser female achievement behavior in secondary school or college will not be found in females' elementary school control belief systems.* Elementary school control beliefs (at least as measured by the IAR) are theoretically consonant with several synchronously measured achievement differences. That is, primary school girls outperform boys on reading and verbal tasks (Maccoby, 1966; NAEP, Note 1, Note 2). If changes in locus of control do cause changes in achievement, then the causal interval may be relatively short. If females change toward less internality, this probably *initially occurs after* elementary school years and is fairly rapidly followed by corresponding lesser achievement.

With regard to effort attributions, *females tended to report generally stronger effort–outcome covariation beliefs than males,* especially for success outcomes. This result is dissimilar to one reported by Dweck and Reppucci (1973). These researchers found that males were significantly more likely than females to attribute failure to lack of effort ($p < .05$). There are several possible reasons why the present mean differences for failure were in the opposite direction from the earlier study. First, chance may explain the dissimilarity. If chance is the cause, it is more likely to have produced the earlier result. This is because the present study employed 10 times as many subjects as the earlier one. Also, the present result is consistent with other related findings (i.e., the fuller subscale results found in previous studies). Second, in the earlier study, subjects were sampled from a suburb of a large northeastern city. In the present study, subjects came from a small midwestern city. It may be that population differences account for the discrepancy. Lastly, slightly different sets of items were used in the two studies.

The results of this study also appear to contrast with gender differences found for causal attributions about specific performances. Based on Deaux's analysis and research, it was predicted that males (citing ability) would give more internal reasons for success than females (citing luck), whereas females (citing lack of ability) would make more internal attributions for failure than males (citing task difficulty). Instead, it was found that females cited more self-causation than males for both success and failure, and the success difference was largely due to females saying "effort caused success" more often than males. If effort is conceptualized as an unstable characteristic, then the findings are easily reconcilable. Luck and temporary effort would then share the instability aspect central to Deaux's analysis. We suspect, however, that the IAR is tapping a more stable effort (cf. Cooper & Burger, 1980) dimension: the student's general propensity toward laziness or industry. This is due to the probabilistic way in which IAR questions are phrased, asking for the *likely* cause for a *class* of events. Deaux's analysis may still be sound, however, with a slight amendment. The qualification concerns the assumption that males have higher self-expectations than females. This may not be the case when the performance domain is elementary school achievement. Entwisle and Hayduk (1978), for instance, examined the self-expectations of children in first and second grade at both a lower and a middle-class school. They report no significant gender difference, though female expectations for academic and conduct grades were generally higher than male expectations. Thus, the expectancy analysis may be sound, with the qualification that the elementary school achievement domain favors traits more often associated with feminine behavior (cf. Brophy & Good, 1974; Feshbach, 1969).

Although the expectancy model may be congruent with the present data, the results cast greater doubt on the notion that elementary school females exhibit a more helpless pattern of attributions than males. To this end, Dweck, Goetz, and Strauss (1980) assert, "Girls are more likely than boys to blame a lack of ability for their failures, whereas boys are more likely to blame motivational or external factors, such as lack of effort or the agent of evaluation" (p. 441). This study found no gender difference in effort attributions for failure and a tendency for girls to more often report that strong effort caused successes. Also, recent research has failed to support the reasoning offered for what causes girls to be more academically helpless than boys. Specifically, Dweck, Davidson, Nelson, and Enna (1978) found that girls received most of their negative evaluations in achievement situations, whereas boys' criticism came for procedural aspects of their work. In contrast, Parsons (Note 3) reports no differences in praise or criticism directed at either the quality or form of student work. Similarly, Swarthout (Note 4) found a reinforcement pattern similar to Dweck et al.'s (1978) finding in only one of three classrooms. Rather than teach girls to be helpless, then, the higher expectations teachers hold for girls' performance may create more effort-contingent environments for females than males (cf. Cooper, 1979a). Finally, it seems important to note that students generally do not report perceiving differences in teacher behavior across gender (Weinstein, Middlestadt, Brattesani, & Marshall, Note 5) and that any reinforcement pattern one chooses can likely be found in some subset of classrooms.

Research that illustrates how unequal opportunity operates in American classrooms is exceedingly important. At present we appear to know very little about the nature of differential opportunities for male and female students. Needed are more models for exploring school discrimination along gender lines (Bank, Biddle, & Good, 1980) as well as for examining more subtle aspects of the classroom environment.

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Received March 17, 1980 ■