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ABSTRACT

Measures of background characteristics, school performance, and test achievement were analyzed for four race-by-sex samples of third graders who were known to have later become high school dropouts. In each sample, age in the third grade, course marks, and standardized achievement scores were found to be significantly related to the grade in which dropouts would leave secondary school. On these measures dropout from earlier grades was associated with lower marks and test scores and being older in the third grade than dropouts from later grades. Results showed that the strongest predictors of when a dropout will leave school are also among the measures that differentiate dropouts from graduates. From the finding it was concluded that in identifying potential dropouts, one can concurrently determine the severity of problems that may lead to early rather than late dropout, thus providing a basis for establishing priorities in the need for intervention to prevent future school failure and dropout. (For related document see CG008551). (Author)

PREDICTION OF GRADE OF DROPOUT FROM 3RD GRADE DATA

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MENTAL HEALTH STUDY CENTER
NATIONAL INSTITUTE OF MENTAL HEALTH
1973

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Summary

Measures of background characteristics, school performance, and test achievement were analyzed for four race-by-sex samples of third graders who were known to have later become high school dropouts.

In each sample, Age in the third grade, course marks, and standardized achievement scores were found to be significantly related to the grade in which dropouts would leave secondary school. On these measures dropout from earlier grades was associated with lower marks and test scores and being older in the third grade than dropouts from later grades.

A combination of predictors produced multiple correlations with grade of withdrawal that ranged from .43 to .61. The findings replicated those of earlier studies using sixth rather than third grade data. Results showed that the strongest predictors of when a dropout will leave school are also among the measures that differentiate dropouts from graduates. From the finding it was concluded that in identifying potential dropouts, one can concurrently determine the severity of problems that may lead to early rather than late dropout, thus providing a basis for establishing priorities in the need for intervention to prevent future school failure and dropout.

Table of Contents

Tables

Figure

Prediction of Grade of Dropout from 3rd Grade Data

Dee N. Lloyd and Gail Bleach[1]

In a previous study (Lloyd, 1968), it was found that some of the 6th grade characteristics that predicted dropout or graduation from high school would also predict how long a dropout would stay in school. These findings indicated that the greater the number of characteristics associated with dropout that a 6th grader has, the earlier he is likely to dropout. Also, the greater the degree to which one looks like a dropout on these characteristics, the higher the probability is of early dropout. The characteristics that predicted grade of withdrawal were consistent with those found in other studies comparing early and late dropouts (Dresher, 1954; Livingston, 1959, Nachman, 1964; Moore, 1967). Most of these latter studies, however, included measures from secondary school and explored only individual rather than combined relationships of differentiating measures.

The present study attempts to test whether the prediction of time of dropout can be made even earlier than the 6th grade. Correlations and multiple correlations with secondary school Grade of Withdrawal were calculated using measures taken from 3rd grade information.

Method

Subjects

Subjects were 196 white male, 143 white female, 54 Negro male, and 38 Negro female dropouts. Subjects were drawn from larger samples of

[1]The authors wish to express appreciation to Mrs. Anita Green, statistical assistant, and to Miss Janet Modery and Mrs. Janet Moser, project secretaries, for their contributions to this study.

dropouts included in the study to predict Grade of Withdrawal from 6th grade information[2].

Subjects were classified as dropouts if they received official school codes for reasons of withdrawal other than those specifying a transfer to another school. This group combined what are referred to as voluntary and involuntary withdrawals. Most of the dropouts, however, would be considered to be voluntary withdrawals, with only 5% being classified under the withdrawal categories of: committed to an institution, special, physical disability, or economic reason. The most common reason for dropout listed on the school records was the catch-all term, "16 years of age or over," which was applied to approximately 90% of the male dropouts and approximately 75% of the female dropouts.

Variables

The variables for this study were the same 20 measures used in the previous study to predict dropout or graduation from 3rd grade data (Lloyd & Bleach, 1972). All variables were derived from information contained on elementary school permanent record cards or classroom record sheets for standardized test scores.

Age in months in the 3rd grade (Age) was used largely as a measure of the number of non-promotions in elementary school. This variable also contained variance associated with age at first entering school.

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[2] These were also the same subjects that constituted the dropout groups in the previous study to predict high school dropout or graduation from 3rd grade information (Lloyd & Bleach, 1972).

A dichotomized variable of regular progression vs. retention in one or more grades from the 1st to the 3rd grade (Retention) was also included as a measure of retention.

The educational level of both the father and the mother and the occupational level of the father as of the 3rd grade were used as measures of socioeconomic background. Education of Father and Education of Mother consisted of three categories: elementary, high school, and beyond high school. Occupation of Father consisted of seven categories adapted from the Occupational Scale of the Index of Social Position (Hollingshead and Redlich, 1958[3]). A summary of the seven occupational levels in this scale is as follows:

Level 1 - Higher executives, proprietors, and professionals.
Level 2 - Lesser executives, proprietors, and professionals.
Level 3 - Administrative, small business owners, minor and semi-professionals.
Level 4 - Clerical, sales, and technicians.
Level 5 - Skilled trades.
Level 6 - Semi-skilled trades.
Level 7 - Unskilled workers.

The number of siblings of the subject (Siblings) and marital status of parents were measures of family characteristics. Siblings was coded directly. Marital Status of Parents was considered to be a gross measure of intact or broken homes. The two categories of the variable indicated (1) that the subject's natural parents were alive and married, or (2) that the natural parents were separated, divorced, deceased, or remarried.

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[3] The coding of occupational level had a reverse correspondence to occupational status, so that lower means indicate higher levels. Correlations and Beta weights, however, have been reflected so that positive relationships are associated with higher occupational level.

Marks received in the 3rd grade subject areas of reading, language, spelling, arithmetic, and social studies; the average of these marks (Grade Point Average); and the number of days Absent in the 3rd grade (Absence) were used as a measure of school performance and behavior. Course marks were coded on a three-point scale representing below average, average, and above average performance as judged by the course teacher. Absence was coded on an eight category scale: 0-5, 6-10, 11-20, 21-30, 31-40, 41-60, 61-90, and more than 90 days absent.

The 3rd grade standardized test scores were the Total Mental Factors score from the California Test of Mental Maturity (CTMM IQ score), Primary Form, 1950 edition, and the Total Reading, Total Arithmetic, and Total Language scores from the California Achievement Test (CAT), Primary Battery, 1950 edition. The CAT scores were grade-equivalent scores.

Criterion

The codes assigned for grade of withdrawal covered three time periods in each grade from grades 7 through 12: summer prior to the grade, first semester, and second semester. Codes ranged from 01 for the summer prior to the 7th grade to 18 for the second semester of the 12th grade. In coding, subjects who were not promoted and who did not return in the fall to repeat a grade were coded as withdrawing the summer prior to the grade in which they failed. Therefore, the criterion

is most accurately described as measuring the last grade that was successfully completed by a subject[4].

Results[5]

Correlations

There were 16 variables that correlated significantly with Grade of Withdrawal in the white male sample, 13 in the white female sample, 12 in the Negro female sample, and only six in the Negro male sample. These correlations are presented in Table 1.[6] Five variables had significant correlations with Grade of Withdrawal in all samples. These were: Age in 3rd Grade, Mark in Reading, Mark in Language, Grade Point

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[4] In other words, these subjects were coded as withdrawing prior to a grade that they had attended the previous year. Although this was not a completely satisfactory method for placing their time of exit, other possibilities also would result in ambiguities. The 18-interval scale of withdrawal was designed to assess both differences between season of withdrawal and grade of withdrawal. It was not our expectation that the 18-interval scale would detect significant variance among dropouts better than a 6-interval scale representing the six secondary grades.

[5] Analyses were computed by means of the IBM 360 computer version of the BMD02R stepwise regression program (Dixon, 1965). This program successively adds variables to the multiple linear regression equation. The variable with the highest correlation with the criterion is selected first. At each additional step, the variable having the highest partial correlation with the criterion, partialling out the contribution of all variables previously entered, is selected. This procedure continues until all variables have entered the equation or until a specified level of significance for adding variables is reached. The program provides b weights for variables. The beta weights reported were calculated from the standard deviations and b weights given in the computer computations. Appreciation is expressed to Mr. Steward Teper of the computer facility at the National Institute of Mental Health for his assistance in programming and supervising the computer analyses.

[6] Means, standard deviations, and complete intercorrelation matrices of the variables in each sample of dropouts are found in Tables A through E of the Appendix.

Table 1

Zero-Order Correlations and Beta Coefficients for Multiple Correlations with Grade of Withdrawal in Four Dropout Samples

	Variable	White Males (N=196)		White Females (N=143)		Negro Males (N=54)		Negro Females (N=38)	
		r	Beta[b]	r	Beta[b]	r	Beta[b]	r	Beta[b]
1	Age in 3rd grade	-.417	-.3488	-.327	-.3154	-.493	-.4083	-.487	-.4377
2	Age in 1st grade	-.146		-.121[a]		-.135[a]		-.301	
3	Education of father	.260	.1382	.188		.132[a]		.150[a]	
4	Education of mother	.220		.120[a]		.010[a]		.332	
5	Siblings	-.180		-.112[a]		-.019[a]		-.400	-.3352
6	Marital status of parents	.008[a]		-.118[a]		-.071[a]		-.191[a]	
7	Occupation of father	.047[a]		.175		.012[a]		.281[a]	
8	3rd mark - reading	.210		.197		.295		.435	
9	3rd mark - language	.222		.166		.404	.3075	.485	
10	3rd mark - spelling	.253		.159[a]		.112[a]		.205[a]	
11	3rd mark - writing	.118[a]		.191		.144[a]		.077[a]	
12	3rd mark - arithmetic	.210		.164		.269[a]		.404	
13	3rd mark - social studies	.289		.210		.259[a]		.162[a]	
14	3rd grade point average	.295		.267		.327		.342	
15	Absence	-.030[a]		-.164	-.1742	-.192[a]	-.2335	-.084[a]	
16	Retention	-.368		-.314		-.324		-.379	
17	3rd CAT - reading	.320	.2323	.259	.2041	.015[a]		.433	
18	3rd CAT - arithmetic	.289		.263		.069[a]		.427	
19	3rd CAT - language	.322		.131[a]		.139[a]		.429	
20	3rd CTMM IQ score	.332		.140[a]		.273		.401	
	Multiple correlation		.5057		.4296		.6086		.5892
	Multiple correlation squared		.2557		.1845		.3704		.3472
	Standard error of estimate		3.2670		3.2795		3.3436		3.9372

[a]Not significant at the .05 level.

[b]Significant at the .05 level.

Average, and Retention. Variables that were significantly correlated with the criterion in the white samples but not in the Negro samples were Education of Father and Mark in Social Studies.

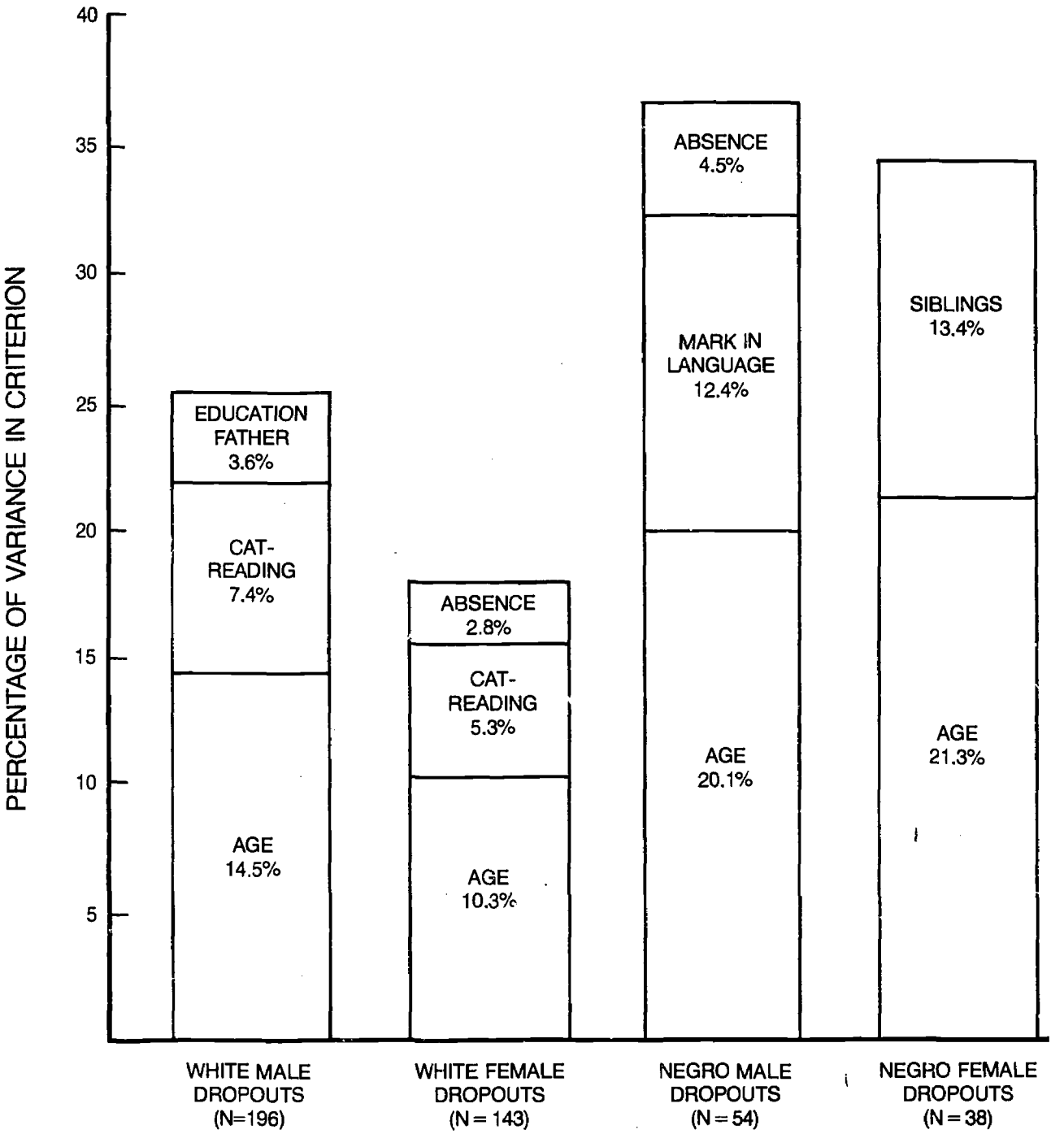
Multiple Correlations in Race and Sex Samples

In each sample a combination of variables predicted Grade of Withdrawal better than any single variable. All variables in the regression equations accounted for significant independent variance in the criterion by two criteria: (1) each had a beta weight that was significant at the .05 level, and (2) each increased the total variance accounted for in the criterion by more than 1%. Three variables accounted for significant independent variance in the criterion in both of the white samples and the Negro male sample. Only two variables accounted for significant variance in the Negro female sample. Beta weights for variables in these equations and the multiple correlations of the variables with Grade of Withdrawal are presented in Table 1.

The obtained multiple correlations ranged from .430 for white females to .609 for Negro males. In terms of the total percentage of variance accounted for in Grade of Withdrawal (multiple correlation squared), combinations of variables accounted for 26% in the white male sample, 18% in the white female sample, 37% in the Nego male sample, and 35% in the Negro female sample. A breakdown of the relative percentage of variance in the criterion accounted for by each variable is depicted in Figure 1.[7]

[7] The relative contribution of variables were obtained by multiplying the correlation of the variable with the criterion by the beta weight assigned to the variable.

FIGURE 1
THE RELATIVE CONTRIBUTION OF VARIABLES TO THE PREDICTION OF GRADE OF WITHDRAWAL



Of the variables accounting for significant variance, Age in 3rd Grade was the only variable that appeared in all four samples. The CAT Reading score appeared in the equations in both white samples. Absence appeared in the equations in both the white female and Negro male samples; however, the contribution of Absence to the prediction in the Negro male sample may not be valid because the zero-order correlation of this variable was not significant.[8] The relationships between predictive variables and Grade of Withdrawal indicated that dropout in earlier grades was primarily associated with being older and having lower test scores or lower course marks in the 3rd grade. A lower educational level of father (white males), greater number of siblings (Negro females), and more Absence (white females) also contributed independently to the prediction of earlier dropout.

The standard errors of estimate for the multiple correlations were approximately 3.0 (see Table 1), except in the Negro female sample where it was 3.9. This statistic provides an indication of how far the predicted grade of withdrawal deviated from the actual grade of withdrawal. Since each grade encompassed three points on the criterion variable, the standard errors of estimate indicate that approximately two-thirds of the dropouts withdrew within a range of one grade before to one grade after the grade that was predicted from the multiple regression equations.

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[8] In the Negro male sample, the two-variable equation without Absence produced a multiple correlation of .563 and accounted for 32% of the variance in Withdrawal Grade.

Discussion

The strongest predictor of when a student would dropout was his age in the third grade. The older a dropout is in the 3rd grade, the earlier he can be expected to leave secondary school. There are two factors that can account for the variability in age in the 3rd grade, the age of the child when he enters school and the number of times the child repeated one of the first three grades. The former does not appear to be an important factor. Age in the first grade was significantly correlated with grade of withdrawal in only one of the four samples (white males), and that relationship was very low (-.146). Evidence that the major variance in age among dropouts can be accounted for by failure to be promoted and can be seen in the correlations between Age and Retention. These two measures correlated highly in all samples of dropouts, with coefficients ranging from .59 to .71 (see Tables in Appendix).[9] Retention, however, is a global measure and by itself is not a useful explanatory construct. Retention may stem from developmental and socioenvironmental background factors as well as specific school-related learning problems. It is beyond the scope of this data to determine which of these underlies the relationship between retention and dropout, and unfortunately, there is little

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[9] Although Age in the 3rd grade was highly correlated with Retention, Age entering first grade was not. Only in the white male sample was the correlation significant (-.16). Further, in all samples, the correlations between Age entering first grade and Retention were negative. So, if a true relationship exists, it would mean that the older a child (who becomes a dropout) is when he enters the 1st grade, the less likely he is to be retained in grades one to three.

empirical research in this area. The evidence, however, indicates that remediation of skills through retention does not generally succeed in its intent, at least in terms of long range success. Other data in our studies supports this contention and shows that of all students retained in elementary school only 33% graduated from high school.[10]

Some measures that predicted time of dropout were the same or similar to those found to predict whether a subject would dropout or graduate (Lloyd & Bleach, 1972). These were Age or Retention and a measure of reading achievement (CAT Reading score or course mark in reading). This finding indicates that the more characteristics associated with dropout that a 3rd grader has, the earlier he will be likely to dropout. Results of this study also provide additional information on the accuracy obtained in the study predicting dropout or graduation from the 3rd grade. In that study, it was found that the correct prediction of dropout was approximately 65% in white samples and 57% in the Negro samples. The present findings indicate that dropouts who are younger and who have higher reading achievement are likely to remain in school longer than the dropouts who are older

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[10] Promotion policy has long presented problems in school administration with the tendency to swing from a philosophy of only retention or only social promotion as a solution. One of the better studies into the characteristics of retained children and the retention process indicates that the question should not be whether to retain, but rather how to carry out remediation. When specific characteristics of children are taken into account, when retention is considered as one alternative or one part of a remediation process, and when there is involvement and follow through by parents and school personnel, it was found that repeating a grade can have positive effects on achievement (Stringer, 1960).

and who have lower reading scores. This difference between early and late dropouts is the same as found between dropouts and graduates. Therefore, the dropouts who most resemble graduates are those who complete the most high school grades before leaving school. This suggests that for early dropouts (subjects who withdrew in grades seven to nine) the prediction would be more accurate than the overall correct classification presented above. Conversely, the prediction would be expected to be less accurate for those dropouts who remain in school to the 11th and 12th grades. From the standpoint of loss in educational development with its implications for later adjustment after leaving school, the more important group of dropouts to identify are the early leavers. Thus, the results of the present study indicate that the prediction of dropout from 3rd grade data in the previous study is not only accurate in the majority of cases, but also that it is most effective in detecting the group of dropouts who stand to suffer the most loss from failure to complete high school and who are in the most need of intervention.

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Appendix

Means, Standard Deviations, and Intercorrelation Matrices of 3rd Grade Measures for Four Samples of Dropouts

Following is the key for identifying variables in Tables B through E:

Number	Variables
1	Withdrawal grade
2	Age 3rd grade
3	Age 1st grade
4	Education of father
5	Education of mother
6	Number of siblings
7	Married/other
8	Occupation of father
9	3rd mark - reading
10	3rd mark - language
11	3rd mark - spelling
12	3rd mark - writing
13	3rd mark - arithmetic
14	3rd mark - social studies
15	Grade point average 3rd grade
16	Absence
17	Retained/not retained
18	CAT - reading total
19	CAT - arithmetic total
20	CAT - language total
21	CTMM IQ score

Table A

Means and Standard Deviations on 3rd Grade Measures and Grade of Withdrawal for Four Samples of Dropouts

	Variable	White Males (N=196) Mean	S.D.	White Females (N=143) Mean	S.D.	Negro Males (N=54) Mean	S.D.	Negro Females (N=38) Mean	S.D.
1	Age in 3rd grade	102.80	6.79	100.84	5.72	106.87	8.81	104.21	9.45
2	Age in 1st grade	76.41	5.13	75.08	4.43	76.24	5.50	75.16	5.67
3	Education of father	1.78	.65	1.65	.60	1.13	.34	1.37	.59
4	Education of mother	1.78	.62	1.67	.51	1.22	.42	1.37	.49
5	Siblings	2.65	1.87	2.89	2.06	4.70	2.15	5.11	2.33
6	Marital status of parents	1.11	.31	1.16	.37	1.17	.38	1.16	.37
7	Occupation of father	4.83	1.19	4.83	1.27	6.30	.82	6.18	1.35
8	3rd mark - reading	1.62	.63	1.76	.64	1.69	.64	1.92	.75
9	3rd mark - language	1.68	.54	1.86	.54	1.72	.53	1.89	.62
10	3rd mark - spelling	1.66	.63	1.81	.60	1.69	.70	1.97	.68
11	3rd mark - writing	1.83	.54	2.03	.47	1.93	.64	2.00	.52
12	3rd mark - arithmetic	1.80	.55	1.80	.60	1.83	.67	1.71	.61
13	3rd mark - social studies	1.87	.43	1.91	.44	1.89	.42	1.92	.36
14	3rd grade point average	1.83	.34	1.92	.33	1.88	.33	1.96	.33
15	Absence	2.71	1.29	2.91	1.22	2.72	1.34	2.76	1.60
16	Retention	1.19	.39	1.15	.36	1.44	.50	1.37	.49
17	3rd CAT - reading	3.12	.93	3.53	.85	2.87	.77	3.07	.98
18	3rd CAT - arithmetic	3.53	.78	3.67	.73	3.32	.70	3.29	.87
19	3rd CAT - language	31.98	.70	3.46	.69	3.15	.76	3.27	.81
20	3rd CTMM IQ score	98.47	17.95	98.74	15.20	86.89	14.01	88.58	20.66
	Grade of withdrawal	11.15	3.76	12.18	3.59	9.76	4.09	10.39	4.74

TABLE B

CORRELATION MATRIX OF 3RD GRADE VARIABLES: WHITE MALE DROPOUTS (N=196)

VARIABLE NUMBER	1	2	3	4	5	6	7	8	9	10
1	1.000	-0.417	-0.146	0.260	0.220	-0.180	0.008	-0.047	0.210	0.222
2		1.000	0.645	-0.208	-0.203	0.127	0.076	0.056	-0.161	-0.155
3			1.000	-0.084	-0.110	-0.015	0.146	0.038	0.035	0.010
4				1.000	0.581	-0.214	0.066	-0.390	0.217	0.166
5					1.000	-0.225	0.019	-0.258	0.261	0.215
6						1.000	-0.068	0.101	-0.134	-0.222
7							1.000	0.091	0.027	0.020
8								1.000	-0.209	-0.044
9									1.000	0.606
10										1.000

VARIABLE NUMBER	11	12	13	14	15	16	17	18	19	20	21
1	0.253	0.118	0.210	0.289	0.295	-0.030	-0.368	0.320	0.289	0.322	0.33
2	-0.096	-0.166	-0.187	-0.190	-0.240	-0.056	0.590	-0.169	-0.129	-0.227	-0.35
3	0.113	-0.034	0.040	0.001	0.015	0.118	-0.156	0.038	0.060	-0.059	-0.10
4	0.177	0.054	0.106	0.174	0.217	-0.009	-0.137	0.210	0.220	0.244	0.22
5	0.311	0.085	0.227	0.103	0.266	-0.101	-0.098	0.211	0.256	0.196	0.27
6	-0.162	-0.028	-0.137	-0.229	-0.203	-0.036	0.174	-0.151	-0.162	-0.158	-0.17
7	0.005	0.077	-0.025	-0.051	-0.008	0.001	-0.041	0.087	0.037	-0.016	0.01
8	-0.091	0.019	-0.098	-0.103	-0.128	-0.169	0.003	-0.132	-0.173	-0.115	-0.11
9	0.692	0.259	0.515	0.386	0.720	0.089	-0.224	0.636	0.521	0.479	0.37
10	0.645	0.379	0.479	0.492	0.727	-0.037	-0.177	0.528	0.473	0.397	0.37
11	1.000	0.384	0.539	0.443	0.753	-0.047	-0.193	0.555	0.525	0.416	0.33
12		1.000	0.402	0.414	0.582	-0.041	-0.139	0.364	0.385	0.348	0.29
13			1.000	0.456	0.709	-0.103	-0.252	0.456	0.523	0.330	0.43
14				1.000	0.726	0.025	-0.253	0.470	0.435	0.370	0.36
15					1.000	-0.006	-0.280	0.613	0.584	0.503	0.45
16						1.000	-0.195	0.027	-0.015	-0.044	-0.00
17							1.000	-0.226	-0.162	-0.222	-0.30
18								1.000	0.797	0.646	0.62
19									1.000	0.589	0.69
20										1.000	0.44
											1.00

TABLE C

CORRELATION MATRIX OF 3RD GRADE VARIABLES: WHITE FEMALE DROPOUTS (N=143)

VARIABLE NUMBER	1	2	3	4	5	6	7	8	9	10
1	1.000	-0.327	-0.121	0.188	0.120	-0.112	-0.118	-0.175	0.197	0.166
2		1.000	0.675	-0.190	-0.241	0.265	0.052	0.172	-0.136	-0.099
3			1.000	-0.160	-0.159	0.136	0.087	0.080	0.124	0.087
4				1.000	0.449	-0.319	-0.063	-0.319	0.039	0.088
5					1.000	-0.315	-0.016	-0.246	0.082	0.087
6						1.000	-0.162	0.157	-0.058	-0.040
7							1.000	0.118	-0.076	-0.134
8								1.000	-0.153	-0.219
9									1.000	0.599
10										1.000

VARIABLE NUMBER	11	12	13	14	15	16	17	18	19	20	21
1	0.159	0.191	0.164	0.210	0.267	-0.164	-0.314	0.259	0.263	0.131	0.14
2	-0.031	-0.094	-0.155	-0.086	-0.158	-0.085	0.642	-0.129	-0.178	-0.041	-0.46
3	0.150	0.063	0.078	0.022	0.127	-0.030	-0.133	0.045	-0.037	0.006	-0.13
4	0.109	0.184	0.037	0.065	0.181	-0.034	-0.088	0.084	0.091	0.194	0.29
5	0.026	0.067	-0.0[illegible]	0.023	0.104	0.019	-0.158	0.105	0.042	0.115	0.23
6	-0.068	-0.069	-0.0[illegible]	-0.004	-0.117	-0.122	0.216	-0.039	-0.048	-0.071	-0.28
7	-0.021	0.014	-0.011	-0.126	-0.004	0.159	-0.020	-0.103	-0.103	-0.182	-0.02
8	-0.206	-0.132	-0.137	-0.140	-0.212	0.036	0.148	-0.095	-0.169	-0.167	-0.27
9	0.685	0.394	0.553	0.421	0.729	-0.019	-0.311	0.702	0.517	0.491	0.33
10	0.632	0.346	0.500	0.596	0.702	-0.063	-0.223	0.564	0.434	0.447	0.37
11	1.000	0.486	0.573	0.514	0.760	-0.091	-0.198	0.573	0.507	0.421	0.27
12		1.000	0.491	0.449	0.581	0.017	-0.192	0.403	0.382	0.302	0.24
13			1.000	0.540	0.719	0.023	-0.289	0.472	0.525	0.291	0.35
14				1.000	0.718	-0.029	-0.138	0.432	0.452	0.332	0.17
15					1.000	-0.012	-0.344	0.662	0.576	0.501	0.35
16						1.000	-0.083	-0.081	-0.016	-0.006	0.03
17							1.000	-0.220	-0.201	-0.061	-0.42
18								1.000	0.692	0.633	0.36
[illegible]									1.000	0.551	0.41
[illegible]										1.000	0.24
[illegible]											1.00

TABLE D

CORRELATION MATRIX OF 3RD GRADE VARIABLES: NEGRO MALE DROPOUTS (N=54)

VARIABLE NUMBER	1	2	3	4	5	6	7	8	9	10
1	1.000	-0.493	-0.135	0.132	0.010	-0.019	-0.071	-0.012	0.295	0.404
2		1.000	0.397	-0.007	0.253	0.020	0.183	0.024	-0.145	-0.295
3			1.000	-0.027	0.074	0.178	-0.038	-0.172	-0.010	0.036
4				1.000	0.324	-0.309	0.271	-0.005	0.018	-0.111
5					1.000	-0.176	0.120	-0.086	-0.016	-0.142
6						1.000	-0.241	-0.121	0.233	0.308
7							1.000	0.205	-0.013	0.047
8								1.000	-0.143	-0.155
9									1.000	0.685
10										1.000

VARIABLE NUMBER	11	12	13	14	15	16	17	18	19	20	21
1	0.112	0.144	0.269	0.259	0.327	-0.192	-0.324	0.015	0.069	0.139	0.27
2	-0.041	-0.115	-0.161	-0.157	-0.207	-0.026	0.713	-0.035	-0.046	-0.022	-0.41
3	0.020	0.112	-0.143	-0.103	0.033	-0.014	-0.231	0.186	0.040	0.182	0.01
4	-0.064	-0.042	0.014	0.103	0.060	-0.127	0.099	-0.195	-0.249	-0.179	0.09
5	0.180	-0.078	0.068	0.143	0.063	-0.258	0.329	-0.132	-0.059	0.085	-0.00
6	0.113	0.189	0.281	0.172	0.292	-0.055	-0.085	0.151	0.110	-0.033	0.28
7	0.060	-0.026	0.038	-0.120	-0.015	0.019	0.100	-0.244	-0.091	-0.201	-0.24
8	-0.265	-0.210	-0.046	-0.067	-0.296	-0.163	0.041	-0.287	-0.129	-0.177	-0.17
9	0.707	0.219	0.539	0.500	0.795	0.028	-0.085	0.453	0.498	0.415	0.24
10	0.578	0.384	0.509	0.538	0.804	0.102	-0.308	0.406	0.528	0.483	0.36
11	1.000	0.243	0.414	0.395	0.739	0.046	-0.024	0.374	0.519	0.403	0.21
12		1.000	0.059	0.109	0.491	0.042	-0.131	0.141	-0.031	-0.047	0.21
13			1.000	0.405	0.667	0.011	-0.000	0.141	0.379	0.223	0.10
14				1.000	0.638	-0.291	-0.030	0.154	0.411	0.339	0.27
15					1.000	-0.035	-0.144	0.337	0.453	0.356	0.35
16						1.000	-0.066	0.131	0.010	-0.011	-0.05
17							1.000	-0.202	-0.169	-0.152	-0.33
18								1.000	0.713	0.572	0.37
19									1.000	0.714	0.24
20										1.000	0.28
											1.00

TABLE E

CORRELATION MATRIX OF 3RD GRADE VARIABLES: NEGRO FEMALE DROPOUT (N=38)

VARIABLE NUMBER	1	2	3	4	5	6	7	8	9	10
1	1.000	-0.487	-0.301	0.150	0.332	-0.400	-0.191	-0.281	0.435	0.485
2		1.000	0.052	-0.111	-0.029	0.147	0.207	0.120	-0.574	-0.592
3			1.000	-0.002	0.056	0.237	-0.038	-0.014	-0.290	-0.262
4				1.000	0.548	-0.186	-0.150	-0.494	0.068	-0.012
5					1.000	-0.485	0.118	-0.473	0.082	-0.103
6						1.000	-0.176	0.199	-0.134	-0.176
7							1.000	-0.060	-0.247	-0.260
8								1.000	-0.012	-0.195
9									1.000	0.557
10										1.000

VARIABLE NUMBER	11	12	13	14	15	16	17	18	19	20	21
1	0.205	0.077	0.404	0.162	0.342	-0.084	-0.379	0.433	0.427	0.429	0.40
2	-0.497	-0.374	-0.476	-0.537	-0.675	-0.041	0.673	-0.559	-0.444	-0.403	-0.52
3	-0.273	-0.403	-0.384	-0.299	-0.435	-0.061	-0.061	-0.177	-0.140	-0.222	-0.30
4	-0.043	0.088	0.079	0.141	0.085	-0.192	-0.203	0.036	0.126	-0.017	0.08
5	0.030	-0.106	0.005	-0.138	-0.064	-0.058	-0.131	0.038	-0.033	-0.020	0.09
6	-0.203	-0.178	0.041	-0.022	-0.179	0.123	0.036	-0.015	-0.045	-0.156	-0.09
7	0.017	0.281	-0.031	-0.107	-0.017	-0.163	0.268	-0.092	-0.120	0.025	-0.04
8	-0.024	-0.077	-0.326	-0.025	-0.081	-0.254	0.222	-0.102	-0.222	0.042	-0.34
9	0.528	0.278	0.539	0.479	0.759	0.097	-0.509	0.779	0.640	0.724	0.63
10	0.632	0.334	0.537	0.557	0.759	0.185	-0.547	0.573	0.613	0.443	0.30
11	1.000	0.461	0.569	0.547	0.764	0.069	-0.378	0.637	0.580	0.477	0.41
12		1.000	0.425	0.580	0.626	0.000	-0.106	0.360	0.330	0.354	0.30
13			1.000	0.386	0.678	0.177	-0.267	0.577	0.595	0.420	0.58
14				1.000	0.791	0.108	-0.292	0.600	0.527	0.523	0.37
15					1.000	0.105	-0.446	0.747	0.712	0.666	0.54
16						1.000	0.045	0.101	0.052	0.078	0.14
17							1.000	-0.536	-0.441	-0.287	-0.41
18								1.000	0.849	0.801	0.71
19									1.000	0.749	0.65
										1.000	0.53
											1.00