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ABSTRACT

The children followed at the University of Oregon Medical school site of the Collaborative Study on Cerebral Palsy, Mental Retardation and Other Neurological and Sensory Disorders of Infancy and Childhood comprised the research population. This study included 910 children--all of those completing the seven-year examination. About 65 percent were white and 33 percent Negro. Control is instituted for socioeconomic-educational status and age. Thirty-five percent of white males, 49 percent of white females, and 45 percent of Negro males and females completed first grade when tested. Of these, 38 percent of white boys, 13 percent of white girls, seven percent of Negro boys, and five percent of Negro girls were retained in the first grade. The higher rate among white boys than Negro boys contradicts prevalent expectations. The difference in the promotion-retention rate for this sample of white boys in comparison to Negro boys is not a function of lower mean school achievement nor of mean intelligence scores. In part, it can be explained by greater homogeneity of achievement by the Negro children. The higher retention rates for white boys appeared to be a function also of the promotion policies of schools serving low socio-economic groups. (Authors/JM)

The Differential Rate of Promotion from the First Grade in School for White and Negro, Male and Female 7-Year Old Children*

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The children followed at the University of Oregon Medical School site of the Collaborative Study on Cerebral Palsy, Mental Retardation and Other Neurological and Sensor. Disorders of Infancy and Childhood comprised the research population. This study included all children (N = 910) completing the 7-year examination. About 65% were white and 33% Negro. The sample probably represents Portland Negro better than white children. But control is instituted on socio-economic-educational status. Age also was controlled by testing between +5 or -3 months of the seventh birthday. Age constancy at testing made control for amount of education impossible.

Thirty-five percent of white males, 49% of white females and 45% of Negro males and females completed first grade when tested. Of these, 38% of white boys, 13% of white girls, 7% of Negro boys and 5% of Negro girls were retained in the first grade. The higher rate among white boys than Negro boys contradicts prevalent expectations. The Chi-square test of independence showed a significant (.00001) difference in the promotion-retention rates between the two races. When pooled across races, there was no significant difference between rates for the sexes. Thus, relative frequency of promotion between sexes apparently resulted from the higher rate of the white group. White males contributed most to this difference between races.

*Paper presented at WPA Convention, Los Angeles, Calif., 1970

The difference in the promotion-retention rate for this sample of white boys in comparison to Negro boys is not a function of lower mean school achievement nor mean intelligence scores. In part, it can be explained by greater homogeneity of achievement by the Negro children. When the reading achievement rating is dichotomized into the very low (more than one standard deviation below the mean) vs. all others, the race x achievement Chi-square finds the Negro children have significantly fewer (.01 level) very low achievers. Except for the white boys, the percentage of children in a race-sex classification retained in first grade was reflected in the percent who performed more than one standard deviation below the mean on reading achievement.

Schools serving low socio-economic populations promoted white boys within -1SD of the mean reading achievement score more frequently than schools serving higher socio-economic populations.

The higher retention rates for white boys, then, appeared to be a function both of the poor performance of a higher proportion of white boys and promotion policies of schools serving low socio-economic groups.

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Problem

What are the race and sex differences in the promotion rates for seven-year-old children who have completed the first grade of school? And if there are differences, what accounts for them?

Records of a group of Portland Negro and white children described later gave the impression that white boys tended to fail the first grade more frequently than the other race and sex groups. This study, then, was an attempt to verify or reject this impression; and further, if the impression was valid, to account for the differences in white male failure rates. If white boys failed more frequently than either the Negro boys or the white or Negro girls, two hypotheses might account for the difference. First, the rate of retention of the white males could be accounted for boy poor academic performance as measured by standardized reading and arithmetic achievement tests. Second, the

promotion rates in the schools heavily attended by lower socio-economic and Negro groups might have liberal promotion policies; i.e., administrators and teachers in these schools might promote children who had mediocre or poor academic achievement records at a greater rate than personnel in higher socio-economic level schools.

In an extensive review of psychological studies comparing Negro and white children, Dreger and Miller (1960 and 1968) include no study of elementary or high school promotion rates. They (1968, p. 22) quote from Doddy, H. H. (and we are getting this reference) "...in 1960 the proportion of whites completing the respective amounts of education (from one to three and four years of college) was well over twice that of Negroes..." but except for this quotation Dreger and Miller (1968) make no comparison of academic promotion-retention rates. In comparing differences between the races their review represents the emphasis on standard achievement test scores as the criterion of school success. A few studies have compared grade point averages in school, but few have actually compared promotion rates of the two groups.

Kennedy (1969) comments on the number of Negro drop-outs in elementary and high school; but except in so far as standardized test scores are used as points of comparison, his Negro population is not compared with a white population.

Population

The children followed at the University of Oregon Medical School site of the Collaborative Study on Cerebral Palsy, Mental Retardation and Other Neurological and Sensory Disorders of Infancy and Childhood comprised the total research population. These children were off-spring of mothers systematically drawn from a county hospital population who presented themselves for care as gravidas. The sample for this study represented all (N = 910) children who had completed adequately the 7-year examination through July, 1969. The Oregon Collaborative Study population has been described elsewhere (Myrianthropoulos & French), but important here is that about 65% of the study children were socially designated white and approximately 33% Negro. The mothers of both ethnic groups, at the time they registered for prenatal care at the hospital, met economic dependency requirements; and thus, they were

below the Portland mean in socio-economic classification. There was no significant difference between the racial groups in the mean amount of education reported by the mothers. The mean school grade completed by mothers of both racial groups was slightly above tenth. The sample was probably representative of the total population born in the Multnomah County Hospital; but because of the disadvantaged socio-economic-eduational nature of the total Negro population, the study sample is probably more representative of Portland Negro than white children. The conditions of selection, then, created a measure of control on the socio-economic-educational background of the groups.

Age of subjects was also controlled because the population was comprised of children who were tested no more than five months beyond nor three months before their seventh birthday. However, this kind of control for subject age at the time of testing made it impossible to hold constant the amount of education. Obviously, if promotion-retention rates were studied, children completing only the first grade could comprise the study sample. Table I indicates that 35% of the white

males, 49% of the white females; and 45% of Negro males and females had completed the first grade at the time they were tested. This group represented 391 of the 910 seven-year-olds tested. It is these children, then, who comprised the final study population.

Table I also shows that among the whites, a considerably smaller percent of males completed the first grade than did females. In order to determine whether this difference deviated sufficiently from chance so as to seriously bias the sample itself, the race x sex components of a 2 x 2 x 2 Chi square was examined and, as Table IIIA shows, the obtained chi square of 2.25 was well within chance expectations ($.10 < P < .20$). Hence, there was no reason to assume that the differences in the sex and race groups proportions would seriously bias the reliability of measures of the different groups.

Procedure

The significance of the differences in promotion-retention rates between the race and sex groups was also determined by the chi square test mentioned above. Then, several different approaches were made to test the hypothesis that the greater retention rates of the white males could be accounted for by poor academic performance as measured by

standard achievement tests. Intelligence and other measures of aptitude and indices of behavior were compared. To determine if the number of white boys scoring low on the Wide Range Achievement Test could partially account for their greater retention rate, a chi square test of independence was again used. High achievement was defined as a score at or above -1SD of the total Portland study population; low achievement as a score below -1SD.

A second approach compared one group of retained boys with a matched group of promoted boys. Scoring between zero and minus one standard deviation below the mean on the reading test were 23 retained white boys. Thus, the comparison or control group of 23 promoted white boys who also scored within these limits was selected. Intelligence, other aptitude and achievement test scores and behavior ratings were compared for the two groups of white boys.

To test the hypothesis that the higher retention rates of white males could be accounted for by the different promotion procedures in different schools, several assumptions were made: First, schools outside the Portland school district serve a relatively

higher socio-economic population than the lower income schools which most of the study children in the Portland core area attend. Second, because the Child Development study population is weighted with families from low socio-economic-educational backgrounds, we have assumed that schools attended by large numbers of these children generally serve children from low socio-economic-educational families. Identifying the location of these schools revealed that the schools with the very highest density of Child Development children were located in the lowest socio-economic areas and were essentially de facto segregated schools in the core area of Portland.

Thus, schools outside of Portland (each of these had only one or a few Child Development children in attendance) and schools within the Portland City School District attended by none or few of the Child Development population could be considered schools of higher socio-economic-educational status while schools attended by more members of the Child Development population could be considered schools of varying degrees of lower status. Among the white boys scoring below the mean and -1SD on the reading achievement test were 23 who had been retained;

they were compared with 23 others, within the same achievement range, who had been promoted. A chi square was computed to determine the difference between these groups as to those attending Portland schools and those attending non-Portland schools. Among those attending Portland schools, a t test was used to determine the significance of the difference in socio-economic level of schools attended by members of the two groups.

Results

Race and Sex Differences in Promotion-Retention Rates

Table III presents the data for calculating chi squares for the difference between promotion-retention rates after completing the first grade of school for the different sex and race groups. Table IIIB shows a highly significant ($P < .00001$) difference in promotion-retention rates between the races; and Table IIIC shows a highly significant difference ($P < .0001$) in rates between the sexes. Thus, whites were more frequently retained than Negroes and boys more frequently than girls. The significant ($P < .01$) three way interaction chi square indicates that the white boys were much more frequently retained than

any of the other three groups; and thus, their retention rate carried most of the weight for the sex and race differences.

The Use of Standardized Tests to Account for the High White Male Retention Rate

Table IV summarizes the first attempt to explain the higher retention rate for white boys. It compares by race and sex group chronological age, mean IQ, Bender (total errors by Koppitz scoring) and achievement scores of those promoted from the first grade with those retained in the first grade.

Among those promoted Table IV might suggest that if retention were determined by indices of lower intelligence and standardized test achievement, white males would be promoted at a higher rate than Negro males or females. The white boys mean scores equalled or nearly equalled the white female means and, certainly, were not different enough to account for the much higher white boy retention rate.

Among those retained, the white boys scored higher than any of the other three groups on all measures except two, Negro boys reading and Negro girls Bender scores. Thus, again, it appeared that retention of white boys in comparison to the other groups was, in general,

inversely related to intelligence test and achievement test performance.

It can be seen that when the promoted and retained are combined, the white boys do have somewhat lower reading achievement than either of the female groups; but they have virtually the same mean reading achievement as the Negro boys, who were failed at a rate less than one-seventh as great as that for the white boys.

Since the difference between the means of intelligence and achievement test scores are inadequate explanations for the greater failure rate of the white boys, we next investigate the possibility that the difference in the distribution of achievement scores rather than differences in central tendency might account for the greater retention rate of the white males. Figures I and II and Tables V and VI support this possibility. Table V and Figure I reveal more heterogeneity on the reading and arithmetic achievement tests for both white groups. It can be seen that nearly 90% of the Negro children scored within one standard deviation of the mean, and it is apparent that the white boys do have a considerably larger proportion scoring below -1SD in reading. Table VIB and VIC show the differences between the race and sex groups scoring high (-1SD or above) and low (below -1SD) on the reading achievement test. Table VIB

indicates that the white children not only score more frequently at this very low level, but that the difference is highly significant. Table VIC shows that the chi square for sex was not quite significant, and the three way interaction was also not significant.

Table V does also show that in arithmetic the percent of very low scoring white boys is less than that for the combined Negro groups. But in any event, reading ability is probably a far more important determiner of promotion-retention at the first grade level. The high percent of white males scoring more than one standard deviation below the reading mean, however, can account only partially for the high rate of first grade retention for this group. A comparison between Tables II and V shows that for the white girls and for both Negro groups the percent retained in the first grade and the percent scoring more than one standard deviation below the mean in reading is identical, but for white boys the percent retained is nearly twice as large as the percent scoring that low in reading.

Socio-Economic Status of the Schools as a Determiner of Promotion Rates

Table VII indicates that white boys <u>not</u> in Portland schools and scoring

between the mean and -1SD on the reading achievement test were retained much more frequently than white boys in Portland schools ($\underline{X}^2 = 7.10$, $P < .01$ level). Thus, assuming higher socio-economic status for non-Portland than for Portland schools, white boys of medium low reading achievement attending high status schools were significantly more often retained than those attending low status schools.

Figure III reports the number of schools in Portland with the frequency of pupils enrolled who completed the 7-year examination. Figure IV compares by assumed socio-economic level of the school, those of the 46 white boys enrolled in the Portland city schools (15 promoted, 6 retained) who scored above -1SD of the mean on the reading achievement test. Figure IV indicates that for white boys scoring within this range, promotion occurred much more frequently at the low socio-economic status schools. Even with this small N, the $\underline{t}$ for the difference between the promoted and retained groups in rank of the Portland school they attended equalled 3.96 ($P < .001$).

Thus, study of schools both within and outside the Portland District indicates that white boys who performed at the mediocre level are much

more often retained by schools serving relatively high socio-economic populations than schools serving low socio-economic populations.

Table I

Grade Status of Children at Time of 7-Year Examination

Race	White		Negro	
Sex	Male	Female	Male	Female
N	315	294	154	147
Repeated Kindergarten & in Kindergarten or 1st grade	4%	2%	3%	1%
In Kindergarten, not repeating	1%	1%	0	1%
In first grade and never repeated	61%	49%	51%	51%
In special classes	0%	0%	1%	1%
Completed 1st grade	35%	49%	45%	45%

Table II

Grade Status of Those Who Completed the First Grade at Time of 7-Year Examination

Race				
Sex	Male	Female	Male	Female
N who completed 1st grade	111	144	70	66
Completed but failed 1st grade	38%	13%	7%	5%
Completed and passed 1st grade	62%	87%	93%	95%

Table III

Chi Squares for Race and Sex by Promotion vs. Retention

A Race x Sex

	W	N	
M	111	70	181
F	144	66	210
	255	136	391

$X^2 = 2.25$; $.10 < P < .20$

B Race x P-R

	W	N	
P	194	128	322
R	61	8	69
	255	136	391

$X^2 = 19.86$; $P < .00001$

C Sex x P-R

	M	F	
P	134	188	322
R	47	22	69
	181	210	391

$X^2 = 16.05$; $P < .0001$

D Three Way Interaction

X^2 R x S x P-R = 8.39; $P < .01$

Table IV

Promoted 1st Grade	White		Negro	
	M	F	M	F
N	69	125	65	63
$\bar{X}$ CA (months)	84.7	84.5	84.3	84.6
$\bar{X}$ VIQ	100.26	100.30	92.23	91.3
$\bar{X}$ PIQ	101.77	104.66	92.48	95.7
$\bar{X}$ FSIQ	101.10	102.54	91.68	92.7
$\bar{X}$ Bender	5.61	5.61	8.18	8.41
$\bar{X}$ Reading	1.83	2.07	1.52[a]	1.72
$\bar{X}$ Arithmetic	1.96	1.94	1.60[a]	1.63
Actual Grade	2.08	2.10	2.11	2.11
Retained 1st Grade				
N	42	19	5	3
$\bar{X}$ CA (months)	84.7	84.2	84.6	83.7
$\bar{X}$ VIQ	92.14	85.05	85.00	82.33
$\bar{X}$ PIQ	92.12	91.95	81.40	88.33
$\bar{X}$ FSIQ	91.43	87.21	81.60	84.00
$\bar{X}$ Bender	8.43	8.84	13.80	6.33
$\bar{X}$ Reading	0.94	0.91[b]	1.13[c]	0.83
$\bar{X}$ Arithmetic	1.35	1.18[b]	1.00[c]	1.17
Expected actual grade (if not failed)	2.11	2.11	2.20	2.07
Promoted and Retained 1st Grade with adequate achievement tests				
N	111	143	67	66
$\bar{X}$ Reading	1.49	1.91	1.50	1.68
$\bar{X}^{a}$ Arithmetic	1.73	1.83	1.57	1.61

N for a = 64; b = 18; c = 3

Table V

Wide Range Achievement Test Scores

Reading

Sample Completing 1st Grade	Wide Range Grade Level	White Male N	White Male %	White Female N	White Female %	Negro Male N	Negro Male %	Negro Female N	Negro Female %	Total
+2SD & above	3.3 & above	5	7%	13	18%	1	3%	0	8%	19
+1SD to @2SD	2.5 to 3.2	3		13		1		5		22
0 to +1SD	1.7 to 2.4	27	71%	57	69%	15	90%	24	88%	123
0 to -1SD	1.6 to 1.0	52		42		45		34		173
-1SD to -2SD	0.9 to 0.2	23	22%	18	13%	5	7%	3	5%	49
-2SD & below	0.1 & below	1	0	0		0		0		1
Total		111		143		67		66		387

Arithmetic

Sample Completing 1st Grade	Wide Range Grade Level	White Male N	White Male %	White Female N	White Female %	Negro Male N	Negro Male %	Negro Female N	Negro Female %	Total
+2SD & above	2.8 & above	4	24%	4	28%	0	12%	0	15%	8
+1SD TO +2SD	2.2 to 2.7	23		36		8		10		77
0 to +1SD	1.8 to 2.1	39	61%	58	60%	23	70%	19	71%	139
0 to -1SD	1.7 to 1.2	89		28		24		28		109
-1SD to -2SD	1.1 to 0.7	11	11 14%	11	12%	11	18%	7	14%	40
-2SD & below	0.6 & below	5		66		1		2		14
Total		111		143		67		66		387

Table VI

Chi Squares for Race and Sex by

High vs. Low Reading Test Achievement*

A Race x Sex

	W	N	
M	111	67	178
F	143	66	209
	254	133	387

$X^2 = 1.56$; $P > .20$

B Race x Test Achievement

	W	N	
Hi	212	125	337
Lo	42	8	50
	254	133	387

$X^2 = 8.58$; $P < .01$

C Sex x Test Achievement

	M	F	
Hi	149	188	337
Lo	29	21	50
	178	209	387

$X^2 = 3.33$; $.05 < P < .10$ (ns)

D Three Way Interaction

X^2 R x S x Achiev. = 0.92 (ns)

* High = Wide Range Reading Achievement Test score -1SD or above

Low = Wide Range Reading Achievement Test score below -1SD

Table VII

White Boys Retained (N = 23) Scoring from 0 to -1SD

in Reading Compared to a

Control Group of Promoted Boys (N = 23)

School Attended

	non-Portland School	Portland School	Total
Retained	17	6	23
Promoted	8	15	23
Total	25	21	46

$X^2 = 7.10$; $P < .01$

Figure [illegible]

READING

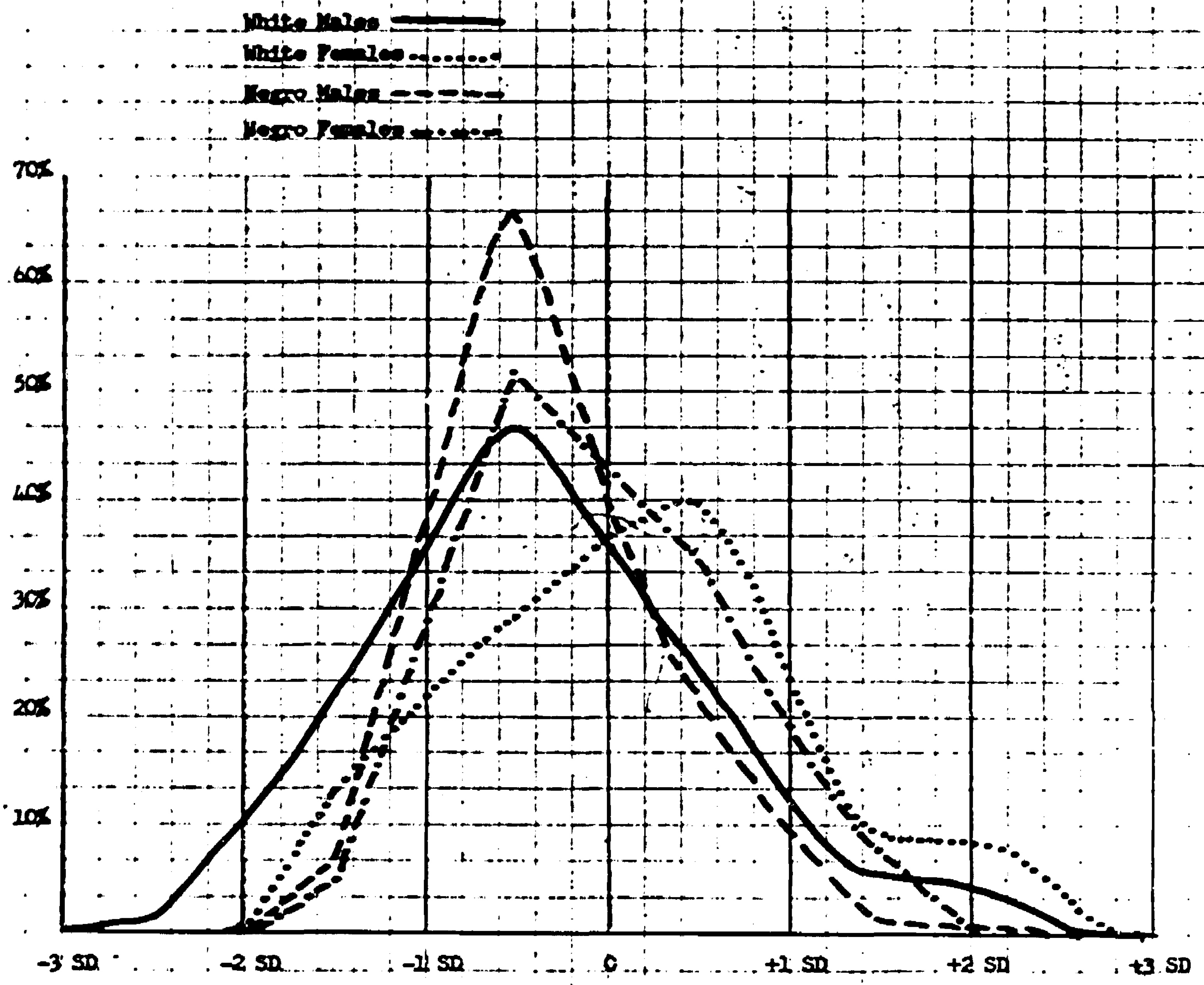


Figure II

ARITHMETIC

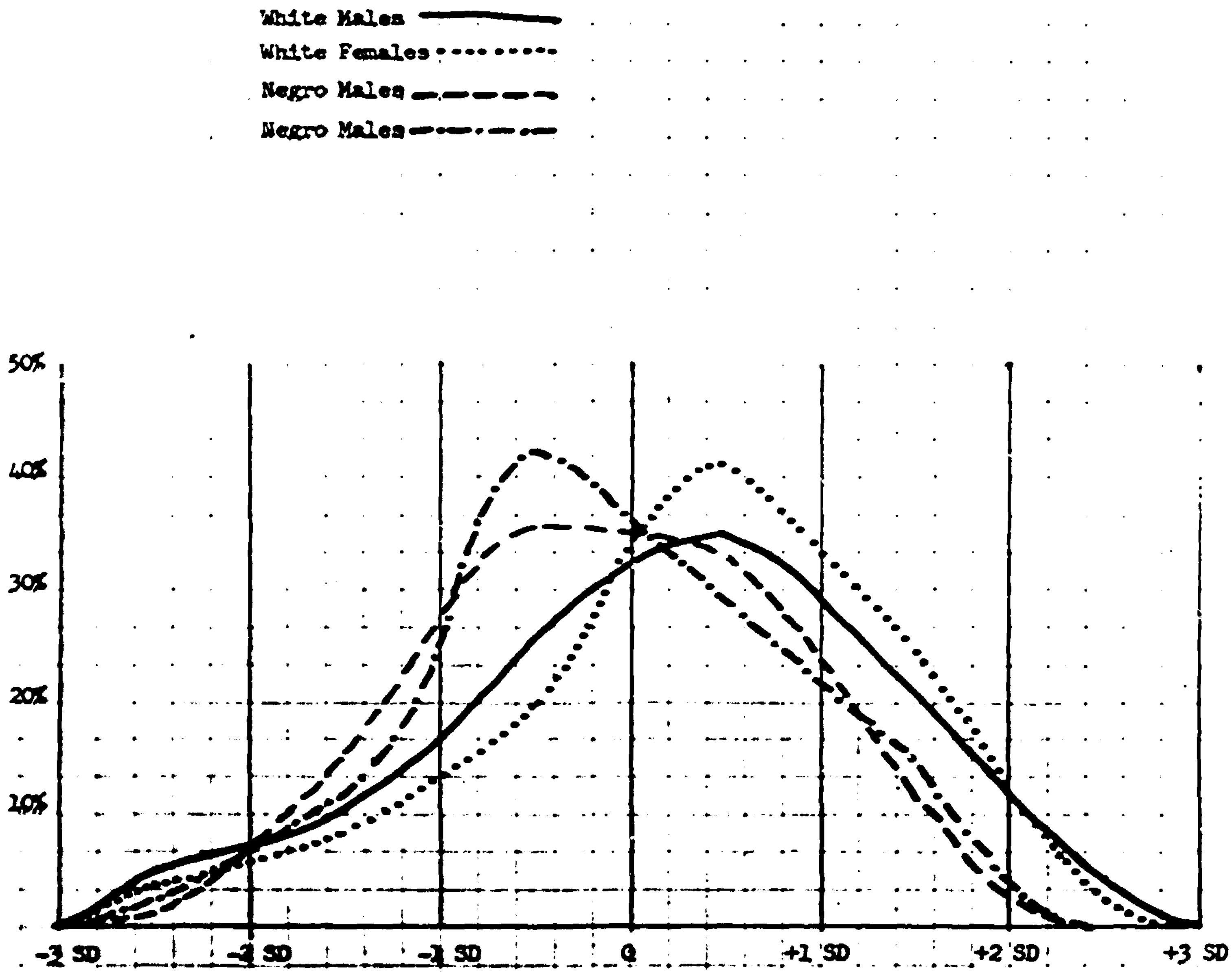


Figure III

Number of Schools in Portland School District with the Frequency of Child Development Population Enrolled

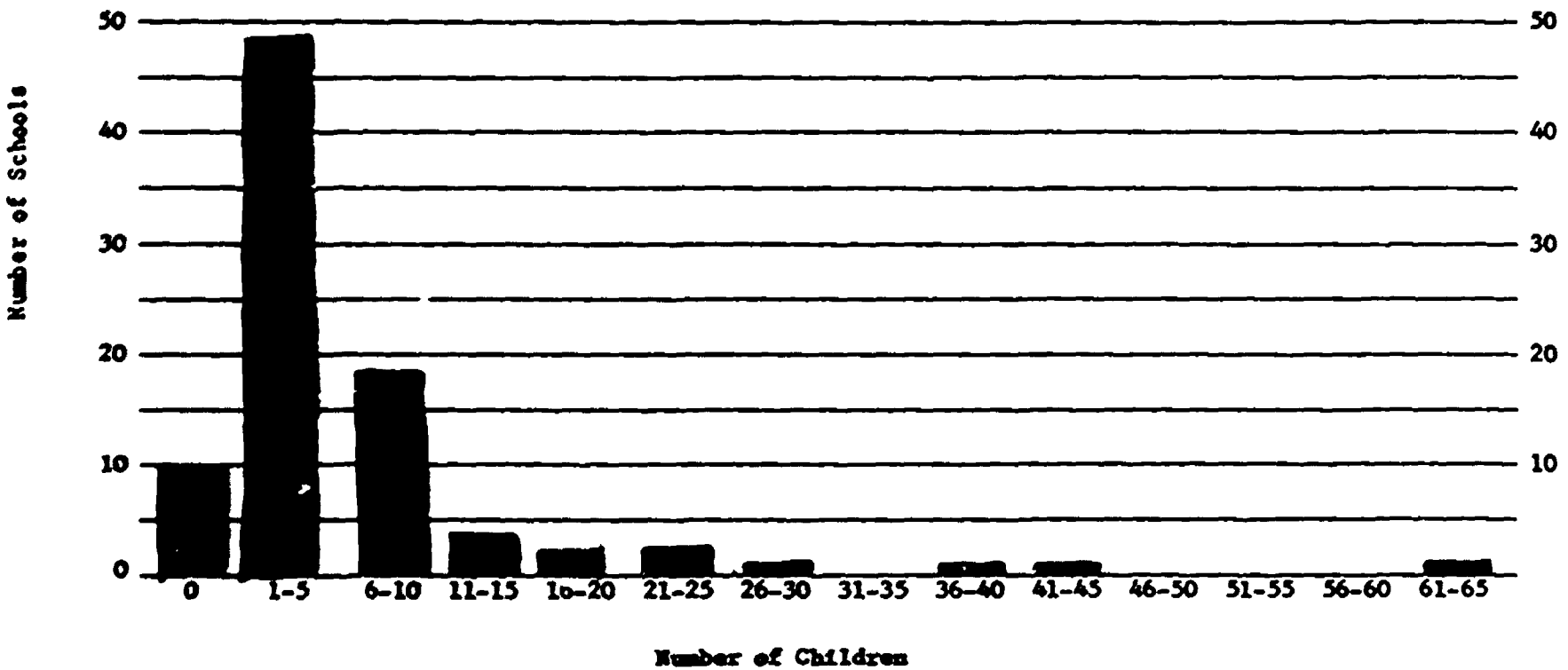


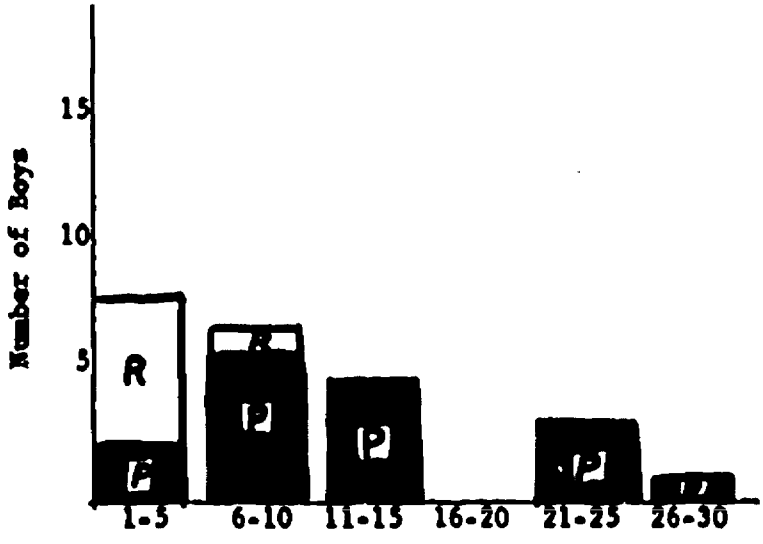
Figure IV

Comparison of Retained and Promoted Boys from 0 to -1SD

in Reading Achievement

in the Portland City Schools

by Socio-Economic Level of School



Number of Child Development Children in School