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ABSTRACT

Both papers are concerned with locus of control (of reinforcement) expectancies among young children, especially preschoolers. The first reviews a number of studies which examined the relationship between locus of control, socioeconomic status, and ethnicity. The results indicate that (1) economic status is consistently related to locus of control, at least within ethnic groups; (2) lower class black and Appalachian white children show the most extreme External Control expectancies -- notably moreso than Indian children; and (3) girls have higher Internal Control expectancies than boys in the Anglo- and Afro-American cultures, but this reverses in the Indian and Chicano populations studied. The second paper discusses the theory underlying, and the development of, a measurement instrument for assessing whether young children expect that reinforcement is contingent on their behavior or not. Both papers emphasize as crucial the development of school programs, parent education programs, and clinical procedures for the optimal development of internal control expectancies among young children. (TL)

Subcultural Determinants of Locus of Control (IE) Development[1]

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Locus of control expectancies are the most important of all determinants of underachievement in school among disadvantaged minority children - more important than school facilities, teacher-to-student ratio, teacher qualifications, and all such "school" variables combined. This was the conclusion of the Coleman (1966) report, the report of the Commission on Unequal Educational Opportunity based on a survey of over 900,000 children. Other studies have generally confirmed the relation of Locus of Control (abbreviated "IE", for "Internal" vs. "External" Control of reinforcement; see Rotter, 1966) to school performance (e.g., McGhee & Crandall, 1968; Chance, 1968) and the socioeconomic and ethnic differences in IE (e.g., Battle & Rotter, 1963; Shaw, 1969).

With the importance of IE so thoroughly documented, it would seem obvious that compensatory preschool education programs, such as Head Start, should be aimed specifically at trying to reverse or prevent the IE-based barrier to achievement; yet few if any such programs [illegible] with this as a specific goal. It is entirely possible, in fact, that many programs, by focusing on cognitive training and employing highly structured teaching techniques, may actually increase the child's perceiving that it is others, not he, who are responsible for his learning or not learning. There has, in fact, been no investigation at all of the impact on IE development of Head Start of other preschool programs, or of ways this impact might be optimized.

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[1] Paper read at Midwestern Psychological Association convention, Detroit, May 6, 1971.

One reason for this oversight may be that there has been no evidence whether there is a difference in IE expectancies between socioeconomic groups below second or third grade level; and this, of course, has been at least partly because there hasn't been a way to measure IE below that age. This was what our SDRCI interview procedure (Delys & Stephens, 1971) was developed for. Our primary interest was in investigating the present and potential effect of compensatory preschool education programs on incipient IE-based problems of disadvantaged children.

We have been primarily interested so far in three sets of questions. First, is the tendency toward more external control expectancies among disadvantaged minority children apparent as early as Head Start age? It seemed entirely possible that it might not emerge as a developmental/cultural phenomenon until later - and even that it could be a result, and not an antecedent, of differential school experiences. (It also seemed possible that there might not even be generalized, consistent individual differences in IE expectancies among children this young; the reliability and retest data reported by Mrs. Delys answered that question, however.) The second question is, are the external control expectancies at this age a product of poverty, of ethnic minority status, or both; and are there subcultural differences in IE development which must be identified, both to better understand the process of socialization and development of IE and also so that the contemporary programs, to the extent that they are concerned with IE, can and should be specifically adapted to subculture specificities concerning IE? The third question we haven't yet finished data collection for: what is the impact on IE development of different types of preschool educational experience? We have, however, been able to answer the first two questions fairly con-

clusively. In brief, economically disadvantaged children - whether or not they are of an ethnic minority - do show, already by age four, less Internal Control expectancy development than do nondisadvantaged children; and there are clear and important differences among different ethnic minority and/or disadvantaged groups.

Instead of reporting a single study, this paper will summarize what we have found in a number of different studies concerning economic, [illegible] cultural, and subcultural factors in IE expectancies among nursery school age children (see Table 1). In all studies the SDRCI technique of measuring IE was administered, following the same procedure for all groups tested. In most, other measures were taken, and/or other variables were involved, which were not relevant in this context. All subjects were from "four-year old" groups - that is, were of such age as to be eligible for kindergarten at the beginning of the next school year.

In our first study (Delys, 1971) we compared two disadvantaged and two nondisadvantaged groups. The disadvantaged groups were children (1) from two black Head Start classes (N = 35) and (2) from two white Head Start classes (N = 20) in the same city. The nondisadvantaged groups came from two middle class parent cooperative nursery schools (N = 34) and two Montessori nursery school classes (N = 16) in the same city. The disadvantaged children did indeed show significantly ($p < .05$) lower Internal Control scores than did the middle class children. (Black Head Starters had somewhat lower scores than white Head Starters, and Montessori children slightly higher scores than parent co-op children, but these intra-class differences were non-significant.) Girls had significantly ($p < .05$) higher scores than boys - consistent with the almost universal trends in previous studies with older children, up to

adolescent age. We, too, have found this sex difference almost universally - but only in Anglo- and Afro-American groups. This will be discussed later.

The second study (Stephens, Delys & Parker, 1971) involved children all in the same preschool center, f 8 different classes (4 different teachers). All children served by that center were black. It is not a Head Start program, but is a compensatory program - particularly well staffed and funded, with an unusually enriched, thoroughly planned, and highly structured curriculum. Eligibility for the program depends only on residence in the neighborhood, not on meeting OEO criteria for "poverty"-level family income. About one-third of the children did meet these poverty criteria. The rest were generally not far above the OEO poverty line: all came from the same neighborhood, and few if any would have been classified much above low lower-middle class. The difference between below- and above-poverty level groups was, then, minimal as far as economic status was concerned. Nevertheless, we found the above-"poverty" children had higher scores ($p < .10$) than the below-"poverty" children. This is in many ways our most dramatic finding. It documented particularly impressively the powerful role of economic status - at least, in an urban black group - on IE development. Incidentally, girls again had higher scores than boys.

Our next study (Stephens, Delys, Lopez-Roig, & Vilez, 1971) involved children in a Bilingual Education Center preschool program - Puerto Ricans, Chicanos and a few Cubans. Few if any were below the "poverty" line. This was not a compensatory program, but a bilingual training program. A few of the children spoke only Spanish, many only English, and some were bilingual when enrolled. The purpose of the program is to afford

a truly bilingual education - specifically language training. Socio-economically, these children were generally intermediate between our other "disadvantaged" and advantaged groups: fathers generally held semi-skilled or skilled labor jobs. IE scores were also generally intermediate; and differences between Puerto Rican and Chicano groups were nonsignificant. But there were two most important findings. First, for both groups, boys had higher scores than girls. This was our first evidence that sex differences are culture - specific and this in turn implicates powerful, if subtle, cultural effects in early IE development. Second, children interviewed by the two Anglo interviewers gave far fewer Internal responses than did those interviewed by the two Puerto Rican interviewers we brought to be able to interview the few children who were not fluent in English. Both the differences were significant ($p < .001$); the latter suggests, among other things that External Control expectancies may, in some circumstances at least, serve as culturally mediated defenses in interaction with representatives of the oppressive majority culture. The implications of this are obvious concerning the potential role of the ethnicity of the teacher on learning and performance of such children.

Two other studies have involved subjects who were neither Anglo- nor Afro-American. One (Stephens, Delys, & Poindexter, 1971) was with American Indian Head Starters, the other (Wang & Stephens, 1971) with Chinese-American (non-disadvantaged) nursery school children. In both, boys again had higher scores than girls. The American Indian children's scores were close to those of the middle class white group - the boys', in fact, higher, and the Chinese-American children's scores both boys' and girls', were substantially higher than the middle class white group's.

Two other studies (Stephens & Waite, 1971; Stephens & Poindexter,

1971) have dealt with other nondisadvantaged nonminority children and another (Stephens & Parker, 1971) with a different white Head Start group, these three groups have closely followed the pattern of other community groups.

In summary, ethnic minority status is not invariably associated with External Control expectancies - even among economically disadvantaged and/or nonwhite and/or non-English-speaking children. Economic status is consistently related to IE, at least within ethnic groups - even where economic status differences are relatively small. Lower-class black and Appalachia white children show the most extreme External Control expectancies - notably moreso than Indian children (at least, those tested to date). Finally, the problem of sex differences - reversing when one leaves the domain of Anglo- and Afro-American culture - and effects of ethnicity of the interviewer implicates powerful, subtle, and complex cultural factors involved in the socialization, development, and expression of IE expectancies in young children. These factors we can only guess, but they clearly imply care in designing "cross-cultural" compensatory programs, and caution in generalizations about determinants of early IE development.

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Locus of Control Expectancies of Preschool Age

Disadvantaged Children

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Mean Internal Control Scores of Economically Disadvantaged and Nondisadvantaged

Black and White Groups

Disadvantaged	Girls	Boys	Nondisadvantaged	Girls	Boys
Urban Headstart (Black)	8.7	8.1	Parent Cooperative Nursery (White)	14.9	11.5
Urban Headstart Center (White)	13.0	8.5	Montessori Nursery (White)	15.8	14.4
Non-Headstart Compensatory (Black), Below Poverty Line	10.0	7.9	Non-Headstart Compensatory (Black) Above Poverty Line	13.3	10.9
Small-Town Headstart (Mostly White)	7.9	8.9	Day Care Center (White)	15.3	14.0
American Indian Headstart	10.2	15.0	University Laboratory Nursery School (Mostly White)	8.5	15.6
Reservation	11.0	14.0	Chinese-American	14.9	16.4
			Bilingual Education Program:		
			Mexican-American	10.3	11.9
			Puerto Rican	9.8	13.2

A Locus of Control (IE) Measure for Preschool-Age Children: Model, Method, and Validity[1]

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There are several measures of "IE," or locus of control expectancies (see Rotter, 1966); but none, not even the new Nowicki-Strickland test (Nowicki & Strickland, 1970), can be used with children younger than second or third grade age. An IE measure for preschool age children is needed for several purposes. One such need is to determine whether the relatively "external" expectancies of disadvantaged children, found in the Coleman Report (Coleman, 1966) to be crucial determinants of academic under-performance among disadvantaged children of sixth grade level and higher, are manifest as early as Headstart age; if so, it would seem that Headstart-type programs ought to be aimed specifically at enhancing development of more "internal" expectancies, although few if any presently are so designed. A related need is to find what kinds of compensatory preschool programs do in fact best enhance development of internal control expectancies. These questions are dealt with more in Dr. Stephens' paper (Stephens & Delys, 1971). Such a measure is also needed to investigate the determinants of early IE development - cultural, parent behavioral, and otherwise: present data regarding parent behavior

[1]Paper presented at Midwestern Psychological Association, Detroit, 1971.

determinants of IE in older children is confused (Crandall, 1970; Stephens, 1971), and in any case determinants of early IE development may be different, more important, and at the same time more straightforward than are antecedents or environmental correlates of IE in middle childhood. Also, such a measure is needed to explore the effect of early IE development on cognitive development and socialization during preschool years, especially since there is reason to suspect IE might mediate early intellectual development (see Kinnie & Stephens, 1971; Stephens, 1971). For all these purposes, and especially for investigating IE problems relevant to compensatory preschool education, we undertook the task of developing a technique for measuring IE which would work with children 4 years old or younger.

It was obvious that an individually administered technique would be required for preschoolers. Beyond that we found in pilot testing that even with individual administration the traditional kinds of IE questions taken from tests for older children, no matter how carefully translated downward for preschoolers, were terribly confusing - meaningless, in fact - to many four-year-olds. As one observes clinically (or just in conversation) with children this age, the preschooler's cognitive capabilities just cannot easily handle an interchange in which a relatively complex (for him) question is generated by an adult and he is asked to assimilate and comprehend it and produce a simple answer.

Pilot testing made it apparent that the four-year-olds' limitations in language and cognitive development, and also in experiences, would severely restrict feasible test operations. For example, concepts like "luck" and "lucky," in any translation, seemed just not to mean anything

to most four-year-olds; we found that not only in the early pilot testing of questions to use in an IE test, but also in attempts to find a way to experimentally manipulate IE in laboratory studies. Even concepts like "winning" and "doing well," however translated, seem beyond the preschooler's comprehension. Beyond this, any kind of forced-choice question seemed too cognitively demanding for preschoolers. Crandall (personal communication) has said that she finds this true, with her test (Crandall, Katkovsky & Crandall, 1965), even among second graders, even when the test is individually administered: it is just too hard for the child to remember the first response alternative after having heard the second, so there is a powerful tendency just to give the second response each time. This is exactly what we found in pilot testing, despite all efforts. Even yes-no format questions tended to elicit response sets - this time, the child's simply staying with "yes" or with "no."

We were forced, then, to go back to the theoretical model in which IE is defined and see if we could generate a completely different IE measurement model that would be operationally valid and still work with preschoolers. Jessor and Hammond (1957) made the point that, ideally at least, a measure of a theoretical construct ought to correspond in form to the theoretical definition of that construct - that is, that the behavior observed should be behavior which, in that theory, is by definition representative of that construct. Choosing "yes" or "no" on a test, for example, is not a direct representation of any construct other than "yea-saying" or "naysaying." What, then, is the definition of IE, in Rotter's theory (1954; 1966), that should or could guide the construction of a new IE measurement model?

In Rotter's theory, IE is an expectancy variable - a higher order expectancy. Ideally, then, an IE measure would be a series of statements of, or behaviors that reflect, expectancy - preferably of a 0-to-100 per cent, rather than a categorical yes-no, sort. IE is actually, in fact, an expectancy about expectancies. It reflects the subject's expectancy that his own behavior would change the probability that reinforcement might occur. For example a child may have an expectancy of 10 per cent, or 85 per cent, or anything between 0 and 100 per cent that his teacher will like him - whether he does anything to cause her to like him or not; his IE expectancy is how much he expects this per cent probability will change if his behavior changes. A pure IE question would take this form: "I have a _____ per cent change of teacher liking me if I direct my behavior appropriately, and a _____ per cent chance if I don't," the IE expectancy being the difference between these two probability statements (or, alternatively, the subject's expectancy that there would be any difference at all between these probabilities).

Obviously, one can't get a quantified probability statement from a preschool-age child. However, one can quantify the degree of association he shows between reinforcing events on the one hand and his own behavior on the other. The probability of a child associating the occurrence of a reinforcement with his own behavior, rather than with some other contingency, can be assumed to reflect his perception of the probability that that behavior is the most salient correlate of that reinforcement. An index of associative strength - that is, of probability of association of a reinforcement with a behavior - would in fact be a simpler and more

direct index of subjective probability of relation of behavior to reinforcement than would response choice on a true-false or other constrained response test, which requires more complicated judgmental processes and is vulnerable to influence by the subject's expectancies regarding which given response alternative may be considered the more socially desirable. A free-response measure, then - although more time consuming (which was not a factor if one had to use an individually administered test anyway) - could give a more straightforward index of associative strength and, therefore, perceived relationship or subjective probability of relationship of reinforcement to behavior than could any kind of limited-response-choice measure.

The general model, then, called for a way of determining, by a free-response method, the degree of association between reinforcements and behaviors. Presumably one might use either of two types of questions to assess this strength of association. One type would posit the occurrence of a behavior, and determine whether or not the child associates with that behavior some reinforcement or something else: for example, "What happens when you listen closely to the teacher?" We tried this kind of question and just could not make it work: there just seemed to be too much obvious stimulus pull for any behavior that might generally be expected to be subject to reinforcement. The other question type would posit the occurrence of some reinforcement and ask what, in effect, are the contingencies for occurrence of such an event - and then observe whether the child cites some behavior of his own, or cites someone else's behavior or some other sort of event or condition. This is the kind of question that turned out to work

quite well.

The next problem was deciding what population of reinforcers to use for the questions. One can, of course, generate a population of reinforcers without any prior explicit definition of the domain he wishes to sample. However, we chose instead to first define the class of events we would try to represent as reinforcers. In this we followed the literature regarding behavior modification, especially in classroom use (e.g., Becker, Thomas & Carnine, 1969), as well as Rotter's (1954) point of view. We assumed that, for children this age, the primary reinforcers - at least, those of most importance in school and in socialization - are the attention and approval of parents and teachers, and perhaps to a lesser extent of peers, and perhaps also some sorts of self-approval. More specifically we assumed that it is observable cues of approval and attention that serve as reinforcing events. These cues of approval and attention, then, could constitute the questions for a free-response measure of IE; and they could be expressed simply enough to stay within the preschools' limits. (His responses might be complicated sometimes, but they could always be clarified by probing.) So the questions we tried, which worked quite well were questions like "What makes mothers smile?" and "What makes you happy?" Preschoolers have no problem understanding such questions. Children do often cite some behavior of their own in response to these questions, reflecting an association and therefore presumably expectancy of relation between that reinforcement and that behavior - and also they often cite something other than their behavior, like the weather, or other people's behavior, and so forth. For

example, to "What makes mothers smile?" we get answers like "When I draw her a picture." and "When I set the table." - clearly reflecting perceived internal control contingencies - and also like "When daddy comes home." and "When she buys new shoes." - clear "external" responses. The items and illustrative responses are shown in the handouts.

Rater reliability, for coding responses as reflecting internal vs external control contingencies, is .98 (Delys, 1971): only occasional responses (many of which can be clarified by probing) are not obviously codable. A scoring manual has been developed, but this is useful primarily in providing an expanded definition of "internal" vs "external" responses and initial orientation for scoring; rater reliability is entirely adequate even without use of the manual.

Short-term retest reliability is also quite adequate (Delys, 1971). (Long-term reliability studies are underway.) In an early version of the test, two parallel forms of the test were constructed. Each had twenty questions, and the child was asked to give two responses per question. Children from two Headstart classes were given two forms two weeks apart. Scores on the two forms correlated .69, reflecting a lower bound estimate of both temporal stability of scores and an equivalent forms version of convergent validity.

In the same study, half the children were interviewed by a black teenage interviewer, half by a white woman; and half the subjects given the first form by each interviewer were given the second by the other interviewer. All the children were black. There was no significant difference in IE scores obtained by these two interviewers. In only one study (Stephens, Delys, Lopez-Roig & Vilez, 1971), with Chicano and

Puerto Rican children, have we found a significant interviewer effect.

An attempt at further convergent validation was made (Delys 1971) by adapting Crandall (forced-choice) and Nowicki-Strickland (yes-no) types of items for use (individually administered) with preschoolers already given the SDRCI. Correlation of SDRCI scores with scores on these items was just .29. However, correlation between the Crandall and other adapted test items was -.19; and it was apparent that these test-type items were simply not eliciting meaningful responses. A study now underway will provide both convergent and construct validity data for the SDRCI, the Nowicki-Strickland, and the new Gruen-Korte-Stephens group test (Gruen, 1970) for second graders.

Construct validity is suggested by finding socioeconomic and sex differences (e.g., Delys, 1971) with the SDRCI equivalent to those found, with other tests, among older children. Later studies (e.g., Parker, 1971) have found correlations with task performance, intelligence and chronological age consistent with expectation based on prior studies with other tests.

The technique can be used either to yield a total score, to reflect a generalized IE variable as conceptualized by Rotter, or subscores reflecting situationally specific IE expectancies restricted to particular reinforcement agents (e.g., teachers or peers) and/or types of reinforcement (positive or negative). In addition, further specificity can be gained by using narrower response classes than simply "internal" vs "external" - e.g., coding separately responses dealing with aggression control, academic achievement, prosocial behavior, etc. Through these

kinds of data breakdowns one finds considerable within-subject variance at the situationally specific level. For example, some children are much more internal in their expectancies regarding teachers than they are regarding parents, others the reverse. Furthermore, two children with similar overall IE scores, and even similar scores regarding a particular situational variable as defined by reinforcement agents, may show considerable differences when their responses are broken down one step further. For example, two children with identical IE overall socres and identical teacher reinforcement agent scores may be very different in terms of the type of internal or external responses given to teacher items: one child may be giving primarily aggression control internal control responses ("When I don't fight"), while another child gives primarily academic achievement internal control responses ("When I finish my homework"). At this level, one can still further categorize response as positive or negative; for example, "When I do a good job on my homework." (positive academic achievement response) or "When I don't forget to do my homework." (negative academic achievement). While both of these are internal control academic achievement responses, they reflect additionally sometbing close to a success striving/failure avoiding or need for achievement variable.

This capability for subdivision of responses may ultimately be the most valuable attribute of the test, both for theoretically oriented personality research and for practical - clinical and educational - application. One can deal with IE at a microtheoretical level of abstraction, while at the same time applying research findings at a very finely discriminating level. A particularly useful illustration of the utility of

the situational breakdown of responses is in regard to the analysis of the effects of various school settings on the development of IE expectancies. The major usefulness of the measure in an applied sense will hopefully be in development of school programs, parent education programs, and clinical procedures for the optimal development of internal control expectancies among young children.

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