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ABSTRACT

Results of several studies of cognitive and cultural correlates and determinants of early IE development are discussed, and some implications of the findings are pointed out. In studies of correlations between IE and intelligence test scores, results show that the scores increase regularly with age, from age 4 through 8, and there are fairly consistent, if low, correlations with intelligence, with Internal children showing higher intelligence test scores than External children. With pre-school age subjects, using the SDRCI measures, Internals learned a mirror-tracing task more rapidly than Externals. No straightforward relationship of IE to persistence on an intellectual task was found--it tended to be positively related for girls but negatively related for boys. In studies of the socioeconomic and cultural determinants of early IE development, the first are studied was whether disadvantaged children show more External expectancies than middle class children as early as preschool age. Findings show that the IE problem of disadvantaged children is clear as early as beginning-Head Start age. Strong effects of economic status on IE was evidenced. In addition, strong cultural differences among economically disadvantaged groups were found. Some subtler and more complicated cultural effects were reversing sex differences and , in one case, a dependency of IE responses on interviewer ethnicity. (DB)

Cognitive and Cultural Determinants of Early IE Development[1]

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We have known since the Coleman Report (Coleman, 1966) that IE is crucial in the poor school performance of disadvantaged minority children. It is not completely clear, I think, whether External Control expectancies are cause or effect of poor school performance, or just concomitants. Nevertheless, it is clear that IE is intimately involved in achievement-oriented effort (e.g., McGhee & Crandall, 1968; Reimanis, 1970; Chance, 1968) and that in turn socioeconomic status is a determinant of IE (e.g., Battle & Rotter, 1963; Shaw & Uhl, 1969); and this has obvious significance for the educational achievement, and therefore the potential for social mobility, of disadvantaged minority groups.

One would think, then, that IE would be the primary target of compensatory preschool and early elementary education programs, as well as other intervention techniques. So far as I know, however, few if any preschool programs have been expressly aimed at IE, nor have any other efforts, with the partial exception of some Project Follow Through programs. This neglect may help explain why intervention programs have not been as successful as hoped. The reason for the neglect being simply a lack of information regarding early developmental determinants of IE - that is, about what can be done to influence IE development. Beyond the purely theoretical interests, the major concern of our research to date has been to isolate the determinants of early IE development which might point the way to more effective intervention programs for disadvantaged minority group children.

We have not yet finished data analysis for two studies, one with Head Start and another with Follow Through second grade programs, concerned directly with the effects of different kinds of classroom environment and program on IE. In general, though, we found that Montessori and parent cooperative nursery schools produced bigger gains in Internal Control expectancies than did a Head Start or another compensatory preschool program; but the differences were not significant (because, I think, of low N in a couple of groups). In the Follow Through study we did find that the EDC-model "open classroom" programs produced higher

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Internal Control scores than did the Becker-Engelmann behavior-modification programs, and the Becker-Engelmann programs produced higher scores than did a "traditional" classroom control group; these differences were significant, although not as large as those we found with the preschool programs.

We hope to follow these studies up; and this fall we will start a project to try to identify parent behavior determinants of early IE development. In the interim we do have results of several studies of cognitive and cultural correlates and determinants of early IE development; and these data also have important implications for compensatory education programs. I'll report first what we have found about IE and cognitive development and some implications and possibilities of these findings. Then I'll report what we've found about cultural determinants of IE, and some implications of these data.

The IAR (Crandall, Katkovsky & Crandall, 1965) and Bialer-Cromwell (Bialer, 1961) children's IE tests have found low, sometimes inconsistent, but generally positive correlations between IE and intelligence test scores: children with higher Internal scores have higher intelligence test scores. So far we have been able to get intelligence test scores for three different preschool groups for whom we had IE scores. Our results are very similar to those with older children: not only do scores increase regularly with age, from age 4 through 8 at least, but also we have found fairly consistent, if low, correlations with intelligence, with Internal children showing higher intelligence test scores than External children.

This correlation can be interpreted in either of two ways: that intelligent children are able to learn Internal Control contingencies more rapidly than less intelligent children, or that Internal Control expectancies help expedite intellectual development. As unlikely as it sounds, there is a basis for assuming that IE may indeed mediate intellectual development, and that early intellectual development could be increased by increasing early IE development. This is the possibility we hope to test in the 3-year project we're just beginning; but first I'd better explain the rationale. June Chance (1968) found that children with relatively Internal scores showed a pattern of school performance increasing across time, and those with relatively External expectancies a pattern of decreasing performance. This suggests directly that IE may be an antecedent of development of cognitive abilities. In addition, the IE literature suggests several mechanisms by which intellectual development could be affected by IE. Crandall (1970), for example, reports that Internals show greater persistence on intellectual tasks, and also greater reflectivity, than Externals; other studies have found IE related to attention-deployment in experimental task situations (Lefcourt & Wine, 1969), to tendency to seek information (Davis & Phares, 1967) and to use information (Phares, 1968) in problem situations, and to various other cognitive dispositions of this sort. Each of these variables ought to affect not only the child's performance, but also his rate of acquisition of successful problem-solving strategies, of schemata, and of various cognitive contents, processes, and skills which

indeed would be considered aspects of "intelligence" per se. The Internal child, that is, may more rapidly learn how to <u>be</u> intelligent.

The IE-IQ correlation itself can't, of course, help choose between these interpretations. (One would suspect, in fact, that the IE-IQ relation is likely to be reciprocal.) IE <u>may</u> mediate intellectual development, though; and this makes it even more urgent to seek ways to increase early IE development - if only to test the hypothesis that enhanced Internal Control development may lead to faster intellectual development.

In the interim, we have begun some studies of those cognitive correlates of IE in young children. The results are inconclusive so far. We did find, with preschool-age subjects and using our SDRCI measure of IE, that "Internals" learned a mirror-tracing task more rapidly than "Externals" (Parker, 1971). However, we failed to find a straightforward relationship of IE to persistence on an intellectual task: it tended to be positively related for girls but negatively related for boys, with the difference between correlations of borderline significance. This sex difference, at least among middle class preschoolers, may well be a reliable phenomenon, but we need to replicate this before we can be confident of it. In another study (Waite, 1971), with a Matching Familiar Figures measure of cognitive reflectivity-impulsivity, we didn't find the expected straightforward relation of Internal Control scores to reflectivity. However, the MFF task was, we realized too late, too easy for the subjects we used; and we found that the "Internals" <u>had</u> deliberated longer on their response choices than had "Externals" on the more difficult items, although they had responded if anything, a little faster than Externals on the easy items. This is consistent with what ought to have been expected, but it, like the other studies, needs to be replicated before we can be very confident of what we've got. We hope within a year to have clarified the relation of IE to cognitive dispositions of this sort which might serve to enhance intellectual development.

The other major set of studies we have completed concerns the socio-economic and cultural determinants of early IE development. The first thing we wanted to find was whether disadvantaged children show more External expectancies than middle class children as early as preschool age. We tested (Delys, 1971) children from two black and two white Head Start classes (total N being 41), and middle class children from two Montessori and two Parent cooperative (total N being 45) nursery school classes. The Head Start children did have significantly ($p < .02$) lower Internal Control scores than did the middle class children (see Table 1). (Black Head Starters had slightly lower scores than white Head Starters, and Montessori children slightly higher than Parent co-op children, but neither of these differences was significant.) These differences have consistently held up for other black and white disadvantaged groups and middle class groups tested subsequently. The "IE problem" of disadvantaged children <u>is</u>, then, clear as early as beginning-Head Start age.

In a later study (Stephens, Delys, and Parker, 1971) the effect of economic status was particularly dramatic. The subjects were all black

preschool age children from the same compensatory preschool center. It was not a Head Start, although it was a compensatory program: eligibility was based on neighborhood residence, rather than on an individual family income formula. About one-third of the children were below the OEO "poverty" line; the rest were not much above it - they all came from the same neighborhood - although by OEO standards they were too rich to have been eligible for a Head Start program per se. Even this minimal economic difference in what was otherwise an extremely culturally homogeneous population produced higher ($p < .08$) Internal Control scores for the above- than the below-"poverty" children (see Table 2).

In addition to white and black disadvantaged groups we have been able to test children of three other cultures: (1) Chinese-American (Wang & Stephens, 1971) (2) Latin American (Puerto Rican and Chicano) (Stephens, Delys, Lopez-Roig, & Vilez, 1971) and (3) American Indian (Stephens, Delys, & Poindexter, 1971). These studies have produced several findings of some importance.

First, these groups did not show any general pattern of External Control scores, even though they could be considered "disadvantaged minority" groups (see Table 3). The Chinese-American children, in fact, had quite high Internal Control scores, compared even with our middle class white groups. The Spanish-speaking-culture children we tested were more or less intermediate in economic status between the disadvantaged and the middle class Anglo groups we have tested; and their IE scores were similarly intermediate. All the Indian children we tested were Headstarters, from six different reservations and one urban center. Only in one reservation group were the scores in the range of white or black Headstarters; in all other Indian groups, the mean Internal Control scores were at least equivalent to those of nondisadvantaged white children. Cultural factors, then, can override the effects of "disadvantaged minority" status in early IE development. Otherwise stated, IE development seems quite sensitive to cultural differences in early socialization experiences.

Second, we have, like others, found girls to have higher Internal Control scores than boys in almost all groups we have tested - the Anglo- and Afro-American groups, that is. But, virtually without exception, we have found the reverse sex difference in all other cultures - Chinese-American, Puerto Rican, Chicano, and the seven different Indian groups. This in itself implicates powerful, if complex and subtle, cultural factors in early IE socialization.

A third finding suggests some immediately practical, as well as theoretical, implications. When we tested the Spanish-American children we took along two Puerto Rican interviewers to interview the children who were fluent only or primarily in Spanish. The children they interviewed - whether in Spanish or English - had far higher ($p < .001$) Internal Control scores than did the children Mrs. Delys and I interviewed (see Table 4), and there were no apparent differences in interviewing style which would account for this. It appears that for these children, External Control responses may be acquired as a culturally

mediated defense that is manifest in interaction with Anglos but not in interaction with representatives of their own culture. If this be so, among other things it would suggest that Anglo teachers may be much less effective than Spanish-American teachers with these children. (I should note that we did not find this interviewer ethnicity effect with a black interviewer and black children.)

To summarize: we have found strong, straightforward effects of economic status on IE. In addition, we have found strong cultural differences among economically disadvantaged groups. Finally, there are some subtler and more complicated cultural effects: reversing sex differences, and in one instance a dependency of IE responses on interviewer ethnicity.

It does seem clear, then, that a major aim of compensatory education programs for disadvantaged children (at least, Afro- and Anglo-American disadvantaged children) should be an attempt to increase the development of Internal Control expectancies, and it is also clear that the design of programs to accomplish this will need to anticipate important cultural differences in both the need for emphasis on Internal Control development and the expression and cultural-motivational implications of IE.

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Table 1

Mean SDRCI Internal Control Scores of Two Disadvantaged and Two Nondisadvantaged Groups (From Delys, 1971)

Disadvantaged:	Boys	Girls	Boys	Girls	Nondisadvantaged:
Black Head Start	8.1	8.7	14.4	15.8	Montessori
White Head Start	8.5	13.0	11.5	14.9	Parent Cooperative

Table 2

Mean SDRCI Scores for Children Above and Below OEO "Poverty" Line in Compensatory Preschool Program (From Stephens, Delys, & Parker, 1971)

	Boys	Girls
Below Poverty Line	7.2	10.0
Above Poverty Line	10.9	13.3

Table 3

Mean SDRCI Scores for Various Cultural Groups Tested

Anglo-Afro-American	Middle Class		Lower Middle Class			Disadvantaged	
	Boys	Girls		Boys	Girls		Boys	Girls
White Montessori	14.4	15.8	Black Compensatory	10.9	13.3	Head Start Black	8.1	8.7
Parent Co-op	11.5	14.9				White(A)	8.5	13.0
Day Care Center	14.0	15.3				White(B)	8.9	7.9
University Lab Nursery School	15.6	8.5				Compensatory (Black)	7.2	10.0
Other Cultural:								
Chinese-American	16.4	14.9	Puerto Rican	13.2	9.8	American Indian A	15.0	10.2
			Mexican American	11.9	10.3	B	14.0	11.0
						C	16.9	11.4
						D	9.1	7.0
						E	12.1	15.0
						F	16.0	14.1
						G	13.3	16.7

Table 4

Mean SDRCI Scores of Puerto Rican and Mexican-American Preschoolers as a Function of Ethnicity of Interviewer (From Stephens, Delys, Lopez-Roig, & Vilez, 1971)

Puerto Rican Interviewer			Anglo Interviewer
LLR	14.1	8.4	PD
CV	17.7	9.0	MS