THE CONSTRUCTION AND COMPARISON OF SCALES
FOR PREDICTING ACADEMIC SUCCESS IN GRADE SIX.

THESIS

Presented to the Faculty of the Department

of Psychology

University of Houston

In Partial Fulfillment

of the Requirements for the

Degree of Master of Arts

by

Kathryn Ann Matlock

June 1966

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ABSTRACT

The purpose of this study was two fold: (1) to construct scales for predicting academic success in Grade 6 of an "intermediate" school from school marks in Grade 5 and from scores made on The Science Research Associates Achievement Test, and (2) to compare these scales.

The sample group consisted of 185 students who completed Grade 5 in one of three elementary schools, and who also completed the first semester of Grade 6 in 1966 in the same intermediate school in the area, and for whom Science Research Associates Achievement Test scores were available.

The predictive variables consisted of grades made in basic subject matter areas in Grade 5 and selected scores on The Science Research Associates Achievement Test, a total of twelve factors, or variables.

"Academic Success" was defined as attaining a grade-point average of C+, or above, in basic subjects in the first semester of Grade 6.

Quantitative tabulations were made of the measures of twelve variables indicating the per cent success for each interval of each variable. The "Score Sheet" provided the means for computing the "Total Predictive Scores" for the 185 individuals of the sample group. These 185 "Total Predictive Scores" were then tabulated into a "Predictive Scale."

For the purposes of comparison, three sub-scales were constructed from among the twelve predictive variables. Thus, three separate "Score Sheets" and "Predictive Scales" were produced, one based on "Verbal", and one on "Quantitative" factors. The third was based on using school marks in Grade 5 and the composite total score on The Science Research Associates Achievement Test. Comparisons were then made among and between the four predictive scales constructed from the same twelve variables.

Conclusions

On the basis of the results of this study, the following conclusions seem justified:

1. The method of prediction shown here provides a simple but accurate method with no complicated statistics involved.

2. From a knowledge of fifth grade averages and scores made on the regularly administered test, The Science Research Associates Achievement Test, the counselor or others responsible for classroom placement can predict the chances for a student to make a C+ average or better in the sixth grade.

3. This type of predictive scale can be used successfully on the intermediate level of educational progress.

4. In the comparison of the predictive scales constructed, the two scales based on the twelve separate variables and the one based on seven "verbal" factors proved to be the most effective.

5. The predictive scale based on the "Quantitative" factors did not have as great a distinct "break" in the middle range -- 45 per cent to 76 per cent.

6. The predictive scale based on two variables, school marks and composite achievement scores was the least effective.

7. Predictive scales with several factors seem to be more effective.

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CHAPTER I

THE PROBLEM

Statement of the Problem

The purpose of this study was two-fold: (1) to construct
scales for predicting academic success in Grade 6 in an intermediate
school, using combinations of predictive variables and a composite
of such variables, and (2) to compare the predictive scales thus
constructed. In constructing these scales a total of twelve predictive
variables were used. These data consisted of school marks made in
Grade 5 and sub and composite scores on a comprehensive achievement
test administered in the fifth grade of elementary school. The school
marks consisted of final grades awarded in basic subject areas. The
psychological test was the Science Research Associates Achievement Test
for the Intermediate Level. This test yielded eleven variables:
(1) References, (2) Charts, (3) Reading Comprehension, (4) Vocabulary,
(5) Capitalization and Punctuation, (6) Grammar Usage, (7) Spelling,
(8) Arithmetic Reasoning, (9) Arithmetic Concepts, (10) Arithmetic
Computations and (11) Composite Score.

Need for the Study

The individual child's classroom placement is the primary
concern of the school today. Many school programs today include

special education classes for the mentally retarded student, basic

classes for the dull normal student, regular classes for the average

student and accellerated classes for the superior student.

Educators realize that correct classroom placement will

facilitate making the learning situation a more successful experience

for each child by meeting his individual needs. Instruments which

contribute information about a child's potentialities and thus facilitate

the classroom placement of the child can be very useful to educators.

Such a device is the "Predictive Scale" produced in this study.

<p style="text-align:center">Limitations of Study</p>

The schools from whence the basic sample of students for this

study was drawn are all located in similar type communities which after

all are only "neighborhoods" within a large metropolitan area. The

predictive scales constructed in this study should be quite useful and

applicable in areas of a similar type. One must not presume, however,

that the scales could be used throughout all the elementary schools of a

very large school district. Certainly, one cannot conclude that the scales

could be used without validation in any and all elementary schools

throughout a state or the nation.

Then too, though the number of predictor variables here are

large, other variables may be equally effective in predicting academic

success. Though an attempt was made in this study to compare the

general scales constructed, the conclusions are not definite and care

should be exercised in the interpretations of these conclusions.

CHAPTER II

SURVEY OF THE LITERATURE

The first predictive scale of the type used in this study was

developed by Glueck and Glueck (7) in their investigation of juvenile

deliquency.

In 1945, Ford (6) adapted the methods used in Glueck and Glueck's

study to a study in which he predicted academic success and persistence

in high school from such factors as chronological age, intelligence, past

academic achievement, number of siblings, and socio-economic status

of parents. Ford's predictions had an accuracy of 88 per cent to 94

per cent.

Under the direction of Dr. Franklin L. Stovall, Professor of

Psychology, predictive scales at various levels of the educational process

have been developed at the University of Houston.

On the elementary level, Carroll (3) developed a scale to predict

success in the fourth grade. She employed eight variables: (1) grade

averages from the third grade, (2) scores from the Otis Short Form

Intelligence Test and (3) six subtest scores from the Stanford Achievement

Tests. Carroll's predictions had an overall accuracy of 75 per cent.

On the junior high school level, Claflin (4) developed a scale to

predict success in the eighth grade. She employed five variables. They

were three subtests from the English Co-operative Tests: (1) English

Mechanics, (2) Reading Comprehension, (3) English Total. The other two variables were the sub-tests of the Junior Scholastic Achievement Test: (1) verbal, (2) numerical. Claflin's predictions had an accuracy of 75 per cent to 100 per cent.

No predictive scale has been developed for the senior high school level.

For the undergraduate school level, Cone (5) developed a scale for predicting academic success in the first year of college at the University of Houston. The predictor variables consisted of seven scores obtained from three tests used in the freshman guidance battery. The accuracy of the prediction ranged from 33 per cent to 100 per cent with an overall accuracy of 61 per cent.

Also, at the college level, Taulbee (8) developed a scale for predicting the successful completion of the course of study in the College of Optometry at the University of Houston. The eight predictor variables were derived from the Optometry Test Battery administered at the time of admission to the College. The accuracy of prediction, when computed for each of the separate predictor measures ranged from 83 per cent to 89 per cent. The accuracy of prediction on the basis of "The Total Predictive Scale" for the validation group was 96 per cent.

CHAPTER III

THE SAMPLE GROUP, PROCEDURES, VARIABLES, AND THE SCORE SHEET

The Sample Group

In the particular school district from whence the basic sample

of this study was drawn, the first five grades are taught in the "elementary"

schools, and the sixth grade comprises the first year in the "intermediate"

schools. The progression from grade 5 to grade 6, or from elementary

to intermediate school, then, is crucial.

The purpose of this study was (1) to construct scales for predicting

academic success in grade 6 from marks and test scores available on

students by the end of the fifth year, and (2) to compare these predictive

scales.

The sample group in this study consisted of a total of 185 students

(92 girls and 93 boys) who were promoted from the fifth grade in one of

three elementary schools, and who entered the following year the

same "intermediate" school and completed the first semester of grade 6

in the year 1966. Also for students to be included in the sample, in

addition to the above criteria, it was necessary that scores on the SRA

Achievement Test, be available for them.

Procedures

The technique for constructing predictive scales used in this

study involves several distinct steps or procedures:

1. The term "Success" (academic success in Grade 6) must be defined.

2. Variables (meaningful school marks, test scores, etc.) for prediction must be selected from such data available on the sample group.

3. "Score Sheets" must be established by means of which student's "Total Predictive Scores" may be computed.

4. The "Total Predictive Scores" for the 185 individuals of the sample group must be computed.

5. The predictive scale or scales must be constructed from these "Total Predictive Scores."

<u>Variables Used</u>

The variables used in constructing the predictive scales were: (1) an average of grades achieved in the "basic" subjects of the fifth grade and, (2) eleven scores from <u>The Science Research Associates Achievement Test.</u>

An average of grades achieved in the basic subjects of the fifth grade was calculated using the following numerical equivalents for letter grades: A=4.0   B=3.0   C=2.0   F=0

The subjects considered in the fifth grade average were the basic subjects of English, Arithmetic, Social Studies, Reading and Spelling. The specific grades of each pupil in each of these subjects and the scores on the achievement test below were obtained directly from the school records.

The Science Research Associates Achievement Test, Intermediate

Form, is comprised of a battery of fourteen tests which seek to measure

knowledge acquired in various subject matter areas during the school

year. From the fourteen sub-tests, ten were chosen as variables for

use in the study. The sub-tests are: (a) References (SRA:-R), (b)

Charts (SRA:-C), (c) Reading Comprehension (SRA:-RC), (d) Vocabulary

(SRA:-V), (e) Capitalization and Punctuation (SRA:-CP), (f) Grammar

Usage (SRA:-G), (g) Spelling (SRA:-S), (h) Arithmetic Reasoning

(SRA:-AR), (i) Arithmetic Concepts (SRA:-ACN), (j) Arithmetic

Computation (SRA:-ACM). The Composite Score (SRA:-CS), of the

ten sub-tests was also used as a variable. The grade equivalent scores

of each sub-test and of the composite score were the units used in this

study. It will be observed that sub-tests (a), (b), (c), (d), (e), (f), and

(g) are of a "verbal" nature and sub-tests (h), (i), and (j) are of a

"quantitative" nature.

Construction of the Score Sheet

A frequency distribution was set up for each of the twelve

predictor variables. Scores on the individual variables were tabulated

according to a successful-unsuccessful basis. The criterion of

success was defined as above-average in the first semester of the sixth

grade. An average of C, D, or F was regarded as being unsuccessful.

The school subjects considered in arriving at the sixth grade average

(SGA) were language, arithmetic, social studies, reading and spelling.
The numerical values used in computing the grade average were
4.0 = A; 3.9-3.5 = B+; 3.4-3.0 = B; 2.9-2.5 = C+; 2.4-2.0 = C;
1.9-1.5 = D+; 1.4-1.0 = D; .9-0 = F. In terms of this quantitative
scale "success" in this study was defined as 2.5 (C+), or above. On
this basis 100 were successful and 85 not successful.

After the scores on each distribution had been tabulated according
to the process described above, the per cent of the successful students
in each interval was calculated. In some cases, intervals were combined
so as to produce a favorable distribution of percentages. These dis-
tributions with their corresponding percentages comprise the "Score
Sheet", Table I.

The primary purpose of the "Score Sheet" is that of computing
"Total Predictive Scores." However, it should be noted that any one
of the predictive variables might be used as a separate predictor of
success. Suppose a student were to make a grade equivalent score of
4.9 on the Grammar Usage (SRA-G) subtest of the Science Research
Associates Achievement Test. Referring to the "Score Sheet," such
a grade would place him in the interval 4.0-5.3. In the original sample,
39 per cent of the students in this interval had achieved success or a C+
and above grade average in the sixth grade: therefore the chances are
39 out of 100 that this student would also be successful. In the same

manner, any of the other eleven predictive variables considered in the total scale might be used as a predictor of success.

TABLE I

SCORE SHEETS
FOR PREDICTING SUCCESS IN THE SIXTH GRADE OF
INTERMEDIATE SCHOOL BY MEANS OF TWELVE PREDICTIVE VARIABLES

Name of Test and Class Interval	Per Cent Successful
1. Fifth Grade Averages	
3.6-4.0	100
3.0-3.5	87
2.4-2.9	56
1.8-2.3	29
.8-1.7	10
.7 and below	0
2. References	
8.0 and above	100
7.2-7.9	89
5.6-7.1	60
4.8-5.5	31
4.0-4.7	10
3.9 and below	0
3. Charts	
7.8 and above	82
6.6-7.7	73
4.8-6.5	58
3.8-4.7	34
2.6-3.7	8
2.5 and below	0
4. Reading Comprehension	
8.4 and above	100
6.2-8.3	80
4.8-6.1	55
3.4-4.7	31
3.3 and below	0

TABLE I Cont.......

Name of Test and Class Interval	Per Cent Successful
5. Vocabulary	
8. 6 and above	100
7. 4-8. 5	86
6. 2-7. 3	78
5. 2-6. 1	59
4. 6-5. 1	41
3. 4-4. 5	36
3. 3 and below	0
6. Capitalization and Punctuation	
8. 8 and above	100
7. 2-8. 7	86
6. 4-7. 1	71
5. 6-6. 3	63
4. 8-5. 5	26
2. 4-4. 7	14
2. 3 and below	0
7. Grammar Usage	
7. 2 and above	100
6. 2-7. 1	77
5. 4-6. 1	55
4. 0-5. 3	39
2. 2-3. 9	7
2. 1 and below	0
8. Spelling	
8. 8 and above	91
7. 6-8. 7	65
6. 8-7. 5	61
5. 4-6. 7	42
2. 6-5. 3	21
2. 5 and below	0

TABLE I Cont.......

Name of Test and Class Interval	Per Cent Successful
9. Arithmetic Reasoning	
8.6 and above	100
7.6-8.5	80
6.0-7.5	71
4.6-5.9	62
2.4-4.5	27
2.3 and below	0
10. Arithmetic Concepts	
8.4 and above	100
7.6-8.3	88
6.4-7.5	70
5.2-6.3	34
3.2-5.1	24
3.1 and below	0
11. Arithmetic Computations	
6.0 and above	70
4.8-5.9	61
4.4-4.7	41
4.0-4.3	33
3.6-3.9	11
3.5 and below	0
12. Composite Score	
6.8 and above	100
5.6-6.7	75
4.6-5.5	24
3.4-4.5	9
3.3 and below	0

CHAPTER IV

CONSTRUCTION OF THE PREDICTIVE SCALES

The next step in the procedures for constructing the scale for

predicting academic success was the computation of the "Total Predic-

tive Scores" from the "Score Sheet," Table I.

The procedure for computing the "Total Predictive Score" for each

student is best illustrated by using a specific example as shown below.

A hypothetical student A made the following scores on the twelve

predictive variables: FGA=2.6   SRA-R=5.8   SRA-C=5.2   SRA-RC=6.1

SRA-V=5.5   SRA-CP=6.4   SRA-G=5.6   SRA-S=5.9   SRA-AR=5.0

SRA-ACN=4.0   SRA=ACM=4.3   SRA-CS=4.3.

Referring to the "Score Sheet" these scores provide points

toward his "Total Predictive Score" as follows:

Specific Examples

Variables		Points
FGA	2.6	56
SRA:R	5.8	60
SRA:C	5.2	58
SRA:RC	6.1	55
SRA:V	5.5	59
SRA:CP	6.4	71
SRA:G	5.6	55
SRA:S	5.9	42
SRA:AR	5.0	62
SRA:ACN	4.0	24
SRA:ACM	4.3	33
SRA:CS	4.3	9
		584

The fifth grade average (FGA) score for student A was 2.6. This raw score places him in the interval 2.4-2.9. Since 56 per cent of the students in this interval were successful, student A received 56 points toward his "Total Predictive Score" from this variable. On the SRA Achievement Test, sub-test "References" (SRA:R), student A's score was 5.8 which places him in the interval 5.6-7.1. (See first page of the "Score Sheet", Table I). In this interval 60 per cent of the students of the basic sample group were "successful" as defined in this study. So, Student A received 60 points from this variable toward his "Total Predictive Score." Likewise, the points indicated for the other variables were determined. The sum of these points gave student A a "Total Predictive Score" of 584.

By means of the technique explained above the "Total Predictive Scores" of the 185 students of the sample group were computed.

The 185 "Total Predictive Scores" were then tabulated into intervals with the frequencies listed in two columns, successful and unsuccessful. For each interval the frequencies in both unsuccessful and successful columns were converted into percentages. Table II shows the "Predictive Scale" which was the result of the tabulations. In this case the interval sizes are the same.

In Table II the most crucial column to be observed is the last column, Per Cent Successful. All those students who had "Total Predictive Scores" of 850 and above, had averages of C+ and above,

TABLE II

SCALE FOR PREDICTING ACADEMIC SUCCESS IN THE SIXTH GRADE OF AN
INTERMEDIATE SCHOOL FROM TWELVE PREDICTIVE VARIABLES

Total Predictive Score Class Interval	Total f	FIRST SEMESTER SIXTH GRADE AVERAGE			
		UNSUCCESSFUL		SUCCESSFUL	
		N	%	N	%
950 and above	19	0	0	19	100
850-949	15	0	0	15	100
750-849	33	5	15	28	85
650-749	27	8	30	19	70
550-649	16	11	69	5	31
450-549	32	20	62	12	38
449 and below	43	41	95	2	5
Totals	185	85		100	

and were 100 per cent successful. At the other end of the scale, only

2 out of 43, or 5 per cent of the students, who had "Total Predictive

Scores" of 449 and below, were successful.

Another interpretation can be obtained from the entries in the

last column. For those students with "Total Predictive Scores" which

fall in the interval 550-649, there are only 31 chances in 100 that such

students could be successful in the intermediate school as defined here.

It can be observed that only 19 of the 91 (21%) students with "Total

Predictive Scores" below 650 were successful, whereas, 81 of 94 (86%)

with "Total Predictive Scores" of 650 or above, were successful.

It should be pointed out also that there is a distinct break in the

middle range of the last column (Table II), the per cent successful

column. The range is from 31 per cent to 70 per cent successful.

For students whose "Total Predictive Scores" place them in the bottom

three categories, the odds for success are considerably against them.

There is one slight "reversal" in this per cent successful

column of the scale. For interval 550-649 the per cent is 31, whereas;

for the interval below the per cent is 38. At this end of the scale

such a reversal is not unexpected, however, and, certainly does not

affect prediction unduly.

The Predictive Scale can be very useful in classroom place-

ment. If a student's scores, or averages, on these twelve variables

are known, one can "score him" on the "score sheets", Table I,

thereby determining his "Total Predictive Score". When his "Total

Predictive Score" is known, one can determine into what specific

interval his "Total Predictive Score" falls, and the per cent successful

(last column) will give the odds in terms of chance for that student to

be successful as defined in this study.

CHAPTER V

CONSTRUCTION AND COMPARISON OF PREDICTIVE SUB-SCALES

The type of scale for predicting academic success constructed and presented in the previous chapter of this study provides a means of combining the predictive power of two or more variables into a single prediction. Questions such as the following arise, however: Can one attain the same or approximately the same degree of effectiveness in prediction by using fewer predictive variables? Does one reach a point of "diminishing returns" in continuing to add other variables for prediction? Are "verbal" factors of more value in predicting academic success in Grade 6 than are "quantitative" factors? Answers were sought to the above and similar questions in the second of the two-fold purpose of this study: (1) To construct scales for predicting academic success in Grade 6, and , (2) to compare the predictive scales constructed.

In order to make such comparisons three sub-scales to the "Predictive Scale" of Table II were constructed. The procedures were as follows:

1. Predictive variables 2, 3, 4, 5, 6, 7, and 8 of Table I subscores on the SRA Achievement Test were selected as "verbal" factors, and these were made into a "Verbal Score Sheet," Table III. It will be recalled that the verbal factors listed above are sub-tests described as References, Charts, Reading Comprehension, Vocabulary, Capitalization and Punctuation, Grammar Usage and Spelling.

TABLE III

SCORE SHEETS FOR "VERBAL" PREDICTIVE SCALE

Name of Test and Class Interval	Per Cent Successful
References	
8.0 and above	100
7.2-7.9	89
5.6-7.1	60
4.8-5.5	31
4.0-4.7	10
3.9 and below	0
Charts	
7.8 and above	82
6.6-7.7	73
4.8-6.5	58
3.8-4.7	34
2.6-3.7	8
2.5 and below	0
Reading Comprehension	
8.4 and above	100
6.2-8.3	80
4.8-6.1	55
3.4-4.7	31
3.3 and below	0
Vocabulary	
8.6 and above	100
7.4-8.5	86
6.2-7.3	78
5.2-6.1	59
4.6-5.1	41
3.4-4.5	36
3.3 and below	0

TABLE III Cont......

Name of Test and Class Interval	Per Cent Successful
Capitalization and Punctuation	
8. 8 and above	100
7. 2-8. 7	86
6. 4-7. 1	71
5. 6-6. 3	63
4. 8-5. 5	26
2. 4-4. 7	14
2. 3 and below	0
Grammar Usage	
7. 2 and above	100
6. 2-7. 1	77
5. 4-6. 1	55
4. 0-5. 3	39
2. 2-3. 9	7
2. 1 and below	0
Spelling	
8. 8 and above	91
7. 6-8. 7	65
6. 8-7. 5	61
5. 4-6. 7	42
2. 6-5. 3	21
2. 5 and below	0

2. The "Total Predictive Scores" on these verbal factors of the 185 students of the sample group were computed from the "Verbal Score Sheets", Table III.

3. These "Verbal Total Predictive Scores" were then tabulated into a scale for predicting academic success in Grade 6. This "Verbal Predictive Scale" is presented in Table IV.

In a similar manner the "Quantitive Score Sheet, " Table V, and the "Quantitative Predictive Scale," Table VI, were compiled and constructed. The "quantitative" factors were the sub-scores of the arithmetic reasoning, arithmetic concepts, and arithmetic computations on the SRA Achievement Test, variables numbered 9, 10. and 11 in Table I.

For the third sub-scale constructed, variables 1 and 12 of Table I were selected. These are the school marks in Grade 5 and the composite total score on the entire SRA Achievement Test. The score sheet for this abbreviated scale is presented in Table VII, and the scale itself is shown in Table VIII.

Comparing the four predictive scales it can be seen that the "Total Predictive Scale", Table II, based on all twelve variables, and the "Verbal Scale", Table IV, based on the variables which are verbal in nature, are the best. This conclusion was reached by examining the break in the middle range. In Table II the interval 650-749 has 70 per cent successful. The interval 550-649 has 31 per cent successful.

TABLE IV

PREDICTIVE SCALE BASED ON VERBAL FACTORS

| VERBAL PREDICTIVE SCORE CLASS INTERVAL | Total | f | FIRST SEMESTER SIXTH GRADE AVERAGE | | | | |
| | | | UNSUCCESSFUL | | SUCCESSFUL | | |
			N	%	N	%	
600 and above		6	0	0	6	100
500-599		29	0	0	29	100
400-499		39	9	24	30	76
300-399		51	32	63	19	37
200-299		33	25	76	8	24
100-199		21	20	95	1	5
99 and below		6	6	100	0	0
Totals		185	92		93	

TABLE V

SCORE SHEET FOR "QUANTITATIVE" PREDICTIVE SCALE

Name of Test and Class Interval	Per Cent Successful
Arithmetic Reasoning	
8.6 and above	100
7.6-8.5	80
6.0-7.5	71
4.6-5.9	62
2.4-4.5	27
2.3 and below	0
Arithmetic Concepts	
8.4 and above	100
7.6-8.3	88
6.4-7.5	70
5.2-6.3	34
3.2-5.1	24
3.1 and below	0
Arithmetic Computations	
6.0 and above	70
4.8-5.9	61
4.4-4.7	41
4.0-4.3	33
3.6-3.9	11
3.5 and below	0

TABLE VI

PREDICTIVE SCALE BASED ON QUANTITATIVE FACTORS

| QUANTITATIVE PREDICTIVE SCORE CLASS INTERVAL | Total f | FIRST SEMESTER SIXTH GRADE AVERAGE | | | |
| | | UNSUCCESSFUL | | SUCCESSFUL | |
		N	%	N	%
220 and above	16	0	0	16	100
170-219	62	15	24	47	76
120-169	73	40	55	33	45
70-119	30	26	87	4	13
20-69	4	4	100	0	0
Totals	185	85		100	

TABLE VII

ORE SHEET FOR VARIABLES, SCHOOL MARKS AND COMPOSITE ACHIEVEMENT SCORE

Name of test and Class Interval	Per Cent Successful
Fifth Grade Average	
3.6-4.0	100
3.0-3.5	87
2.4-2.9	56
1.8-2.3	29
.8-1.7	10
.7 and below	0
Composite Scores	
6.8 and above	100
5.6-6.7	75
4.6-5.5	24
3.4-4.5	9
3.3 and below	0

TABLE VIII

PREDICTIVE SCALE BASED ON SCHOOL MARKS AND COMPOSITE SCORES

| SCHOOL MARKS AND COMPOSITE SCORES CLASS INTERVAL | Total f | FIRST SEMESTER SIXTH GRADE AVERAGE | | | |
| | | UNSUCCESSFUL | | SUCCESSFUL | |
		N	%	N	%
190 and above	13	0	0	13	100
170-189	19	0	0	19	100
150-169	31	.3	10	28	90
130-149	22	5	23	17	77
110-129	4	2	50	2	50
90-109	10	5	50	5	50
70-89	21	13	67	8	33
50-69	28	23	82	5	18
30-49	20	19	95	1	5
10-29	9	9	100	0	0
9 and below	8	8	100	0	0
Totals	185	87		98	

There is a break of 39 per cent. In Table IV the interval 400-499 has 76 per cent successful. The interval 300-399 has 37 per cent successful. There is a break of 39 per cent.

The "Quantitative Scale", Table VI does not have a good break. The interval 170-219 has 76 per cent successful. The interval 120-169 has 45 per cent successful. There is a break of 31 per cent. "The Predictive Scale Based on School Marks and Composite Scores", Table VIII is the least satisfactory. Both middle intervals, 110-129 and 90-109 have 50 per cent successful. There is no break in the middle range.

This indicates that the most effective "Predictive Scale" results from breaking down composite scores into a number of distinct variables.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was two fold: (1) to construct scales for predicting academic success in Grade 6 of an "intermediate" school from school marks in Grade 5 and from scores made on the SRA Achievement Test, and,(2) to compare these scales.

The sample group consisted of 185 students who completed Grade 5 in one of three elementary schools, and, who also completed the first semester of Grade 6 in 1966 in the same intermediate school in the area, and, for whom SRA Achievement Test scores were available.

The predictive variables consisted of grades made in basic subject matter areas in Grade 5 and selected scores on the SRA Achievement Test, a total of twelve factors, or variables.

"Academic Success" was defined as attaining a grade-point average of C+, or above, in basic subjects in the first semester of Grade 6.

Quantitative tabulations were made of the measures of twelve variables indicating the per cent success for each interval of each variable. The "Score Sheet" provided the means for computing the "Total Predictive Scores" for the 185 individuals of the sample group. These 185 "Total Predictive Scores" were then tabulated into a "Predictive Scale."

. For the purposes of comparison, three sub-scales were constructed from among the twelve predictive variables. Thus, three separate "Score Sheets" and "Predictive Scales" were produced, one based on "Verbal", and one on "Quantitative" factors. The third was based on using school marks in Grade 5 and the composite total score on the Science Research Associates Achievement Test. Comparisons were then made among and between the four predictive scales constructed from the same twelve variables.

Conclusions

On the basis of the results of this study, the following conclusions are justified:

1. The method of prediction shown here provides a simple but accurate method with no complicated statistics involved.

2. From a knowledge of fifth grade averages and scores made on the regularly administered test, The Science Research Associates Achievement Test, the counselor or others responsible for classroom placement can predict the chances for a student to make a C+ average or better in the sixth grade.

3. The adequacy of the scales can be seen by the descending percentages in the successful column of Tables II, IV, VI, and VIII. The per cent successful ranged from 100 per cent to 0 per cent on all predictive scales constructed.

4.   In Table II, students with "Total Predictive Scores" (TPS's) of 850, or above, on the Predictive Scale based on twelve variables were all successful; students with TPS's of 750 to 849 inclusive have 85 chances in 100 of success; those with TPS's of 650 to 749 have 70 chances in 100.

5.   In Table II, students with TPS's below 650 have only 19 chances in 100 of success; those with TPS's of 650 or above have 81 chances in 100 for academic success in Grade 6 as defined in this study.

6.   This type of predictive scale can be used successfully on the intermediate level of educational progress.

7.   In the comparison of the predictive scales constructed, the two scales based on the twelve separate variables and the one based on seven "verbal" factors proved to be the most effective.

8.   The predictive scale based on the "quantitative" factors did not have as great a distinct "break" in the middle range -- 45 per cent to 76 per cent.

9.   The predictive scale based on the two variables, school marks and composite achievement scores was the least effective.

10.   Predictive scales with several factors seem to be more effective.

Recommendations

It is recommended that: (1) counselors or those responsible for classroom placement take advantage of this method of predicting success, (2) a predictive scale be developed for the senior high school level, and (3) a follow-up be made on this study by gathering a sample of students who have completed the fifth grade in several elementary or the same elementary schools, that records be attained, that the "Total Predictive Scores" be attained from the "Score Sheets" in this study and that the predictive scale be used for predicting success or failure for the validation group. The procedure would be to compare the prediction with the actual grades made in the first semester of the sixth grade.

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