

## CHILDREN'S SEX, LOCUS OF CONTROL, AND ACADEMIC ACHIEVEMENT

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The Intellectual Academic Responsibility (IAR) Questionnaire was translated into Chinese and administered in two elementary schools in Taiwan, Republic of China. The subjects consisted of 164 boys and 155 girls from grades 4 to 6. An average grade in four major subjects in a semester served as an achievement index. It was found that: (1) girls were more internally controlled than boys, especially in the belief that they are responsible for their intellectual-academic failures; (2) the relationships between locus of control and academic performance was more consistent for boys than for girls. It was concluded that a belief in self-responsibility probably constitutes a motivational influence upon academic performance for Chinese boys, but only represents an ingredient of social desirability for Chinese girls.

There has been much interest in the relationship of locus of control to education. From locus of control theory (Rotter, 1966) one may predict a positive relationship between internal locus of control and school achievement. When a child believes that his rewards or punishments depend on his own efforts (internal control), it is most likely that he will strive to do those things that bring about rewards and minimize punishments. This point has been confirmed by several studies (e. g., McGhee & Crandall, 1968; Bartel, 1971; Linter, 1972; Messer, 1972). However, it has been shown that there were more consistent effects for males than for females (Crandall, Katkovsky, & Preston, 1972; Nowicki & Roundtree, 1971), because social desirability effects confounded relationship between achievement and locus of control for females (Nowicki & Walker, 1973)

Using the Intellectual Academic Responsibility (IAR) Questionnaire, McGhee and Crandall (1968) found that the measures of both internal responsibility for success (I+) and internal responsibility for failures (I-) predicted girls' grades and achievement test scores, while boys' scores were predicted consistently only by belief in their responsibility for failures (I-). Messer (1972) replicated and extended this study. The findings also strongly supported earlier findings that children with internal locus of control achieved higher school grades. However, in one important respect the findings differed

markedly from those of McGhee and Crandall. Messer found that boys took credit for their academic successes and girls who accepted blame for their failures were those most likely to have higher grades and achievement test scores.

Some investigations (Hjelle, 1970; Rigg, 1973; Murray & Staebler, 1973), however, failed to find achievement differences between internals and externals and suggest that internal-external locus of control is not necessarily a determinant of academic achievement.

In spite of some negative evidence, results in general seem to indicate that internals tend to manifest greater interest and effort in achievement-related activities than do externals. Nevertheless, the predictions are not consistent for both boys and girls. Joe (1971) has suggested that more data on sex differences would be helpful in clarifying the controversial results. Since most of the studies were done in the United States, in which the sex role in academic achievement is somewhat equivocal, such ambiguous results may be unavoidable. If this kind of study were done in other cultural settings in which social expectations for the two sexes are more clearly differentiated, some valuable insights might be obtained. Thus, this study was conducted in the Chinese cultural setting in Taiwan.

The purposes of this study were: (1) to investigate the relationships between locus of control as measured by the IAR and school achievement in Taiwan elementary school children; (2) to explore sex differences in these relationships.

The basic assumption was that there is a differential social expectation for the two sexes in Chinese culture; i.e., the male is expected to take more responsibility for successes, while the female is expected to take more responsibility for failures. This constitutes the different social desirabilities for the male and for the female. As a result, the male's internal control for successes and the female's internal control for failures are both confounded with social desirability and, therefore, will fail to predict their academic achievement. On the other hand, locus of control (I+ or I-) can predict achievement if it is not confounded with social desirability—for boys, the I-; for girls, the I+.

Based on this assumption, the following research hypotheses were made:

1. Boys are more internally controlled for successes than girls, while girls are more internally controlled for failures than boys.
2. For boys, internal control for failures, rather than internal control for successes, is positively and significantly related to their academic achievement; for girls, internal

control for successes, rather than internal control for failures, is positively and significantly related to their academic achievement.

## METHOD

### *Research Design*

Basically a two-group fixed effect design was employed to test the hypotheses.

Evidence for the hypotheses was obtained by:

1. An F-test for equality of mean vectors between the two sex groups.
2. A simple correlation analysis for the relationships between internal control scores (I+ and I-) and the achievement criterion.

The achievement criterion was the average grade in four major subjects—Chinese, mathematics, social science, and natural science—in the semester when the IAR was administered.

Statistical significance was conventionally set at the .05 level.

### *Subjects*

The subjects used in this study were 164 Chinese boys and 155 Chinese girls. They were randomly drawn from two elementary schools in Taichung, a city in central Taiwan. Twelve classes, two each from grades four to six, comprised the samples.

### *Instrument and Procedures*

The Intellectual Achievement Responsibility Questionnaire (Crandall, Katkovsky, & Crandall, 1965) was translated into Chinese by the writer and administered in Taiwan in December of 1975. The testing work was sponsored by a friend of the writer according to preset procedures. A month later it was readministered using the same samples.

The IAR Questionnaire is composed of 34 forced-choice items, each item stem describes either a positive or a negative achievement experience which routinely occurs in children's daily lives. This stem is followed by one alternative stating that the event was caused by the child and another stating that the event occurred because of the behavior of someone else in the child's immediate environment. For example:

Item 1. If a teacher passes you to the next grade, would it probably be

- \_\_\_ a. because she liked you, or
- \_\_\_ b. because of the work you did? (I+)

Item 3. When you have trouble understanding something in school, is it usually

- \_\_\_ a. because the teacher didn't explain it clearly, or
- \_\_\_ b. because you didn't listen carefully. (I-)

Some minor changes were made for the Chinese version to make it more easily understood by Chinese children. These changes were: (1) An example was added before the first item; (2) A separate answer sheet with a short set of instructions was used; (3) "A game of Chinese chess or skipping chess" was substituted for "a game of cards or checkers" and "solve a difficult problem" was substituted for "solve a puzzle".

## RESULTS

The test-retest reliability based on a one-month interval was moderately high. For boys, the test-retest correlations were .51 for total I, .57 for I+, and .45 for I-. For girls, the correlations were .63 for total I, .32 for I+, and .22 for I-. These correlations were all significant at the .01 level. This probably indicates that children's assumption of responsibility for their intellectual-academic successes or failures is a somewhat stable belief in Chinese culture. It should be noted, however, that for girls the total I was much more stable than the subscale I+ or I-.

The interscale correlations were also moderately high. For boys, the I+ vs. I- correlation was .39. For girls, the correlation was .32. These correlations were all significant at the .01 level. This probably indicates that these two beliefs may be somewhat related to each other and are not totally independent.

The sex differences on the IAR are presented in Table 1.

TABLE 1  
F-TEST FOR SEX DIFFERENCES ON MEAN IAR SCORES

	Boys		Girls		F
	Mean	S. D.	Mean	S. D.	
Total I	26.32	3.90	27.35	3.84	8.51**
I+	12.89	2.36	12.97	2.32	.56
I-	13.43	2.41	14.38	1.86	72.50**

\*\* $P < .01$

*Note.* N for boys=164 and for girls=155

The results show that in general girls were more internally oriented than boys ( $P < .01$ ). However, the difference is due mostly to the I-, rather than to the I+. It was obvious that girls gave significantly more internal response for failures than did boys ( $P < .01$ ). On the other hand, the difference between the two sexes on internal control for successes was not significant. Therefore, the first hypothesis was only partially supported.

The correlations of the IAR scores and the achievement measures are presented in Table 2.

TABLE 2  
CORRELATIONS OF THE IAR SCORES AND THE ACHIEVEMENT SCORE

	Boys	Girls
Total I vs. Achievement	.167*	.054
I+ vs. Achievement	.292**	.056
I- vs. Achievement	.278**	.021

\* $P < .05$       \*\* $P < .01$

*Note.* N for boys=164 and for girls=155.

The results indicates that for boys the three IAR scores, total I, I+, and I-, were all positively and significantly correlated with the academic achievement measure, though the correlations were only slightly high. For girls, no significant correlations were found. Therefore, the second hypothesis, again, was only partially supported.

## DISCUSSION

The present findings did not confirm the cross-relationships between sex, locus of control, and achievement assumed by the writer to exist in the Chinese cultural setting. However, they reveal a clear picture indicating that: (1) the female sample were more internally controlled than the male samples, especially in the belief that they are responsible for their intellectual-academic failures; (2) the relationships between locus of control and achievement were more consistent for boys than for girls.

Nowicki and Walker (1973) argued that females in the American society, beginning at a very young age, are socialized into the role of being nurturant, obedient, responsible, and dependent on others. These characteristics suggest that behaving in a socially desirable manner may be quite important for young females, more than it is for young males. This social desirability also appears in Chinese society and is probably even stronger there. In Chinese society it is the common belief that females are born inferior to males; therefore, females are usually encouraged to avoid complaining about their fates or blaming others if they are not able to gain satisfaction or achievement. This kind of self-blame for failures is also to be expected in a "true gentleman", but it is considered a more important virtue for females and is more easily identified in females than in males. Because females are more people-oriented and are more sensitives to the

environmental press (Lindgren, 1969; Wu, 1975), the transmission of social desirability should be easier for them. Thus, role expectation and identification probably contribute to the result that girls expressed a higher degree of self-responsibility for failures than did boys.

The IAR was originally developed as a predictor of children's intellectual-academic behavior and it is assumed that an internal or external orientation represents a motivating propensity which will help to account for individual differences in achievement performances (Crandall, Katkovsky, & Crandall, 1965). The present findings from boys data tend to support this assumption and suggest that a boy's internal control is relatively less confounded with social desirability. For girls, it is most likely that what the IAR measured are probably not "pure" indices of internality, since their belief in taking responsibility for successes and failures are not independent from social desirability. As a result, the internality indices of girls failed to related to achievement criterion. These results are in contrast to McGhee and Crandall (1968), but consistent with Crandall, Katkovsky, and Preston (1962), Nowicki and Roundtree (1971), Nowicki and Walker (1973), and Messer (1972).

In conclusion, it seems that a belief in self-responsibility for successes or failures constitutes a motivational influence upon achievement performance for Chinese boys, but only represents an ingredient of social desirability for Chinese girls. For further study, a social desirability measure comparing the two sexes in a Chinese cultural context is most desirable.

## REFERENCES

- Bartell, N. R. Locus of control and achievement in middle-and lower-class children. *Child Development*, 1971, 42, 1099-1107.
- Crandall, V. J., Katkovsky, W., & Preston, A. Motivational and ability determinants of young children's intellectual academic behaviors. *Child Development*, 1962, 33, 643-661.
- Crandall, V. C., Katkovsky, W., & Crandall, V. J. Children's belief in their own control of reinforcements in intellectual academic achievement situation. *Child Development*, 1965, 36, 91-109.
- Hjelle, L. A. Internal-external control as a determinant of academic achievement. *Psychological Reports*, 1970, 26, 326.
- Joe, V. C. Review of the internal-external control construct as a personality variable. *Psychological Reports*, 1971, 28, 619-640.

- Lindgren, H. C. *An introduction to social psychology*. New York: John Wiley & Sons, Inc., 1969.
- Linter, A. C. Locus of control related to failure in elementary school and responsiveness to praise. *Dissertation Abstracts International*, 1972 (Oct), **33(B)**, 1518.
- McGhee, P. E., & Crandall, V. C. Beliefs in internal-external control of reinforcement and academic performance. *Child Development*, 1968, **39**, 91-102.
- Messer, S. B. The relation of internal-external control to academic performance. *Child Development*, 1972, **43**, 1456-1462.
- Nowicki, S., & Roundtree, J. Correlates of locus of control in secondary school age students. *Developmental Psychology*, 1971, **4**, 477-478.
- Nowicki, S., & Walker, C. Achievement in relation to locus of control: identification of a new source of variance. *Journal of Genetic Psychology*, 1973, **123**, 63-67.
- Murray, H. B., & Staebler, B. K. Effects of teacher-student locus of control on intellectual achievement. *Proceedings of the 81th Annual Convention of the American Psychological Association*, Montreal, Canada, 1973, **8**, 697-698.
- Rigg, L. J. Children's perception of personal and parental locus of control as related to academic achievement. *Dissertation Abstracts International*, 1973(Apr), **33(A)**, 5562.
- Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, 1966, **80**, No. 1 (Whole No. 609).
- Wu, W. T. Classroom climates in Chinese and American elementary schools: A cross-cultural study. Unpublished doctoral dissertation, University of Kentucky, 1975.

# 兒童之性別制握傾向與學業成就

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## 摘 要

為探討中國兒童之性別、制握傾向與學業成就之交互關係，智學責任問卷（IAR）經譯為中文並施測於兩所台灣中部之小學，受試兒童包括四至六年級之男生164人，女生155人。國語、數學、社會、自然、社會四科之學期總平均成績作為學業成就之指數。結果發現：(1)一般而言，女生較男生為內制，特別對於智力與學業活動的失敗，女生強烈地表示其責在我；(2)制握傾向與學業成績的相關，對於男生頗為顯著，對於女生則不顯著。由此推論，其責在我的信念（內制傾向）對於男生而言可能構成助長學業的一項動機性要素；對於女生而言，此種信念似不過反映其社會期望價值而已。