DOCUMENT RESUME

ED 108 749   PS 007 932

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TITLE   The Prediction of Elementary School Failure Among
                High Risk Children.
INSTITUTION   Connecticut Univ., Storrs. Dept. of Educational
                Psychology.
SPONS AGENCY   Bureau of Education for the Handicapped (DHEW/OE),
                Washington, D.C.; Office of Economic Opportunity,
                Washington, D.C.
PUB DATE   Apr 75
GRANT   OEG-0-70-2250(607)
NOTE   22p.; Paper presented at the Annual Meeting of the
                American Educational Research Association
                (Washington, D.C., March 30-April 3, 1975)

EDRS PRICE   MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS   *Academic Achievement; Achievement Tests; Comparative
                Analysis; *Elementary Education; Intellectual
                Development; Intelligence Quotient; Intervention;
                *Learning Difficulties; *Longitudinal Studies;
                Multiple Regression Analysis; *Predictive Ability
                (Testing); Predictive Validity; School Holding Power;
                Social Development; Special Classes
IDENTIFIERS   *Project Head Start

ABSTRACT
                This report briefly summarizes the educational
progress of a sample of children who took part in one of the earliest
Head Start programs (1966). The report addresses the following
questions: (1) Was participation in Head Start a factor in preventing
retention in grade and/or special class placement? (2) Were there
differences between Head Start and non-Head Start children on
achievement measures upon reaching the sixth grade level? (3) What
was the efficiency of a battery of psychoeducational tests
administered at the beginning of first grade in prediction of
academic achievement in the sixth grade? and (4) Did this battery of
tests assist in the discrimination between children who progressed
normally through the grades and those who were retained or placed in
special classes? Preschool test results (from children exiting Head
Start in 1966 and their non-Head Start counterparts) were compared to
the results of the Lorge-Thorndike intelligence quotients and the
Metropolitan Readiness Test (MRT) (for the same children in the sixth
grade). Results showed that a significantly smaller percentage of
Head Start children than non-Head Start children had been placed in
special education classes or retained in grade; though there were no
significant differences in academic achievement at the sixth grade
level. Also demonstrated was the possibility predicting a high
percentage of children who will fail to progress as expected in
elementary schools; the MRT provided for a large percentage of this
potential prediction. (ED)

THE PREDICTION OF ELEMENTARY SCHOOL

FAILURE AMONG HIGH RISK CHILDREN*

A paper selected for presentation
at the Annual AERA Meeting in
Washington, D. C. in April, 1975

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This report represents the third chapter in an evaluation of the Head Start Program for economically disadvantaged children sponsored by the City of Hartford and the Office of Economic Opportunity for the 1965-1966 academic year. Previous evaluation efforts demonstrated that the Head Start Program resulted in significant changes in the psycholinguistic characteristics and learning aptitudes of the preschool children upon their exit from the program (Cawley, 1966). However, when the children were compared to a contrast group at the beginning of first grade, no significant differences were recorded on a battery of psychoeducational tests (Cawley, Burrow, and Goodstein, 1968).

This evaluation will focus upon the status of the academic achievement and the number of retentions in grade or special class placements among the previously identified samples of Head Start and Non-Head Start children who should have been in the sixth grade during the 1972-73 academic year. Specifically, several evaluative questions will be raised:

1. Was participation in Head Start a factor in preventing retention in grade and/or special class placement?

2. Were there differences between children who were enrolled in Head Start and Non-Head Start children on the following measures of general and specific achievement -- Lorge-Thorndike Verbal Intelligence, Lorge-Thorndike Non-Verbal Intelligence, Metropolitan Achievement Test - Reading (recognition and comprehension), and Metropolitan Achievement Test - Arithmetic (computation and reasoning?

3. What was the efficiency of a battery of psychoeducational tests administered at the beginning of first grade in the prediction of academic achievement in the sixth grade?

4. Did this battery of psychoeducational tests assist in the potential discrimination between children who will maintain normal progress through the grades from children who will be retained in a grade and/or be placed in a special education situation?

METHODOLOGY

The original evaluation (Cawley, 1966) included a total of 138 children who were pretested and posttested with the Stanford-Binet Intelligence Scale. During the first grade evaluation (Cawley, et al, 1968) 54 of these children were administered the psychoeducational test battery. These children are described as the Primary Head Start (PHS) sample. Some children were absent on scheduled testing days; some children could not be located; and some children were in classroom locations not included in the testing schedule. An additional 77 children who had attended Head Start were systematically selected to provide a Secondary Head Start (SHS) sample who had not been previously tested in preschool. This sample would provide a control for any sensitivity to testing that would have been developed in preschool. A Non-Head Start (NHS) sample was systematically selected to provide for an independent contrast group. This sample numbered 78 children. The total original 1966 sample, the SHS sample, and the NHS sample comprised a master list containing the names of 293 children.

The City of Hartford Board of Education maintains a master file which lists each child in the school system along with the child's birthdate, address, and school. This list also includes children who are attending schools outside the district through programs such as Project Concern (the Hartford regional busing program for integrated education), or because of special education placement. A search of this file yielded 68% of the original sample (198 children) who could be unambiguously i'entified as still remaining in the Hartford School System.

47 of the children were previously included in the PHS sample. This represented 87% of the original PHS sample. 53 of the children were previously included in the SHS sample. This represents 69% of the original SHS sample. 50 of the children were previously included in the NHS sample. This represented 64% of the original NHS sample. 48 of the children were members of the 1966 Head Start sample that was not tested in 1968. We shall refer to this group as the Head Start Sample Not Previously Followed Up (HSNF). This represented 57% of those children who were not followed up in 1968.

From the master file, it was possible to determine whether the child had been placed in special education, been retained at some point in his educational history, or had been a participant in Project Concern. Special education placement was further checked by the examination of the list of identified children by personnel of the special education department. From the files of the Evaluation Department, test results from the sixth grade achievement testing program were obtained for all children who had maintained adequate progress and were currently enrolled in the sixth grade. The results included Lorge-Thorndike intelligence quotients (verbal and non-verbal) and Metropolitan Achievement Tests in reading (recognition and comprehension) and arithmetic (computation and reasoning). Children in special education programs, those who had been retained, and those who were Project Concern students did not have sixth grade test results.

RESULTS

Analysis of Potential Attrition Biases

Attrition is one of the necessary drawbacks to any longitudinal research or evaluation designs. As was discussed earlier, attrition rates for samples

in this study ranged from 13% to 43%, with an overall attrition rate of 32%. It was therefore necessary to perform several post-hoc comparisons among the reduced samples and the original samples on their performance on measures either at preschool or beginning of the first grade. Findings of no differences on such analyses would serve to validate the proposition that differential attrition did not take place among the reduced samples. Additionally, these reduced samples might be shown to essentially demonstrate similar psychoeducational characteristics as their original complete samples.

Table 1 displays the mean scores of the PHS grade six sample, the HSNF grade six sample, and the original preschool sample (of which there are sub-samples) on the Stanford-Binet IQ test (pre and post) and the Illinois Test of Psycholinguistic Abilities (ITPA) (pre and post). No significant differences were found among these means. With the possible exception of the ITPA pre-test means, the reduced sixth grade samples had mean scores on the pre-school measures remarkably similar to those achieved by the original sample. One could conclude from this analysis that the PHS sixth grade sample and the HSNF sixth grade sample were not unique portions of the original sample and did not suffer differential attrition.

Table 2 displays the mean scores of the PHS sixth grade sample, the SHS sixth grade sample, and the NHS sixth grade sample on the beginning first grade psychoeducational measures as compared with the scores of the original three samples as they were constituted in 1968. No significant differences were found among the sixth grade reduced samples. This compares with the results recorded in the 1968 evaluation. Additionally, each comparison between a reduced sample and its original counterpart demonstrates no differential attrition. Attrition did not appear to bias the distribution of any of the reduced samples.

TABLE 1

POST-HOC COMPARISONS OF PRIMARY HEAD START, HEAD START NOT FOLLOWED UP, AND

ORIGINAL PRESCHOOL TOTAL SAMPLE ON PRESCHOOL INTELLIGENCE AND PSYCHOLINGUISTIC MEASURES

	PHS		HSNF		ORIGINAL SAMPLE	
	$\bar{x}$	n	$\bar{x}$	n	$\bar{x}$	n
ITPA-pretest	66.81	47	65.55	44	68.03	136
S-B IQ pretest	88.46	46	87.38	47	88.54	138
ITPA posttest	94.54	46	94.74	42	94.32	136
S-B IQ posttest	98.80	44	93.19	42	95.89	138

TABLE 2

POST-HOC COMPARISONS OF ORIGINAL AND SIXTH GRADE REDUCED SAMPLES ON FIRST GRADE MEASURES

	PHS $\bar{x}$	SHS $\bar{x}$	NHS $\bar{x}$
STANFORD-BINET IQ			
Original Sample	94.02 (N=54)	91.56 (N=78)	93.77 (N=77)
Sixth Gr. Sample	93.28 (N=47)	92.58 (N=53)	94.46 (N=50)
FROSTIG			
Original Sample	40.50	39.59	39.75
Sixth Gr. Sample	40.09	39.13	39.58
ITPA			
Original Sample	126.26	122.82	126.04
Sixth Gr. Sample	124.83	123.19	125.58
METROPOLITAN			
Original Sample	38.82	33.12	35.81
Sixth Gr. Sample	35.38	32.08	35.44

The PHS sample forms a pivot for the argument of equivalence between the four reduced sixth grade samples (PHS, SHS, NHS, and HSNF) in regards to antecedent abilities. The PHS sixth grade sample was shown equivalent to the HSNF sample in prekindergarten and equivalent to the SHS and NHS samples at the beginning of first grade. No direct comparison could be made between the HSNF sample and the SHS or NSH samples, since the HSNF sample was not tested at the beginning of first grade and the SHS and NHS samples were not tested at the prekindergarten period.

Evaluative Questions

1. <u>Was participation in Head Start a factor in preventing retention in grade and/or special class placement?</u> Analysis of the student roster data files indicated 3 of the 47 children in the PHS sample had been retained in a grade and 1 child had been placed in a special education program. 6 of the 53 children in the SHS sample had been retained in a grade and 4 children had been placed in a special education program. 5 of the 48 children in the HSNF sample had been retained and 3 received special education placement. 11 of the 50 children in the NHS sample had been retained and 5 received special education placement.

When the three Head Start samples are pooled, it can be seen that 9.5% of the Head Start children (14 of 148 children) were retained and 5% (8 of 148) received special class placement. This compares with a retention rate of 22% (11 of 50) and a special education placement rate of 10% (5 of 50) in the Non-Head Start sample.

It might be pointed out that the retention rates cited above are just slightly underestimated. 3 of the children placed in special education

had been retained in grade prior to the decision to place them in special education. Additionally, 2 children had been retained in grade and subsequently passed over one grade level prior to sixth grade. For the purpose of this analysis, these children were treated as being in the non-retained classification.

'The special education placements can be broken down as follows: 5 children placed in Intensive Instructional Centers (IIC's); 3 children placed into Opportunity Rooms; 3 children registered in regular classrooms, but attending resource rooms; and 2 children placed in private centers for emotionally and socially maladjusted children. The grade in which retention took place can be further elaborated as follows: 8 children at the pre-primary level; 1 child at kindergarten; 8 children at first grade; 6 children at second grade; 2 children at third grade; 1 child at the fourth grade; and 2 at the fifth grade.

One additional difference in the placement data was noticed. 14% of the Head Start samples (21 children out of 154) were assigned to Project Concern. Only 4% (2 out of 50 children) were assigned to Project Concern from the Non-Head Start sample. Although our samples were not drawn for the purpose of testing differential factors in the assignment of children to Project Concern, it represents a reasonable hypothesis that Head Start participation was a significant factor in a child's involvement in the Project.

2. Are there differences between children who were enrolled in Head Start and Non-Head Start children on achievement measures administered at sixth grade? When the data for the three Head Start samples were compared, a pattern of superior achievement for the HSNF sample emerged (see Table 3). This sample recorded higher scores on the group-administered intelligence scales, performed approximately a grade level higher in reading, and per-

TABLE 3

COMPARISONS BETWEEN SAMPLES ON SIXTH GRADE ACHIEVEMENT MEASURES

	PHS		SHS		HSNF		Total Head Start Sample		NHS	
	$\bar{x}$	n	$\bar{x}$	n	$\bar{x}$	n	$\bar{x}$	n	$\bar{x}$	n
Lorge-Thorndike										
Verbal IQ	83.00	32	79.81	43	88.13	36	83.21	111	86.78	31
Non-Verbal IQ	88.22	32	87.60	43	90.19	36	88.55	111	89.61	31
Metropolitan - Reading										
Recognition	4.25	31	4.08	40	5.12	33	4.44	104	4.29	29
Comprehension	4.18	31	3.91	41	5.05	33	4.33	105	4.25	30
Metropolitan - Arithmetic										
Computation	4.89	31	4.53	41	5.27	34	4.86	106	5.04	30
Reasoning	4.17	31	3.86	40	4.50	33	4.00	104	4.09	29

formed approximately one-half grade level higher in mathematics. The post-hoc analyses had indicated no such superiority on any of the preschool measures of intelligence or psycholinguistic abilities. An analysis of school place-ment at sixth grade indicated a patte n of school attendance similar to the other samples of children. Thus, the source of this pattern of superior achievement must remain unknown.

When we combine the three Head Start samples (PHS, SHS, and HSNF) we find they   a   n verbal IQ of 83.21 and a mean non-verbal IQ of 88.55 (N=101) as opposed to the NHS sample's mean verbal IQ of 86.78 and mean non-verbal IQ of 89.61 (N=31). These differences are not statistically signifi-cant. In reading, the Head Start samples had a combined mean of 4.44 in Recognition and 4.33 in Comprehension. The NSH sample had a mean of 4.29 in Recognition and 4.25 in Comprehension. For mathematics achievement, the Head Start samples had a combined mean of 4.86 in Computatic and 4.00 in Reasoning. The NHS sample had a mean of 5.04 in Computation and 4.09 in Reasoning. None of these differences could be considered significant.

The sixth grade achievement data did not include scores for children who had been retained. All but 3 of the children placed in special education were also not included in the achievement testing. These scores were simply not available in the context of the chosen sampling methodology. To a certain extent, one could presume that the available achievement scores of the NHS sample overestimate achievement to a greater degree than the combined Head Start samples. That is, the larger percentage of retained or special educa-tion children probably would have combined to further depress the NHS scores.

It is important to po' t out that this combined population of children achieve at approximately two grade levels below average expectation in reading and the reasoning subskill in mathematics (a subskill dependent to a certain extent upon reading) and approximately a grade and a half below expectation

in computational skills. These children (with 5 exceptions) had never been retained or provided special education. These serious lags in skill areas will continue to handicap these children as they enter the junior high school (or middle school) and senior high school grades.

Superior achievement in computation (a skill that often may be rotely acquired) is a typical finding among educationally handicapped populations. It often represents an attempt by the school to substitute easily managed instruction in mathematics for the more difficult careful development of mathematics concepts. In such situations, computational skills outpace achievement in other aspects of mathematics performance.

3. What is the efficiency of a battery of psychoeducational tests administered at the beginning of first grade in the prediction of academic achievement in the sixth grade? To assist in the answer to this question, the three samples tested at the beginning of first grade (PHS, SHS, and NHS) were pooled. 104 children's scores on Stanford-Binet IQ, the Frostig Developmental Test of Visual Perception, the Detroit Test of Learning Aptitude (an artificially summed total of five subtests), the Illinois Test of Psycholinguistic Abilities, the Metropolitan Readiness Test, and an informal test of letter recognition were considered predictor variables. The four subtests of the Metropolitan Achievement Test were considered the criterion variables. The resultant intercorrelation matrix is displayed in Table 4.

IQ, ITPA, and Metropolitan scores intercorrelate at reasonably high levels (r's of .45, .47, and .56). This would reflect a common general cognitive factor shared by these instruments. Letter recognition, a demonstrated readiness task, correlates with the Metropolitan Readiness Test at .40. The remaining intercorrelations among predictor variables are of low-order. Among the criterion measures, the two reading scores correlate with a coefficient of .83. The correlation between the two mathematics measures is

TABLE 4

INTERCORRELATIONS AMONT SIX BEGINNING FIRST GRADE PREDICTOR AND FOUR SIXTH GRADE CRITERION MEASURES

	Predictors						Criterion Measures			
	1	2	3	4	5	6	7	8	9	10
1. Stanford-Binet IQ	-	.31	.22	.56	.47	.30	.41	.44	.34	.44
2. Frostig Developmental Test of Visual Perception		-	.20	.32	.38	.25	.28	.30	.23	.28
3. Detroit Tests of Learning Aptitude			-	.29	.20	.20	.19	.17	.06	.12
4. Illinois Test of Psycholinguistic Abilities				-	.45	.23	.39	.42	.20	.44
5. Metropolitan Readiness Test					-	.40	.52	.55	.49	.51
6. Letter Recognition Test						-	.35	.37	.23	.26
7. Metropolitan Reading: Recognition							-	.83	.56	.64
8. Metropolitan Reading: Comprehension								-	.56	.65
9. Metropolitan Mathematics: Computation									-	.76
10. Metropolitan Mathematics: Reasoning										-

N=104

somewhat lower, $\underline{r}$ = .76. There was a stronger relationship between reading

behaviors and reasoning ($\underline{r}$'s of .64 and .65) than between reading behaviors

and computation ($\underline{r}$'s of .56).

Step-wise, multiple linear regression analysis was employed to

determine the correlation of the entire prediction battery with each cri-

terion measure. Table 5 summarizes the results of these four analyses.

In predicting recognition, the Metropolitan, IQ, letter recognition, and

ITPA were combined statistically to generate a multiple correlation of .58.

This represents an accounting for 34% of the variance in scores on the Recog-

nition subtest. In contrast, the Metropolitan alone has an $\underline{r}$ of .52 with

Recognition, or 27% of the variance. In predicting Comprehension, the same

variables combine to generate a multiple correlation of .61, accounting for

37% of variance in Recognition scores. Again, if one were to use only the

Metropolitan, its correlation of .55 with Recognition accounts for 30% of

the Recognition variance.

In the prediction of Computation scores, the Metropolitan combines

with IQ to generate a multiple correlation of .51, accounting for 26% of the

dependent variance. If we would elect to use only the Metropolitan, its

simple correlation with Computation of .49 would account for 24% of the

variance. In the prediction of Reasoning, the Metropolitan, ITPA, and IQ

generate a multiple correlation of .58, accounting for 34% of the variance.

Again, if the Metropolitan were used alone, its simple correlation with

Reasoning of .51 would account for 26% of the variance.

Gains of 7 to 8% of accounted variance in the criterion measures

are recorded by using measures of IQ, ITPA total score, and letter recognition

in addition to the Metropolitan for the two reading subtests and the Mathe-

matics Reasoning subtest. IQ scores only add 2% to variance accounted for

TABLE 5

REGRESSION ANALYSES FOR THE PREDICTION OF FOUR CRITERION MEASURES*

I. READING

Recognition

Step	Beta
1. Metropolitan Readiness	.351
2. Stanford-Binet IQ	.135
3. Letter Recognition	.137
4. ITPA	.121

Multiple R = .5772
Standard Error of Estimate=12.03

Comprehension

Step	Beta
1. Metropolitan Readiness	.343
2. Stanford-Binet IQ	.156
3. Letter Recognition	.146
4. ITPA	.152

Multiple R = .6108
Standard Error of Estimate=12.29

II. MATHEMATICS

Computation

Step	Beta
1. Metropolitan Readiness	.458
2. Stanford-Binet IQ	.100

Multiple R = .5109
Standard Error of Estimate=12.45

Reasoning

Step	Beta
1. Metropolitan Readiness	.349
2. ITPA	.181
3. Stanford-Binet IQ	.177

Multiple R = .5807
Standard Error of Estimate=10.44

*Predictors included represent an optimum battery for prediction: addition of other predictors did not significantly improve prediction.

by the Metropolitan on Computation scores. The Metropolitan Readiness Test is a teacher-administered test, as opposed to the Stanford-Binet or ITPA which should be administered by trained examiners. It may be that the additional power of prediction generated by the latter two measures does not counterbalance the additional costs, both economic and social, of administering these two instruments.

It is noted that the Frostig measure did not contribute to prediction of reading or mathematics achievement. Neither was the Detroit score a significant predictor, although the artificial summing of the subtest scores may have been a confounding factor.

4. Can this battery of psychoeducational tests assist in the potential discrimination between children who will maintain normal progress through the grades from children who will be retained in a grade and/or be placed in a special education situation? A discriminant function analysis was performed on the first grade psychoeducational test scores between 30 children who were retained and/or placed in special education and 103 children who had maintained age in grade progress. The mean scores of included variables for the two samples are included in Table 6. The resultant discriminant function correctly predicted 77% of the inadequate progress children (23 of 30) and correctly predicted 68% (70 of 103) of the adequate progress children. Overall, the function predicted 93 of 133 placements, or 70% accuracy.

The largest mean difference between the two samples on any of the predictor measures was by far the Metropolitan Readiness Test. The inadequate progress children achieved barely two-thirds the score achieved by the adequate progress children. Again, practical considerations might indicate singular use of the Metropolitan Readiness Test for screening purposes.

TABLE 6

SUMMARY OF SAMPLE MEANS FOR THE DISCRIMINANT FUNCTION ANALYSIS

	Special Education or Retention N=30	Average Progress N=103
1. Sex (1=male; 2=female)	1.30	1.43
2. Stanford-Binet IQ	91.59	93.87
3. Detroit: motor speed	23.33	27.74
4. Detroit: auditory memory for related syllables	31.89	33.65
5. Detroit: visual attention span for objects	29.74	31.89
6. Detroit: memory for designs	8.78	10.31
7. Detroit: auditory memory for related syllables	33.22	35.02
8. Frostig Developmental Test of Visual Perception	36.59	39.73
9. Illinois Test of Psycholinguistic Abilities	116.48	125.63
10. Metropolitan Readiness Test	25.37	36.10

GENERAL DISCUSSION

This report has attempted to summarize the educational progress of a sample of children exposed to one of the earliest Head Start experiences. Much study and evaluation of Head Start has transpired since 1965. We now recognize that Head Start, by itself, is not a panacea for the educational disabilities associated with economic disadvantage. Preschool curriculums have undergone revision and improvement. Follow-through programs have been initiated to consolidate and build upon skills, concepts, and attitudes fostered in preschool. More open patterns of classroom organization and grouping for instruction have been attempted to foster a more developmental educational process.

In this context, this evaluative report is more historical and descriptive in import than directed toward specific decision-making goals. The data reported herein can be used as a baseline by which improvements in the system of compensatory education can be judged. One would hope to predict that a two year deficit in grade level achievement reported for these children would represent a low water mark in the concerted efforts to improve the educational process for economically disadvantaged children.

Examination of the original description of the Hartford Head Start programs contained in the 1966 report reveals a considerable emphasis upon development of appropriate social skills and academic habits and attitudes. To the extent that it can be presumed that such behavior is related to the demonstration of minimal adjustment patterns in regular grades, the original program can be judged moderately successful. A significantly smaller percentage of Head Start children were placed in special education or

retained in grade. It is a necessary presumption that children who find them-
selves removed from the regular pattern of age to grade promotions, under the
present educational system, have failed to maintain appropriate social or
academic habits.

The lack of significant differences in academic achievement on stan-
dardized measures in the sixth grade between Head Start and Non-Head Start
children is consistent with the majority of evaluations of the early Head
Start programs. However, it must again be stressed that the early programs
were not designed to sustain academic achievement and were often using un-
tested curriculum models and teaching methods. Goals of enhanced academic
achievement cannot be anticipated by evaluators without there having been
serious efforts to maximize the system to foster and maintain those goals.

We have demonstrated that we can predict a high percentage of children
who will fail to progress as expected in the elementary school. Addition-
ally, we have shown that the Metropolitan Readiness Test, a teacher-administer-
ed test, provided for a large percentage of the potential prediction. The pur-
pose of predictions is as a screening tool to identify those children who
might best profit from early intervention and remediation. However, prediction,
even if perfect, does not offer solutions for prevention. Concerted studies
should be initiated to test alternative models for amelioration of social or
academic problems among the most high-risk children. In this area, our evalu-
ation must necessarily lead to the asking of additional questions rather than
presentation of solutions.

REFERENCES

Cawley, J. F. An assessment of intelligence, psycholinguistic abilities and
    learning aptitudes among preschool children. Storrs: University of
    Connecticut, 1966.

Cawley, J. F., Burrow, W., and Goodstein, H. A. An appraisal of head start
    participants and non-participants: Expanded considerations on learning
    disabilities among disadvantaged children. Storrs: University of
    Connecticut, 1968.