

NATURE AND USE OF THE
CUMULATIVE RECORD

DAVID SEGEL

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CUMULATIVE RECORD**

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NATURE AND USE OF THE CUMULATIVE RECORD

By

DAVID SEGEL

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Measurements*



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FOREWORD

Many schools are making changes in their cumulative record systems or are instituting new systems. The reason for this increased interest in cumulative records is their recognized value as a tool in the program of pupil guidance and adjustment. The greatest aid to the pupil can be given only when his rate and trend of development in various intellectual, social, and physical traits is known. The cumulative record of growth in these traits can be preserved in a form for practical use.

This bulletin describes the types of cumulative records found in different school systems. Upon the basis of an analysis of their contents and in the light of findings of studies of child development it makes practical suggestions for cumulative record keeping. It suggests ways of recording different types of items and outlines the purposes for which the cumulative record may be employed. The situations in which such records prove valuable vary from the daily adjustment of pupil problems in the classroom to the more formal guidance given by counselors or principals concerning choice of occupations and plans for further schooling. The bulletin should be of value to administrators and other officials concerned with the adjustment and guidance program of the school.

BESS GOODYKOONTZ,
Assistant Commissioner of Education.

CHAPTER I. THE PLACE OF CUMULATIVE RECORDS

The school of today is increasing its emphasis upon fitting the program to the individual child in the light of his aptitudes and interests. This means, on the one hand, that curriculum construction and the planning of school experiences have taken on new importance, and, on the other hand, that analysis of the individual pupil's traits has become indispensable. Knowledge about the individual pupil is needed by teachers and counselors who instruct and guide him day by day. Since the pupil frequently passes from one teacher to another and even from one school to another, it is essential that a record of what is known about him follow him from year to year. The cumulative record is the device by which schools keep an account of those items of knowledge about the individual which seem worth preserving for use from time to time by teachers, principals, and counselors.

This bulletin presents a study of the items found on the record cards of 177 school systems. It offers suggestions for cumulative records based on these practices and on our present knowledge of the relative values of different items of information about pupils. There is no implication that school systems should follow such suggestions without a consideration of local needs and local facilities both for keeping records and interpreting them. Some schools are justified in introducing a rather detailed cumulative record system, while others can justify the introduction of only the simple rudiments.

In the era just before the advent of the use of more objective measurements, and some time before any analytical ratings of character and behavior traits were made, a national committee¹ recommended the cumulative record pictured in figures I and II.

¹ Report of the Committee on Uniform Records and Reports. Adopted by the Department of Superintendence of the National Education Association February 29, 1912. Washington, D. C., Government Printing Office, 1912. (U. S. Bureau of Education, Bulletin 1912, No. 3.)

(1) Last name.....		(2) First name and initial.....		ELEMENTARY SCHOOL RECORD SYSTEM— ADMISSION, DIS- CHARGE, AND PRO- MOTION CARD	
(3) Place of birth...	(4) Date of birth...	(5) Vacci- nated.....			
(6) Name of parent or guardian.....		(7) Occupation of par- ent or guardian.....		To be kept for every pup- il and sent with the pupil when he is transferred to any school, either public or private, in the city or outside the city. Great care should be used to have the names complete and correct. Write all dates as follows: 1912-9-25.	
(8) Residence. (Use one column at a time. Give new residence when pupil is trans- ferred.)		(9) Date of discharge			
				Years	Months
<p>When a pupil is permanently discharged to work, to remain at home, or because of death, permanent illness, or commitment to an institution, this card is to be returned to the principal's office and a full statement of the cause of the pupil's discharge is to be made in the blank space remaining above.</p>					

FIGURE I.—Obverse Side of Cumulative Record Card Recommended by the Department of Superintendence, 1912

The committee called attention to the following types of data in the compilation of which the cumulative card could be used:

1. Amount of attendance of individual pupil for 1 year.
2. Comparative rates of progress in schools having 7-year, 8-year, or 9-year elementary courses.
3. Classification of pupils by age and grade. (A standard date for computing ages is established, viz, September 1.)
4. Classification of pupils for enrollment data:
 - (a) Duplicate enrollment in the school.
 - (b) Enrollment from other public schools in town or city.
 - (c) Enrollment from other public schools in State.
 - (d) Original enrollment from all other sources.
5. Number of times child has been detained in a grade.
6. Foreign birth as affecting progress.
7. Kindergarten training as affecting progress.
8. Attendance in other schools as affecting progress.
9. Absence as affecting progress.
10. Answers to inquiries having to do with individual school management.

This report was revised in 1927,² at which time the efforts of city schools in incorporating other significant items were reported and a more extensive system of records was recommended. The reports included accounts of the work of Stenquist in developing the Packet System in Baltimore; the work of Wood and others in developing the American Council Cumulative Educational Record Form; and the work of the Occupational Research and Counseling Division of the Cincinnati, Ohio, Public Schools in constructing cumulative record forms. The Cincinnati forms contained three important parts, as follows: (a) Teacher's estimate of outstanding traits, estimate of family's financial status, and child's attitude toward school; (b) student information record—occupation of parents, school subjects that have been easy and those that have been difficult, outside activities, etc.; (c) counselor's record—results on psychological tests, general scholarship ratings, family and home conditions, health, and a full report of the counselor's interview.

From these pioneer attempts in the decade before 1927 has developed the present widespread use of cumulative records. Both the number of schools employing them and the variety of records used have shown remarkable growth. The report of 1912 indicates that at that time the gathering of mass statistics was considered the chief purpose of such records. As matters have developed, however, they are primarily used for the guidance of individual pupils, and not merely as an administrative device. As their application becomes more nearly universal, they will probably become the means through which reliable mass statistics can be gathered, but their most vital function will always be in connection with pupil guidance.

² Report of the Committee on Uniform Records and Reports of the Department of Superintendence. Washington, D. C., National Education Association. Research Bulletin, Vol. V, No. 5, November 1927.

CHAPTER II. CURRENT PRACTICES IN CUMULATIVE RECORD KEEPING

ANALYSIS OF TYPES OF CUMULATIVE RECORDS FOUND IN SCHOOL PRACTICE

The record cards of the 177 school systems¹ which were examined represent a sampling of the more recent practices of schools which keep cumulative records. School systems were asked to forward records only if they had recently inaugurated a more comprehensive record system or changed the type of record used. It is important to examine the records of such schools, since the practices of a small group of progressive schools tend to extend to others. The most

¹ The school districts, classified by States, were:

Alabama: Bessemer, Dothan, Gadsden, Montgomery.

Arkansas: Blytheville.

California: Bakersfield, Burbank, Fresno, Modesto, Monrovia, Oakland, Palo Alto, Pomona, Sacramento, Santa Monica, South Pasadena, Ventura.

Colorado: Colorado Springs, Grand Junction, Greeley, Pueblo.

Connecticut: East Hartford, Greenwich, Groton, Middletown, New London, Stratford, West Hartford.

Georgia: Macon.

Illinois: Aurora, Chicago Heights, Danville, Decatur, East Chicago, Rock Island.

Indiana: Bloomington, La Porte, Marion, Michigan City, Mishawaka, Richmond, Whiting.

Iowa: Burlington, Cedar Rapids, Oskaloosa, Ottumwa, Waterloo.

Kansas: Coffeyville, Chanute, Newton, Pittsburg, Salina.

Kentucky: Hopkinsville.

Maine: Bangor.

Massachusetts: Belmont, Danvers, Easthampton, Gloucester, Medford, Newtonville, Norwood, Quincy, Revere, Stoneham, Webster.

Michigan: Adrian, Ann Arbor, Grosse Point, Holland, Ironwood, River Rouge, Traverse City.

Minnesota: Albert Lea, Mankato, Minneapolis, South St. Paul, Winona.

Mississippi: Gulfport.

Missouri: Cape Girardeau, Columbia, Joplin, University City, Webster Groves.

Montana: Billings, Missoula.

Nebraska: Fremont, Grand Island, Lincoln.

New Hampshire: Laconia.

New Jersey: Atlantic City, Cliffside Park, East Orange, Harrison, Merchantville, New Brunswick, Orange, Pleasantville, Summit, Union County, Weehawken.

New Mexico: Albuquerque.

New York: Amsterdam, Binghamton, Cortland, Ithaca, Kenmore, Little Falls, Massena, Mt. Vernon, Oneida, Ossining, Troy, Valley Stream, White Plains.

Ohio: Ashland, East Cleveland, East Liverpool, Fremont, Mansfield, Warren.

Oklahoma: Lawton, Okmulgee, Ponca City, Wewoka City.

Oregon: Eugene, Medford, Portland.

Pennsylvania: Allentown, Ambridge, Arnold, Bristol, Carlisle, Cheltenham Township, Donora, Duquesne, Elwood City, Harrisburg, Hanover Township, Haverford Township, Lebanon, McKeesport, New Castle, New Kensington, Oil City, Pottstown, Shenandoah, Uniontown.

South Carolina: Charleston, Columbia.

South Dakota: Aberdeen, Mitchell, Rapid City, Sioux Falls.

Tennessee: Jackson, Johnson City.

Texas: Austin, Beaumont, Palestine, Texarkana, Waco.

Vermont: Burlington, Rutland.

Virginia: Portsmouth.

Washington: Aberdeen, Everett, Port Angeles, Walla Walla, Yakima.

West Virginia: Wood County.

Wisconsin: Appleton, Beloit, Eau Claire, Stevens Point, Wauwatosa.

Wyoming: Cheyenne.

opportune time to discuss these records is the present, in order that inconsistencies and misconceptions may be straightened out, gross limitations of such records may be realized, and research looking toward their improvement may be conducted.

Of the 177 school systems submitting record cards, 113 had provision for elementary records, 87 for junior high school records, and 136 for senior high school (grades 10-12), or high-school (grades 9-12) records. Thirty-five of the school systems had records extending from the elementary school through senior high school.

Seventeen categories are given in table 1, together with the frequency of occurrence of each one in the cumulative records studied for the respective segments of the school systems. The percentages show not only the relative importance attached by these schools to the different types of items, but they indicate also the items found most useful in the three segments of the school system. In general, the junior high school uses more items in its records than does either the senior high school or the elementary school. The junior and senior high school records are more concerned than those of the elementary school with items of entrance and withdrawal, intelligence test results, extracurricular activities, vocational and educational plans, college or vocation entered after leaving school, special abilities, photograph, and out-of-school employment. The elementary school seems to be concerned slightly more than junior and senior high schools with attendance, social and character ratings, health, and residence record. Each of these types of items will be described insofar as they do not seem self-explanatory.

TABLE 1.—FREQUENCY OF OCCURRENCE IN PERCENTAGES OF EACH ITEM ON RECORDS STUDIED (177 SCHOOL SYSTEMS)

Item	Elementary (113 records)	Junior high (87 records)	Senior high (136 records)
1. Scholarship (marks).....	96	100	100
2. School progress.....	80	92	79
3. Attendance.....	86	85	77
4. Entrance and withdrawal.....	71	86	79
5. Home conditions and family history.....	70	71	69
6. Intelligence test results.....	58	77	71
7. Social and character ratings.....	73	71	63
8. Health.....	65	64	56
9. Space for notes.....	58	63	57
10. Achievement test results.....	51	56	49
11. Extracurricular activities.....	19	64	63
12. Vocational and educational plans.....	17	45	44
13. Residence record.....	38	26	21
14. College or vocation entered after leaving school.....	15	34	33
15. Special abilities.....	14	23	16
16. Photograph.....	7	23	16
17. Out-of-school employment.....	5	20	18

Read as follows: Provision for scholarship marks was found in 96 percent of the 113 records covering the elementary grades; in 100 percent (all) of the 87 records covering the junior high school, and in 100 percent (all) of the 136 records covering the senior high school.

INDIVIDUAL ITEMS FOUND IN RECORDS

Scholarship.—Under this item the marks in the regular subjects of the curriculum are recorded by grades. Since marking systems differ, there is no uniformity in the resulting records. A fair example for the elementary school is that of Bloomington, Ind. (fig. III). Some high-school records are of this same type, but a very common form is that in which the subjects are written in for each year or semester. Often the high-school scholarship record indicates the number of weeks for which a subject is planned and the number of hours per week. This is illustrated by the form from Cape Girardeau, Mo. (fig. IV).

ELEMENTARY SCHOOL RECORD														
School Year	19		19		19		19		19		19		19	
Semester	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Days Pres.														
Days Abs.														
Times Tardy														
Building														
Grade														
Reading														
Writing														
Arithmetic														
Language														
Geography														
History														
Hygiene														
Spelling														
Music														
Art														
Phys. Tr.														
English														
Social Sc.														
Gen. Sc.														
Cooking														
Sewing														
Ind. Arts														
Assigned to														
Citizenship														

FIGURE III.—Bloomington, Ind., Elementary School Scholarship Record.

Sometimes the scholarship record gives more than the final mark in the semester or year. Record blanks for intermediate periods and the records on examinations (nonstandardized) may be provided. This type of scholarship record is illustrated by figure V as used in the Cheltenham Township, Pa., schools.

Most scholastic record systems make provision for a general rating on a subject without discriminating between various aspects of the subject. A few records classify the work of the school on a more general but perhaps natural basis. An example of this is the record of Beaumont, Tex. (fig. VI), where accomplishment is not rated on geography, history, reading, English, etc., but on tool reading, tool arith-

Sem. Ending					Sem. Ending					Sem. Ending					Sem. Ending					
Subject	NO. WKS.	PER WK.	MK.	CR.	Subject	NO. WKS.	PER WK.	MK.	CR.	Subject	NO. WKS.	PER WK.	MK.	CR.	Subject	NO. WKS.	PER WK.	MK.	CR.	
Length of Period		Total Cr.			Length of Period		Total Cr.			Length of Period		Total Cr.			Length of Period		Total Cr.			
Sem. Ending					Sem. Ending					Sem. Ending					Sem. Ending					
Subject	NO. WKS.	PER WK.	MK.	CR.	Subject	NO. WKS.	PER WK.	MK.	CR.	Subject	NO. WKS.	PER WK.	MK.	CR.	Subject	NO. WKS.	PER WK.	MK.	CR.	
Length of Period		Total Cr.			Length of Period		Total Cr.			Length of Period		Total Cr.			Length of Period		Total Cr.			

FIGURE IV.—Cape Girardeau, Mo., High School Scholarship Record.

metic, tool writing, social subjects, manual skills, domestic skills, commercial skills, etc.

School progress.—The record of school progress is inherent in the record of scholarship as reported at the close of each semester or year.

Attendance.—The attendance record also is likely to be a part of the scholarship record. It is usually a record of (a) days (or half days) present; (b) days (or half days) absent; and (c) times tardy, for each year for which a record is made.

Entrance and withdrawal.—The record of entrance and withdrawal is simple, as in Little Falls, N. Y. (fig. VII). In a few cases a notation on college or vocation entered after leaving school is associated with this record.

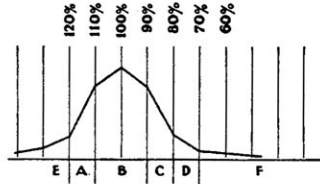
Home conditions and family history.—The amount of data asked for in regard to the home or parents varies considerably in different records. Often only the occupations of the parents are noted. Only about 10 percent of the records call for other items. In approximate order of use the items are as follows:

- (1) Occupation of (a) father and (b) mother.
- (2) Number of brothers and sisters.
- (3) Nationality of parents.
- (4) Education of (a) father and (b) mother.
- (5) Place of residence: With mother, father, uncle, aunt, grandparents, brother, sister, guardian, alone, married, or in institution.
- (6) Marital status of parents: (a) Divorced, (b) separated, (c) remarried—father, (d) remarried—mother.
- (7) Citizenship of parents.
- (8) Ability of parents to read or write English.
- (9) Race of (a) father and (b) mother.
- (10) Religion of (a) father and (b) mother.
- (11) Health of (a) father and (b) mother.
- (12) Home surroundings, rating of.
- (13) Home atmosphere, rating of.
- (14) Neighborhood, rating of.
- (15) Associates, rating of.
- (16) Amusements.
- (17) Use of leisure hours.

Intelligence test results.—The intelligence test record often calls for the date and the name of the test, the chronological age (C. A.), the mental age (M. A.), and the intelligence quotient (I. Q.) at the time of the test. The intelligence test record is sometimes combined with the educational test record. A common type of arrangement is found in the records from Marion and from Mishawaka, Ind. These are given in figures VIII and IX.

GENERAL SCALE—Wherever a scale (EABCD) appears in the items on this sheet the scale below is to be used. Where no standards are given E means excellent, A means above average, B means average, C means below average and D means poor. F is any point below the entire scale. Where standards are given E means above 120% of the standard, A means from 110% to 120% of the standard, B means from 90% to 110% of the standard (the great average), C means from 80% to 90% of the standard, and D means from 70% to 80% of the standard.

IMPORTANT—Use the scale to record all scores. Remember this is a cumulative record covering eleven or more years of the child's school life and scores must be uniform. Regard any standard as 100% on the scale, or B on the scale. Suppose you have given a test to the Fifth Grade, and the standard for the Fifth Grade is 7. John makes 5. Since 5 is 71% of 7, his score is D on the scale. Suppose he had made 8. Since 8 is 114% of 7, his score is A on the scale. Suppose you are recording growth. John is the proper weight and height for his age according to standard. He should be marked E. If he is about 10% off he should be marked A. If between 10% above and 10% below he should be marked B. If from 10% to approximately 20% off standard he should be marked C. Below or above that he should be marked D. F can be used for extreme cases in all markings.



SCHOOL ACHIEVEMENT		Yr.	Yr.	Yr.	Yr.	Yr.	Yr.	Yr.	Yr.	Yr.	Yr.	Yr.	Yr.	Yr.
Write year date in these spaces														
61. TOOL READING—Not reading as an accomplishment but as a tool with which to learn. It means comprehension, speed.	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Av.	B	B	B	B	B	B	B	B	B	B	B	B	B
62. TOOL ARITHMETIC—Not imaginary arithmetic, but real transactions in simple numbers, real fractions, both common and decimal, and real percents.	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Av.	B	B	B	B	B	B	B	B	B	B	B	B	B
63. TOOL WRITING—Not penmanship but social writing, legibility, speed, neatness, correct margins, insets, etc.	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Av.	B	B	B	B	B	B	B	B	B	B	B	B	B
64. SOCIAL SUBJECTS—All courses in history including Texas history, civics, sociology, citizenship or any other recognized course in social science.	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Av.	B	B	B	B	B	B	B	B	B	B	B	B	B
65. MANUAL SKILLS—All courses in carpentry, mechanical drawing, machine shop work, printing or other recognized courses in manual skills.	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Av.	B	B	B	B	B	B	B	B	B	B	B	B	B
66. DOMESTIC SKILLS—All courses in sewing, cooking, housekeeping, dietetics, nursing, child care, or any other course in domestic skills.	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Av.	B	B	B	B	B	B	B	B	B	B	B	B	B
67. COMMERCIAL SKILLS—All courses in bookkeeping, short hand, typewriting, junior business training, secretarial courses and other commercial subjects.	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Av.	B	B	B	B	B	B	B	B	B	B	B	B	B
68. CULTURAL ATTAINMENTS—All courses in English, in literature, music, art, and in other recognized cultural subjects.	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Av.	B	B	B	B	B	B	B	B	B	B	B	B	B
69. SCHOOL HABITS—(Character Ed.)—Attention, neatness, interest, honesty, initiative, ambition, persistence, reliability, stability.	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Av.	B	B	B	B	B	B	B	B	B	B	B	B	B
70. CITIZENSHIP—Co-operation, school spirit, observance of school law, interest in school activities, recognized courses in citizenship.	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Av.	B	B	B	B	B	B	B	B	B	B	B	B	B
71. OUTSTANDING SCHOOL ACHIEVEMENT—Such as special honors, responsible offices held, outstanding work or other distinctive honor.	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Av.	B	B	B	B	B	B	B	B	B	B	B	B	B

FIGURE VI.—Beaumont, Tex., Elementary School Scholarship Record.

ENTRANCE AND WITHDRAWAL RECORD			
SCHOOL ENTERED	SCHOOL LEFT	REASON	DATE

FIGURE VII.—Little Falls, N. Y., Entrance and Withdrawal Record.

RECORD OF INTELLIGENCE TESTS				
DATE	Name of Test	C. A.	M. A.	I. Q.

FIGURE VIII.—*Marion, Ind., Elementary School Intelligence Test Record.*

Record of Intelligence Tests

Name of Test	Date of Testing Hr. Mo.	Pupil's Classi- fication	Pupil's Score	Chron- ological Age	Mental Age	I. Q.	School	Teacher

FIGURE IX.—*Mishawaka, Ind., Elementary School Intelligence Test Record.*

Social and character ratings.—Although a large number of cumulative records make provision for social and character ratings, there is little uniformity regarding the description of the traits to be rated. A few records call only for rating on deportment, conduct, or “personal qualities” as a whole. Most of the records, however, call for judgments on from three to six or eight traits or behavior manifestations. One hundred and three different character or social traits were listed in all records, representing a total frequency of 453. The range of frequency in use of the items is from 1 to 39, and the average frequency of use of all the items is 4.4 Table 2 presents the data in detail.

TABLE 2.—FREQUENCY OF MENTION OF CHARACTER AND SOCIAL TRAITS IN CUMULATIVE RECORD FORMS

Trait	Number of times mentioned	Trait	Number of times mentioned
Accuracy.....	12	Attitude towards law and govern- ment.....	1
Ambition.....	3	Attitude towards school.....	2
Attentiveness.....	2	Attitude towards work.....	1
Attitude.....	3	Behavior characteristics.....	2
Attitude towards his fellows.....	2	Behavior modifiers.....	1
Attitude towards home.....	1		

TABLE 2.—FREQUENCY OF MENTION OF CHARACTER AND SOCIAL TRAITS IN CUMULATIVE RECORD FORMS—Continued

<i>Trait</i>	<i>Number of times mentioned</i>	<i>Trait</i>	<i>Number of times mentioned</i>
Care school property.....	3	Persistence.....	1
Carefulness.....	1	Personal appearance.....	23
Character.....	2	Personal qualities or character- istics.....	5
Character estimate.....	1	Personality.....	2
Characteristic traits.....	1	Personality assets.....	1
Characterization.....	1	Physical vitality.....	1
Citizenship.....	5	Poise.....	5
Common sense.....	1	Promptness.....	6
Companionability.....	1	Propriety.....	1
Concentration.....	4	Punctuality.....	11
Conduct.....	12	Regularity.....	1
Considerateness.....	1	Reliability.....	18
Consideration for others.....	2	Resourcefulness.....	3
Cooperation.....	39	Respect for property.....	2
Courage.....	2	Responsibility.....	2
Courtesy.....	19	Scholastic zeal.....	1
Definiteness of purpose.....	1	School habits.....	2
Demonstrative.....	1	School service.....	3
Dependability.....	16	School spirit.....	1
Deportment.....	4	Self-confidence.....	1
Disposition.....	1	Self-control.....	13
Effort.....	13	Self-dependence.....	2
Emotional control.....	1	Self-possession.....	1
Enthusiasm.....	2	Self-reliance.....	5
Exactness.....	1	Sense of humor.....	1
Excitability.....	1	Sensitiveness.....	2
Fair play.....	1	Sincerity.....	3
Fearfulness.....	1	Sociability.....	2
Friendliness.....	1	Social adaptability.....	2
Honesty.....	19	Social attitudes.....	1
Ideals and character.....	5	Social qualities.....	2
Industry.....	23	Spontaneity.....	1
Initiative.....	21	Sportsmanship.....	2
Integrity.....	1	Stability.....	1
Interest.....	1	Study habits.....	6
Judgment.....	7	Tact.....	2
Judicial minded.....	1	Teacher's estimate of pupil.....	1
Leadership.....	25	Team work.....	1
Loyalty.....	2	Thoroughness.....	1
Moral judgment.....	1	Thrift.....	8
Morality.....	1	Tolerance.....	1
Neatness.....	6	Trustworthiness.....	3
Need for help.....	1	Truthful.....	1
Obedience.....	10	Unusual behavior conditions.....	1
Orderliness.....	1	Willingness to follow.....	1
Participation.....	1		
Perseverance.....	6		

It is no doubt true that some of these trait names are but synonyms. In general it may be said, however, that there is little or no agreement in the use of any particular set of character or social traits. Neither is there any uniform notation for rating or any common scale used by the different school systems. Some examples of these records are given in figures X to XIII.

Health.—There is considerable agreement regarding the items used for health rating, but a less marked uniformity in the method of recording observations concerning them. The common practice is to indicate the presence or absence of a condition. Therefore, the health record is often filled in by checking certain items. In a few cases an attempt at rating the degree of defect is made. A health record in which such intermediate ratings are given is that of the Colorado Springs elementary grades and Hopkinsville, Ky., high schools (figs. XIV and XV).

PERSONAL QUALITIES

	INITIATIVE				
	DEPENDABILITY				
	INDUSTRY				
PHOTO	CO-OPERATION				
	DISPOSITION				
	CONDUCT				
	POISE				

FIGURE X.—Belmont, Mass., High-School Record of Personal Qualities.

Traits	1st Yr.			2nd Yr.			3rd Yr.		
	H	L	A	H	L	A	H	L	A
Use 1, 2, 3, etc.									
Accuracy									
Cooperation									
Industry									
Leadership									
Per. Appear.									
Reliability									
Punctuality									
School Spirit									
Intell. Int.									

FIGURE XI.—Cliffside Park, N. J., High-School Record of Traits.

RATING OF PERSONAL QUALITIES					
QUALITIES	CODE =				RATING
	9TH GRADE	✓ 10TH GRADE	X 11TH GRADE	O 12TH GRADE	
I. SCHOLASTIC ZEAL INTEREST, ENTHUSIASM, ENERGY APPLICATION, ENTERPRISE.	CRAVES SCHOLARLY WORK		ENERGETIC	STUDIOUS	USUALLY INDIFFERENT APATHETIC
II. INTELLECTUAL ABILITY AND APTITUDE ALERTNESS, CLEVERNESS, BRIGHTNESS, POWER TO ASSIMILATE, FACILITY OF ADJUSTMENT TO NEW SITUATIONS.	KEEN	ALERT AND CLEVER	LEARNS READILY		A SLOW LEARNER DULL
III. INITIATIVE ORIGINALITY OF THOUGHT, RESOURCEFULNESS.	VERY RESOURCEFUL		SELF-RELIANT	MEETS MINIMUM REQUIREMENTS	NEEDS CONSTANT SUPERVISION
IV. INTEGRITY TRUSTWORTHINESS, FAITHFULNESS, RELIABILITY, LOYALTY, HONESTY.	MERITS COMPLETE CONFIDENCE		DEPENDABLE	USUALLY FAITHFUL	DOUBTFUL UNRELIABLE
V. LEADERSHIP ABILITY TO INSPIRE OR COMMAND THE CONFIDENCE, AFFECTION, GOOD WILL, AND LOYALTY OF OTHERS; ABILITY TO SECURE A FOLLOWING.	OUTSTANDING	CAPABLE	FAIRLY SUCCESSFUL	A FOLLOWER	NON-CO-OPERATIVE
VI. SOCIAL ADAPTABILITY PERSONAL STRENGTH AND ATTRACTIVENESS, CAPACITY AS A MIXER, ABILITY TO MAKE AND HOLD FRIENDS; SOCIAL POISE.	THOROUGHLY AT HOME IN ANY SITUATION	POPULAR	FAIRLY POPULAR	SOCIALLY COLORLESS	SOCIALLY REPELLENT

FIGURE XII.—Ironwood, Mich., High School Rating of Personal Qualities.

SOCIAL AND PERSONAL CHARACTERISTICS													
ITEMS	CODES	1919		1920		1921		1922		1923		1924	
Ability to Plan	⊖												
Ambition	⊖												
Companionability	⊖												
Concentration	⊖												
Co-operation	⊖												
Leadership	⊖												
Perseverance	⊖												
Regular Home Duties	○												
Resourcefulness	⊖												
Respect for Property	⊖												
Spontaneity	⊖												
Self-Control	⊖												
Self-Reliance	⊖												
Study Habits	⊖												
Thrift	⊖												

○ HOME DUTIES

1. Pay received for
2. No pay received for
3. None

⊖ MARKS—RATINGS

A—Excellent D—Poor
 B—Good F—Failure
 C—Fair I—Incomplete

FIGURE XIII.—Montgomery, Ala., Elementary School Record of Social and Personal Characteristics.

PHYSICAL RECORD

	MEASLES	SCARLET FEVER	DIPHTHERIA	WHOOPING COUGH	MUMPS	INFANTILE PARALYSIS
	PNEUMONIA	INFLUENZA	TYPHOID	MENINGITIS	CHICKEN POX	GROUND ITCH
	RHEUMATISM	TONSILITIS	SMALL POX	MALARIA	TUBERCULOSIS	GASTROINTESTINAL
Date of Examination						
Grade						
Age						
Serious Illness						
Height						
Weight						
Normal Weight						
Per Cent Underweight						
Per Cent Overweight						
Cleanliness						
Immunization	Small Pox					
	Typhoid					
	Diphtheria					
Normal Progress in School						
Throat						
Teeth						
Vision	Right					
	Left					
Eyes (Diseased)						
Hearing	Right					
	Left					
Glands (Cervical)						
				Adnoids		
				Thyroid		
				Colds		
				Hookworm		
				Skin		
				Nail Biter		
				Orthopedic		
				Nasal Breathing defective		
				Other Defects		
				Correction Made		
				By Whom "		
				Date "		
				Remarks:-		

Check X After Disease Child Has Had - Denote Defect by + Sign Opposite - 1+-2+-3+-4+ Denoting Degree of Defects

FIGURE XV.—Hopkinsville, Ky., Health Record for High Schools.

Achievement test results.—The achievement test record makes provision for the name of the test and the date at which the test was taken by the pupil. In high school the class and the subject for which the test is used may be given in addition to the name of the test. The results are not very uniformly recorded. The various items used are gross or raw score, the norm for the grade in which the test is given, educational age (E. A.), subject age (S. A.), educational quotient (E. Q.), Grade placement (G. P.), percentile rating, and chronological age (C. A.) at the date when the test was taken. Educational test results are likely to be recorded in conjunction with the intelligence test results. Practically all of the records for educational test data are nongraphical in type. Examples of these types of record blanks are shown in figures XVI to XVIII.

Other items.—Extracurricular activities, vocational and educational plans, place of residence, college or vocation entered after leaving school, special abilities, photograph, and out-of-school employment are items which are self-explanatory. No uniform notation is in evidence for reporting on any of these items.

It should be pointed out that each of the illustrations used in this chapter is a part of a cumulative record card. School systems presumably use various combinations of records of the types illustrated, to fit their own conceptions of the importance of the different types of items. One illustration of such a combination is that of the elementary and junior high school cumulative card from Aberdeen, S. Dak. (figs. XIX and XX).

PLACE WHERE CUMULATIVE RECORDS ARE KEPT

Although some pupil record systems are kept in the administrative office of the school system, in general they are found in the various school buildings. If the school has a counselor, the records are usually kept in her office, or in immediate proximity to her office. In schools in which no person has taken over the particular responsibility of a counselor's duties, the records are usually kept so that they are available for principals, vice principals, and teachers.

Some school records are maintained in duplicate files because of their use for more than one purpose. This is often true of scholarship records in high schools, in which case sets may be found both in the registrar's office and in the assistant principal's or counselor's office. Similarly, the physical, medical, and dental record is sometimes found in both the general cumulative record file and in a separate place, such as in the classroom, or in the nurse's or principal's office.

GRADE	NAME OF TEST	RATE	QUAL.	GRADE LEVEL	COMPREHENSION	SCORE	ACCURACY	DATE		GROUP TEST		INDIVIDUAL TEST				A.A.	I.Q.	A.Q.
								YR.	MO.	SCORE	RATING	M.A.	C.A.	I.Q.	LEVEL			
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
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17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		
25																		

FIGURE XVI.—Ashland, Ohio, Junior and Senior High School Achievement Test Record.

NATURE AND USE OF CUMULATIVE RECORDS

		BOY GIRL		Mo. Da. Yr.		Mo. Da. Yr.		PERMANENT RECORD Elementary Schools ABERDEEN, S. D.										
Last name		First name		Middle name		Date Birth		Date Entry										
SCHOLARSHIP		Kdg	1st	2nd	3rd	4th	5th	6th	CITIZENSHIP		Kdg	1st	2nd	3rd	4th	5th	6th	
Arithmetic									Health Habits									
Reading									Thrift									
Lang. Expression									Promptness									
Handwriting									Initiative									
Spelling									Cooperation									
Social Studies									Courtesy									
Music									Reliability									
Art									Perseverance									
Health Education									S. Relationship									
Physical Education									Clear Thinking									
SCHOOL ABILITY TEST RECORD									ATTENDANCE RECORD									
Name of test		Form	Date	Gd.	C.A.	M.A.	I.Q.		Days present									
									Days absent									
									Times tardy									
									Truancy									
									Completed Elem. School Date									
									Withdrawn from School Date									
									Destination									
									Re-entry Date									

FIGURE XIX.—Obverse side of Aberdeen, S. Dak., Cumulative Record Card.

		Male		PERMANENT RECORD JUNIOR HIGH SCHOOL Aberdeen, S. D.									
Last Name		Middle Name		First Name		Date of Birth		Month		Day		Year	
Year	7	8	9	Date Entered.....		Grade		From					
Semester	B	A	B	A	B	A	Date Discharged		By				
English							Destination.....						
Mathematics							Transcript sent to:						
Soc. Science													
Science													
Vocations													
Gen. Lang.							INTELLIGENCE TEST RECORD						
Latin							DATE	TEST	FORM	SCORE	C. A.	M. A.	I. Q.
French													
Comm. Geog.													
Comm. Arith.													
Home Ec.													
Wood Shop							EXTRA CURRICULAR RECORD						
Gen. Shop							DATE	ACTIVITY	SUCCESS				
Mech. Draw.													
Art													
Music													
Phys. Ed.													

FIGURE XX.—Reverse side of Aberdeen, S. Dak., Cumulative Record Card.

CHAPTER III. SUGGESTED PROCEDURES IN CUMULATIVE RECORD KEEPING

GENERAL DISCUSSION

There are very serious problems involved in record keeping. The most important one is the selection of items which will be of definite value in considering the child's educational and vocational plans at a later date. Involved in this problem is the type of symbolism used which will be most understandable. As research in educational psychology continues, the items thought to be desirable and the type of symbolism used will necessarily change. The record may also reflect, to some extent at least, the objectives of the individual school. Since, however, the objectives of education as a whole do not differ materially from school to school, some uniformity of records can be looked for.

Evidence regarding the prognostic value of several types of items is given in Chapter V. Age, scholastic aptitudes (as measured by general intelligence tests), achievement in the different subjects as measured by both teachers' marks and achievement tests, have been found to have definite prognostic value. Interest tests are also found to have some promise. Less can be said at present regarding the individual value of other items in prognosis, although continued research is throwing increasing light upon the subject. In any case, it seems certain that the accumulation of a large number of facts about a child constitutes a better basis for diagnosis and treatment than a few isolated facts.

Any suggestions as to type of record to be used should take into consideration both the needs and the objectives of the schools concerned and the objective evidence which supports the items included in it. With this in mind it is well to consider the types of records which the Progressive Education Association has been investigating.¹ It is suggested that an ideal system of individual records would contain:

1. *Personal pattern of goals.*—"Since the school exists, in some measure, to help achieve the goals he [the pupil] sets for himself and to lead him to formulate ever clearer, more consistent, more attainable, and more socially valuable goals, it is important to ascertain what these goals are and to record progress toward them. This requires a carefully planned conference technique in which the counselor discusses with the pupil such areas of goals

¹ Diederich, Paul B. *Evaluation Records*. Educational Method, 15: 432-40, May 1936.

as his life work, school work, school life, home and friends, sports, hobbies, the arts, reading, and other recreational activities."² The pupil is to write out at intervals of perhaps a week or a month the goals in which he is interested and his success in attaining them.

2. *Records of significant experiences.*—To be written out by pupil at irregular intervals.

3. *Reading records.*—A record of the free reading, which is a good index of intellectual maturity. Must be interpreted on basis of type and quantity of material.

4. *Records of cultural experience.*—Attendance at plays, concerts, listening periods on radio, etc.

5. *Records of creative expression.*—Diederich is not certain about the way in which this should be reported. He recommends that teachers experiment. He suggests that some common elements might be: Names of pupil and teacher, the date, the name, title or subject of the creative product, the medium or materials, the approximate number of hours of work represented, statement by the pupil of the purpose or central idea of his product, what he learned in creating it, and how successful it was in achieving his purposes. An interpretation by the teacher should be included.

6. *Anecdotal records of pupils,* and interpretation by the teacher.

7. *Records of conferences.*

8. *Record of excuses and explanations.*

9. *Record of tests and examinations,* with an interpretation by the teacher.

10. *Health and family history.*

11. *Oral English diagnosis.*—A diagnosis of the pupil's pronunciation, enunciation, quality of voice, diction, usage, force, etc., without knowledge of pupil. To be used in subsequent work.

12. *Minutes of student affair.*

13. *Personality ratings and descriptions.*

14. *Questionnaires.*—These include all interest and personal questionnaires pupils are asked to fill in. Should be interpreted and filed in the pupil's folder.

15. *Records of courses and activities.*

16. *Administrative records.*

At the close of this list of recommended items Diederich adds: "It is not suggested that any school attempt to install all these forms of records at once. They are only intended to present alternative possibilities among which schools may choose, and to illustrate the richness and variety of types of evidence which are available for the evaluation of even the more tangible outcomes of progressive education if schools are willing to develop, collect, and interpret them."

This suggested program of pupil analysis includes the total activities of the pupil. It demands for practically all of its records that an interpretation be made by teachers or counselor. Its success depends in the last analysis mainly upon the ability of these persons to interpret. Much of the program involves the type of evaluation which teachers and principals have always been urged to make, with the added advantage of having the records cumulated.

² Quoted from Diederich.

Scholarship.—The elementary record for progress and scholarship may be put in the following form:

Grade Placement and Scholastic Record—Elementary

Age at entrance to first grade -----
 (years) (months)

School year																		
Semesters	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Grade																		
School attended																		
Teacher																		
Number of half-days attended																		
Tardiness																		
Scholarship ratings:																		

Enter in red ink data from other school systems

The scholarship and progress for junior and senior high school pupils may be entered upon some form as in figure IV or figure V (pages 8-9). In the present state of unrest in regard to marking practices it would be impractical to suggest any one system for use in either the elementary school or the high school. The method employed by some school systems involves the use of percentiles. A "percentile" rating ranks a pupil in comparison with other pupils in the class, in the school, or in an unselected population. For example, in a group of 40 students, if a pupil has a percentile rating of 90, it means that 90 percent of the pupils in the class (36 pupils) rank below him.

The method for changing teachers' marks to their proper percentile depends upon the marking system of the school concerned. For example, the marks given in a particular school may show the following distribution:

<i>Mark</i>	<i>Percent of pupils</i>
A.....	10
B.....	25
C.....	35
D.....	20
E or failure.....	10

The percentile rating assigned to each mark is the accumulated percentages up to the mid-point of the percentage of pupils earning that mark. The percentile distribution resulting in this case would be, therefore:

Mark	Percentile	Interpretation
A.....	95.....	95 percent of the pupils in the group have a standing lower than this.
B.....	77.5....	77½ percent of the pupils in the group have a standing lower than this.
C.....	47.5....	47½ percent of the pupils in the group have a standing lower than this.
D.....	20.....	20 percent of the pupils in the group have a standing lower than this.
E.....	5.....	5 percent of the pupils in the group have a standing lower than this.

Educational and general aptitude test scores.—Scores on tests are the most objective evidence that can be found in the ordinary school system. Permanent record systems should always include such scores if the school carries on a testing program. Most elementary test results are related to age and grade norms, whereas high-school test results are often reduced to percentile scores. Since percentile figures have been found to carry more meaning to teachers and counselors, it is recommended that where possible the percentile score be used in elementary school as well as in high school.

Since percentile norms have not been computed for some tests, it may be necessary for the local school system to calculate them. This should be done on as many cases as possible. A good description of this method has been given by Lindquist³ in connection with the Iowa Every-Pupil High-School Testing Program, 1936. The table of norms (fig. XXI) is described by Lindquist as follows:

The scale along the left-hand and the right-hand margins is the percentile scale based on the distribution of all scores reported for each test. The vertical scale below the various test titles shows the test scores which correspond to the various percentile values. For example, a score of 20 on the test in ninth year algebra corresponds to the 70th percentile in the distribution of all scores on this test; i. e., 70 percent of all pupils tested scored below 20 on the algebra test. Similarly a score of 6 on the algebra test falls at the 9th percentile, a score of 31 at the 95th percentile, etc. The scale for each of the other tests may be similarly read. The dotted horizontal lines running across the chart make it easy to read the percentile value corresponding to any given score. For example, a score of 68 in the American Government test falls on the dotted line corresponding to the 95th percentile, while a score of 32 on the same test falls between the lines for the 10th and 15th percentiles, or at about the 13th percentile. The highest and lowest scores made on each test are those shown at the extremes of the scale (opposite H. and L. on the percentile scales). For example, the highest score reported on the general science test was 95, the lowest was 6.

³ Lindquist, E. F. Summary Report of Results of the 1936 Iowa Every-Pupil High-School Testing Program. The State University of Iowa, 1936.

reading, civics, writing, geography, language, history, and physics are given as A, or a percentile rating of 98, while the mark for arithmetic is B, or a percentile rating of about 82. For other years the teachers' marks are shown similarly. Standardized achievement test results are shown for, the years 1929, 1930, and 1931. In 1929 at the first testing, this pupil's total Stanford Achievement score and his history and language test scores gave a percentile rating of 99, while his science test, dictation (spelling) test, reading and arithmetic test scores gave percentile ratings of 97, 95, 93, and 93, respectively.

Social and character ratings.—There is no uniformity regarding the method of recording behavior ratings, nor any agreement as to the traits to be considered. Although it may be true that no good description of the various social and character traits is available which can be used by all, the personality of the child is so important that every effort at appraisal should be made. It has been found that persons do agree to some extent in rating character and social qualities, even though the distinction between one quality and another cannot be made so successfully. The large number of terms is an indication of the great interest and importance human beings have attached to the personality field. Research is now being carried on which will probably eventuate in setting up a small number of somewhat independent or unitary social and character traits. When this research has been accomplished, some uniformity in character ratings can be attained.

In the meantime, schools may properly set up rating devices for use by teachers,⁴ and record the results in cumulative records. The general pictures of such ratings will probably have meaning even though the individual trait ratings may have little validity. The results will also be valuable in helping to establish the validity of individual trait ratings.

It has been found, in this connection, that merely to ask for a rating on quite general behavior traits such as cooperation, loyalty, honesty, truthfulness, leadership, etc., without defining them in greater detail, produces poor results. The greatest weakness of such a simple scheme lies in the fact that the different traits are not isolated from one another in the rating process. If a teacher rates a pupil high in one trait, she is very likely to rate him high in the other traits also. In other words, the discriminative value of such a simple rating device is low.

Better results are secured when the traits being rated are defined on a scale of values such as in the Haggerty-Olson-Wickman Behavior

⁴ Some of the case histories of pupils which may give valuable suggestions are:

Case record based on the Detroit scale of behavior factors. Macmillan Company, New York.

Case study record by T. L. Torgerson. Part B. The diagnosis of pupil maladjustment. Edward Brothers, Ann Arbor, Mich.

Comprehensive individual history. Record form for infancy through high school. Psychological Corporation, 522 Fifth Avenue, New York.

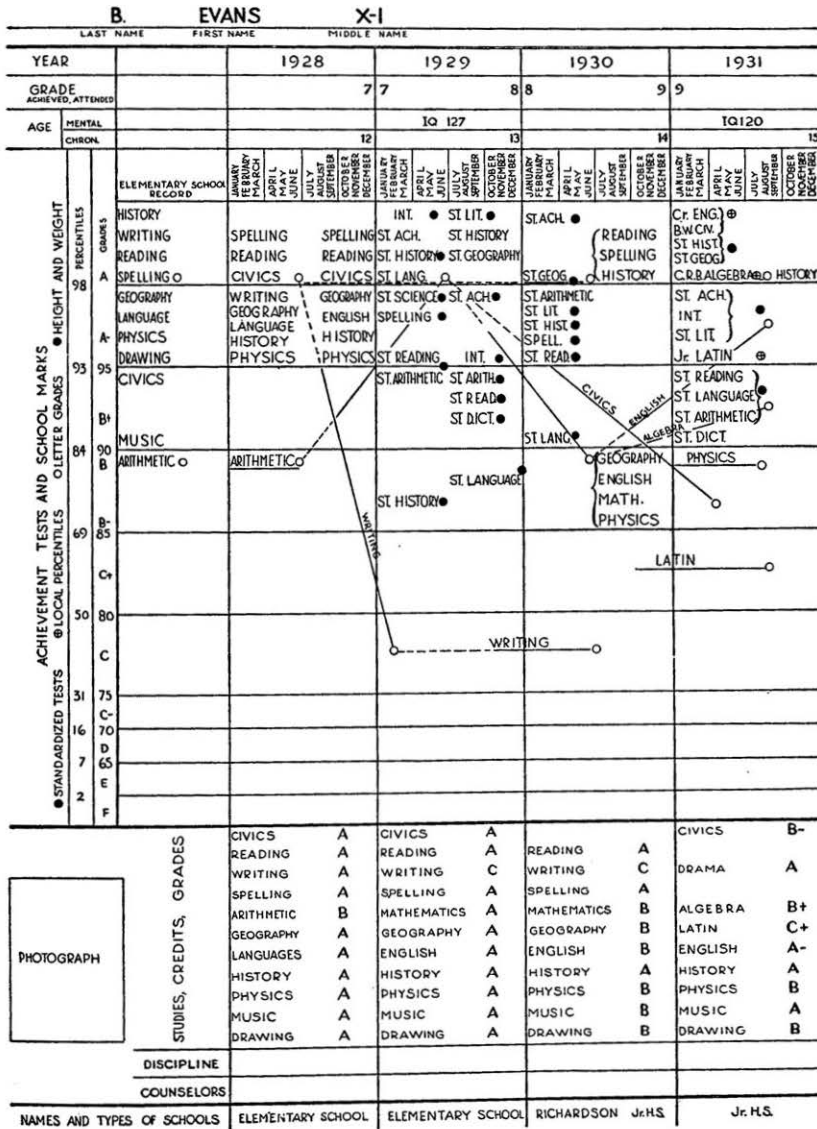


FIGURE XXII.—Illustration of certain data kept as a cumulative record using the percentile method.

Scales.⁵ Here the rater is asked, for example, in regard to leadership to rate on a scale as follows:

C. Does he get others to do what he wishes?	Probably unable to lead his fellows.	Lets others take lead.	Sometimes leads in minor affairs.	Sometimes leads in important affairs.	Displays marked ability to lead his fellows; makes things go.
---	--------------------------------------	------------------------	-----------------------------------	---------------------------------------	---

The Maller Inventory of Social and Personal Adjustment⁶ and the New York Rating Scale for School Habits⁷ have a somewhat similar arrangement. For example, the Maller scale for leadership is arranged as follows:

Leadership:

1. Never leads in social activity.
2. Occasionally acts as leader.
3. Is a born leader, has a high degree of initiative.

For teachers and school systems with limited facilities for recording behavior, this type of rating can be recommended. The more closely a child's behavior has been observed, the better the resulting estimations will be; yet this plan does not itself call for the actual recording of specific behavior. Estimations may be made at any stated time and represent the total general impression regarding the trait.

A still more detailed scheme for the observation and rating of a pupil's behavior is illustrated by the Winnetka Scale of Rating School Behavior and Attitudes⁸ developed by Dorothy Van Alstyne. It provides for the rating of such traits as cooperation, social consciousness, emotional security, leadership, and responsibility; but it does this not through any general ratings of these traits, nor even through mere description of specific situations involving them, but through furnishing a foundation for a record made from observations of children's reactions in particular situations. For example, the leadership scale is divided as follows:

SITUATION VIII. *When in an organized group with teacher present*

Score values

- 10 Is able to lead a group without being nervous or embarrassed.
- 8 Leads group in spite of being nervous or embarrassed.
- 7 Leads small group.
- 6 Does not lead group but is confident in dealing with individuals.
- 3 Tends to be shy with adults but not with children.
- 2 Tends to be shy with children but not with adults.
- 2 Is shy with both children and adults.

⁵ Published by the World Book Company, Yonkers, N. Y., 1930.

⁶ Published by the author, J. B. Maller, Teachers College, Columbia University, New York City.

⁷ Published by the World Book Company, Yonkers, N. Y.

⁸ Published by the Winnetka Educational Press, Horace Mann School, Winnetka, Ill.

SITUATION IX. *When child has opportunity to take responsibility for a group task*

Score
values

- 10 Directs task and carries it to completion for group benefit.
- 9 Takes responsibility for a task without being reminded.
- 7 Takes task but does not complete it.
- 6 Takes responsibility for a task only when especially asked by the teachers.
- 4 Takes responsibility for a task only when special interest is involved.
- 3 Rarely wants to take charge of task.
- 2 Cannot take responsibility for a group task.

SITUATION X. *When in a social situation which allows for initiative*

Score
values

- 10 Can organize and lead large group.
- 9 Can organize and lead small group.
- 6 Can lead another child.
- 5 Takes good care of self but does not attempt to lead others.
- 3 Does not like to have others take the lead and clings to own ideas.
- 3 Bothers other children or bosses them.
- 2 Allows other child to boss him in a way that is harmful to himself and others.
- 2 Shows cruel tendencies, such as bullying (bossing weaker child), ridiculing, etc.
- 1 Plays alone.
- 1 Shows no social initiative.

If a teacher follows the suggestions of such outlines of rating, she not only is able to recognize and record observations of behavior and get a reasonably accurate rating, but she finds also in such analysis an indication of the type of behavior which is considered significant. Moreover, the more a teacher practices observation of behavior, the more skillful will she become in making diagnoses of children's difficulties.

Health.—Teachers should be trained to record physical symptoms of disease and normal or abnormal physical development. The items recommended by Rogers⁹ to be used in such records are as follows:

⁹ Rogers, J. F. *What Every Teacher Should Know about the Physical Condition of Her Pupils.* Washington, U. S. Department of the Interior, Office of Education, Pamphlet No. 68.

Has had: Measles; scarlatina; diphtheria; whooping cough; mumps; frequent sore throat; rheumatism; earache; running ear; frequent colds; dyspepsia; epilepsy.
 Has now: Chronic cough; headache; blurred vision; impaired hearing; bad breath.
 Habits: Sleeps 6—7—8—9—10 hours; windows closed. Uses coffee; tea; tobacco; candy between meals. Bowels irregular. Plays in open air 1—2—3—4 hours. Works 1—2—3—4 hours after school. Does not wear overshoes in wet weather.

Home conditions: Poor; bad. Food inadequate. No breakfast.

Physical defects:

General appearance: Thin; obese; poor color; listless; drooping.

Height Weight

Nervous symptoms: Speech defect; tic; excitable; dull.

Face: Unclean; pallor; cyanosis; skin disease; other.

Hair: Pediculosis; ringworm; favus; unclean.

Eyes: Headache; errors in reading; book too close; congested lids; crusted lids; sty; inflamed; letter test RE—LE; with glasses RE—LE.

Ears: Discharge; audiometer, voice, or watch test. Right ear; left ear.

Nose: Discharge; obstruction.

Throat: Inflamed; tonsils diseased; obstructive.

Teeth: Decayed permanent; need adjustment; diseased gums; unclean.

Neck: Lymph glands visible; easily palpable; goiter.

Chest: Asymmetrical; expansion poor; expansion unequal.

Heart: Enlarged; irregular; rapid; shortness of breath on exertion.

Abdomen: Hernia.

Back: Scoliosis; rotation of spine; stoop; hunchback.

Upper extremities: Unvaccinated; hands cold; cyanotic; skin disease (scabies, ringworm, other).

Lower extremities: Clubbed; shoe deformities; turned inward.

Clothing: Insufficient; too much; ill kept.

Shoes: Ill fitting.

Summary of correctible conditions:

Recommendations of physician:

Parents informed:

Treatment:

Results of treatment:

Home conditions and family history.—The sociological conditions are important, but more difficult for the teacher or counselor to evaluate than other items. In chapter II it was pointed out that the occupation of the parent was the only item which occurred with any uniformity at all. It is suggested that the following items be taken into account as a minimum:

1. Occupation of (a) father and (b) mother.
2. Language of home.
3. Number of brothers and sisters.
4. Residence. Pupil lives with: Mother, father, uncle, aunt, grandparents, brother, sister, guardian, alone, husband or wife, or in an institution.
5. Marital status of parents: (a) Divorced, (b) separated, (c) remarried—father, (d) remarried—mother.

Extracurricular activities.—Space should be set aside to record the more formal aspects of participation in extracurricular activities. This record may be classified into divisions which will show to some extent the activities in various fields, such as (a) intellectual activities—participation in language clubs, debating societies, etc.; (b) social activities; (c) athletics or physical activities; (d) cultural activities; and (e) hobbies.

Vocational interest and aptitude test scores.—At the upper secondary level the various scores on vocational interest and aptitude tests should be included in the cumulative record, so that a complete picture of the student is at hand in advising him with reference to a vocation or a line of activity which will eventually lead into a permanent occupation. Also a record of his occupational experiences should be included if the school desires to follow the career of the student after he leaves school.

If these scores are standardized and a percentile norm is obtained, as in the case of educational achievement tests, the results may be recorded in the percentile figures and recorded with the other test results. In the case of interest scores it will be necessary to write down the raw score in each occupation, since these scores have not been translated into percentile scores.

Other items.—Other items which have been recommended for inclusion in cumulative records are not standardized sufficiently to make suggestions for uniformity of recording valuable. If the packet or folder system is used, various types of data concerning the pupil can be easily filed.

NEEDED RESEARCH

Research is needed to establish more firmly the validity of many of the individual items used in cumulative records. Those which can be subjected to objective evaluation should be investigated as to their value in the prognosis of success in the immediate work of the school—attainment in formal subject matter and in the more informal group activities—as well as in the prognosis of educational and social behavior over a period of time. Such research is basic to immediate and to more remote pupil guidance.

However, cumulative records as a device require more than a knowledge of the significance of individual items for pupil welfare. The cumulative record owes its particular value to two features. First, it brings together successive measures, ratings, or informational items, of the same trait over a period of time; and, second, it brings together measures, ratings, and informational items on different traits. Therefore research is needed in two directions. One need is for the establishment of the validity or significance of series of records on traits. For example, if the cumulative record shows, over a period

of years, a continuous record of marks and test scores in English, one needs to know the significance of the series as a whole in order that the teacher of English may adapt the teaching to the pupil, and in order that the counselor may aid the pupil in making educational or vocational plans.

The other need of research for the improvement of the use of cumulative records concerns the pattern of the combined records in different fields. For example, one record system may have a series of records in each activity of the school, curricular and extracurricular, a series of observations by teachers of the interests of the pupil, and a series of scores on objective test. The total meaning of the several continued series of teacher ratings in each activity, the interest ratings, and the scores on the tests in various subjects needs to be ascertained. Research should be carried on then, not only with individual items in a time series, but also with the pattern of records covering several different series of activities.

CHAPTER IV. THE USE OF CUMULATIVE RECORDS

GENERAL CONSIDERATIONS

The unique value of the cumulative record lies in its keeping a detailed account over a period of years concerning several activities of the individual. Yet it will also necessarily be used by counselors, teachers, and others when they are interested only in some one item, such as a test score obtained on a specific test. For this reason there should be no attempt to limit the use of such records to their unique contribution. They furnish valuable assistance in connection with any aspect of guidance and instruction in which knowledge of an item recorded is thought to be of value.

In other words, these records may be used either when some specific information is desired, such as a single test score, which in itself may be used to determine the next step in motivation or advancement into a new class, or when the whole past history of the student is considered in order to advise him on his next educational or vocational attempt. The first use may be quite simple, requiring only the looking up of a particular item, upon the basis of which the student is assigned to some activity group. The second one—when the whole past history of the student is considered—has been called the clinical approach, no doubt because of its analogy to the clinical approach in the medical field. In this case the individual items in the cumulative record are studied one by one, but the decision or advice of the counselor or teacher is given on the basis of the total picture (*gestalt*), which cannot in most cases be expressed in mathematical terms.

SPECIFIC USES OF CUMULATIVE RECORDS

I. *At the elementary and junior high school level.*

(a) *In the study of the needs of pupils in an instructional field.*

One of the most common uses of cumulative records in instruction is in connection with the determination of the level of instruction on which either the individual pupil or the class as a whole can succeed. If differentiation by subjects is desired, the level of the pupil's standing in a particular subject may be revealed by teachers' marks, subject test scores, and general scholastic aptitude (intelligence) test scores. Age and ratings in various character traits should likewise be studied in connection with achievement in subject matter. If the class shows a wide range of achievement and aptitude, homogeneous grouping or indi-

vidualized instruction may be a wise procedure. It is always more difficult to make such grouping for individual subjects than for all subjects as a whole on the basis of general scholastic aptitude. Since the members of the group would presumably have a different standing for every subject, numerous problems concerned with program making arise with the effort to place each pupil within his proper group by individual subjects. In either case, however, the grouping should be based on a score or a series of scores on a general aptitude test plus a score or a series of scores on an achievement test.

The use of items commonly found in cumulative records which aid in the study of instructional activities is well illustrated by the case of reading. The combination of scores on a general scholastic aptitude test and on a standardized reading examination, together with a consideration of the pupil's chronological age, can be most helpful in relation to the choice of books suited to his age, intelligence, and reading ability.

(b) *In the discovery of causes of behavior difficulties and failures.*

For some time the child guidance clinic has demonstrated the value of an all-round view of the child in analyzing his difficulties and recommending remedial treatment. The more comprehensive cumulative record systems include much of the data usually gathered by such clinics. They constitute a valuable aid to the school in dealing with problem cases.

Failure to meet scholarship requirements is a common form of maladaptation in school. It may be caused by a variety of factors, among which are: (a) Too rapid advancement through school, (b) lack of needed ability for the grade of work, (c) too heavy an extracurricular program or work outside of school, (d) economic maladjustments in the home, (e) personal difficulties, and (f) poor health. Many of the items in cumulative records bear on these factors and frequently furnish a clue for the discovery of the true cause of failure.

(c) *In the identification of gifted pupils.*

One of the greatest responsibilities of society is the discovery and encouragement of pupils who are to be its future leaders. The cumulative record, more clearly than any other school device, shows the level of development at consecutive periods of time. If for a given pupil this level is consistently maintained above that of other pupils, there is a clear indication of relative superiority which is of far

greater significance than the result of any single measure or set of measures which have been applied at any particular time.

- (d) *To assist in the discovery of special abilities.*

Likewise a student may have some special ability which has been overlooked in carrying on the regular program of the school. The cumulative record will often give a clue to such special abilities through its entries. If, for example, a record has been kept from year to year of achievement in music or art according to the teacher's estimate or on the basis of more objective standards, a superiority in either of these fields should become evident. Any such special aptitude should, of course, be capitalized for all it is worth.

- (e) *In furnishing a basis for advising a pupil who wishes to leave school during or at the end of the junior high school period.*

The pupil who is inclined to leave school early is in some ways more of a guidance problem than those who continue with academic or vocational training. The cumulative record throws light upon the capabilities of such pupils over a period of years and should be of material help in advising for or against continuance of school attendance. All possibilities of part-time education and of coordination of school and work must be considered before a decision is made. Although jobs for pupils 15 and 16 years of age are now relatively few, there are still enough of them available to make attractive the possibilities of wage-earning to many restless people young who are not succeeding particularly well in school work. A final recommendation for their future should be based only upon an exhaustive study of past achievements and failures as well as present desires. The cumulative record makes an important contribution to such a study.

II. *At the high-school and college levels.*

As the pupil continues through high school and college his knowledge and skills increase and his personality develops. The cumulative record becomes progressively important because it covers an increasing number of activities. It must assist in pointing the way not only toward general educational development but also toward some vocational goal. The items in the cumulative record can, at this level as at the elementary and junior-high-school levels, be used to help in the discovery of needs in the instructional field, in the determination of causes of behavior difficulties and failures, and in the identification of the all-round gifted pupil and of the pupil with special abilities. In addition

to these uses, the following should be added as functions of the school in which cumulative records are valuable:

- (a) *In determining the type of educational course which best fits the student.*

In interviews with high-school and college counselors, deans, and heads of departments, the student expects considerable help in choosing courses for the next semester and in shaping his whole educational program. In order to advise intelligently it is essential that the advisor have available the total past record of the student. At this—the secondary level—more and more consideration must be given to the student's strong points, in order that he may develop his talents in the direction which will yield the greatest returns in personal achievement and vocational success. Correspondingly less attention may be paid to definite deficiencies of aptitude and ability except for certain very fundamental skills. For example, if a student displays considerable lack in mathematical ability when he is a junior or a senior in high school, and if he has shown such disability throughout his school career, with little or no value accruing from the remedial instruction he has received, then further work in that line should probably be dropped. Medium or better than average ability in mathematics is necessary only in certain lines of activity which of course must be closed to him. On the other hand, if he is poor in reading in his high-school years or at entrance to college, there is ample reason for giving him some special remedial instruction in that subject because of its importance in practically all lines of endeavor.

- (b) *In advising the student in the choice of schools when graduating from a school or otherwise transferring from one school to another.*

This service is of the same type as that discussed in (a) but the matter presents a more momentous problem to the student. It is much more difficult and more costly to correct an error made in choosing the wrong type of school than it is in choosing the wrong subject. It is, therefore, most important in advising a student in this regard to consider all aspects of his past record.

- (c) *In advising the student as to the efficient use of his time.*

The efficient budgeting of the student's time, especially in college, is of great importance. He often asks advice as to

the best methods of studying, the amount of extracurricular activity in which he should engage, the amount of daily work he can safely carry, and related problems. Such questions can be answered best only if the counselor knows the social and economic background of the student, his aptitude to carry on the several types of intellectual activities, and his past success in circumstances similar to those concerning which he is asking at the time.

(d) *In placement.*

The placement of a student in an occupation is a logical function of the school. In the first place, the school is the only agency which has continuous records showing the abilities, aptitudes, interests, and past personal and family history of the student. In the second place, it has the welfare of the student at heart and is interested in finding a job which will fit the individual's peculiar talents. The cumulative record system is an important factor in helping the school to perform such guidance activities. Items of particular importance in this phase of the work are (1) the courses taken in school and the results attained; (2) objective test results in subject matter; (3) results of special aptitude tests, such as tests of verbal aptitude, nonverbal aptitude, manipulative ability, recognition of form, mathematical ability, and the like; (4) the interest of the student, expressed on such instruments as the Strong or Manson Interest Test; and (5) personality traits as analyzed by teachers and by special tests. As already indicated, the longer the period of time over which these measures have been recorded the more valuable the record will be.

It cannot of course be expected that our present measuring instruments are entirely adequate for all of the uses outlined above. Further refinements in techniques, both in achievement testing and in aptitude testing, are greatly needed. However, it is encouraging to note that progress has been made by many schools throughout the country in making their records meaningful, objective, comprehensive, and continuous, and in using them for the benefit of the student.

CHAPTER V. ESTABLISHED RELATIONSHIPS BASIC TO THE USE OF CUMULATIVE RECORDS IN GUIDANCE

GENERAL DISCUSSION

This chapter discusses the relationships which have been established in a more or less formal fashion between one or more items of knowledge concerning a pupil and his later behavior. As the science of education is extended there will be more of the items now used in cumulative records which will be treated as objectively as those illustrated here. Other areas of pupil behavior will require other types of investigation in order to show their value.

This presentation will give the results of prognostic studies beginning with the first grade and running through college. It will give typical results from using only one prognostic item and also from using several prognostic items in combination and in time series. It is found that although the result obtained from a single prognostic measure is valuable, the results of a series of measures are found to be of relatively greater value. One test gives within limits a pupil's standing at the time and indicates also to some extent his future development. However, since the environment of a pupil changes year after year, and the pupil himself may have, to some small extent, innate changes occurring in his mental and physical make-up apart from the general gradual growth which takes place, recurring tests are also important. The intelligence quotient (I. Q.) obtained from group or individual mental tests is the most stable measure that we know. But even this measure is subject to correction, and in extreme cases subject to large variation over a period of years. Other measures, such as measures of accomplishment in school subjects, differ more because of the fact that the school environment changes.

A much more accurate diagnosis of the strengths and weaknesses of an individual can be obtained from repeated measurements or ratings over a period of years in many different lines, than can be secured from one testing. This is true, not only because of the fact that several measurements are better than one, but also because the trend of the future development of the pupil is more accurately pictured. In general, the prognostic value of measures is greatest in the elementary school and least in the college field.

FIRST-GRADE PROGNOSTIC FACTORS

The measurement of kindergarten and preschool children for prognosis for first grade has had a particularly strong development during the past few years. At first intelligence tests were used, and later reading readiness and school readiness tests have been used. Typical results with intelligence tests are those obtained by Deputy¹ who found a correlation² of .70 between the Pintner-Cunningham Mental Test given at the entrance to first grade and a composite score on three reading tests given in the first grade after the children had had adequate opportunity to acquire some reading facility. Insofar as they have been tried out, reading readiness and school readiness tests predict success in the first grade about as well as the intelligence tests, or a little better.

PROGNOSTIC ITEMS IN THE ELEMENTARY SCHOOL

After the pupil enters the elementary school, records of achievement such as teachers' marks and test results may be obtained. Typical relationships between test results and later success in elementary school subjects are those calculated by Hollingshead and by Gates and La Salle. Hollingshead³ found a correlation between arithmetic achievement in the fifth grade with that of a year later—both achievements measured on standardized tests—of .703. When mental age is added to the achievement in the fifth-grade arithmetic the correlation with achievement in arithmetic in the sixth grade is brought up to .741. Gates and La Salle⁴ found the following correlations in grades 3-6 between the results on the National Intelligence Scale and

¹ Deputy, E. C. Predicting First-Grade Reading Achievement. Bureau of Publications, Teachers College, Columbia University. Contributions to Education, No. 426.

² The correlation index is a measure of relationship running from 1.00 to 0.00 and from 0.00 to -1.00. A correlation coefficient of 1.00 indicates a perfect agreement between the two measures considered, while a correlation coefficient of 0.00 indicates no agreement, and a correlation coefficient of -1.00 indicates perfect disagreement. For prognostic purposes the index should be as close to +1.00 or -1.00 as possible. Whether the sign before the coefficient is + or - is immaterial. For example the prognostic value of -0.45 and +0.45 is the same. The efficiency in forecasting of different correlation coefficients is given in the following table adapted from Clark L. Hull's "Aptitude Testing," p. 273.

Showing the Relation of the Correlation Coefficient (R) to the Percent of Forecasting Efficiency

R	E	
	Percent	Percent
.30.....	5	.70..... 29
.40.....	8	.80..... 40
.50.....	13	.90..... 56
.60.....	20	1.00..... 100

See also U. S. Department of the Interior, Office of Education Bulletin No. 15, 1934, Prediction of Success in College, for discussion of the use of the correlation coefficient in studies of prognosis.

³ Hollingshead, A. D. An Evaluation of the Use of Certain Educational and Mental Measurements for Purposes of Classification. Bureau of Publications, Teachers College, Columbia University. Contributions to Education, No. 302.

⁴ Gates, A. I., and La Salle, Jessie. The Relative Predictive Values of Certain Intelligence and Educational Tests Together with a Study of the Effect of Educational Achievement upon Intelligence Test Scores. Journal of Educational Psychology, 14: 517-39, December 1923.

tests of subject matter at varying lengths of time between the administration of the intelligence tests and the subject tests:

Subject test	Interval in months				
	4	8	12	16	20
1	2	3	4	5	6
Reading comprehension.....	.82	.80	.82	.73	.72
Arithmetic.....	.89	.91	.91	.83	.78
Spelling.....	.78	.82	.84	.84	.80

These correlations show that there is considerable prognostic power in general mental tests even after a considerable period of time has passed. Gates and La Salle also calculated correlation coefficients between test results in three subject-matter tests and tests in the same subject matter at certain time intervals later. The results are:

Test	Interval in months				
	4	8	12	16	20
1	2	3	4	5	6
Reading comprehension with reading comprehension.....	.77	.78	.70	.76	.75
Arithmetic with arithmetic.....	.91	.86	.91	.89	.84
Spelling with spelling.....	.91	.93	.88	.91	.88

These correlations show that achievement test results may be used in the prognosis of future work in the subjects concerned.

The relation between marks in successive semesters in the elementary school was studied systematically and extensively by Kelly.⁵ He found the correlations between marks in successive semesters in the sixth and seventh grades to be as follows:

School	Semester	Subjects						
		Language	Penman-ship	History	Geogra-phy	Arith-metic	Spelling	All sub-jects
1	2	3	4	5	6	7	8	9
A	June and January.....	.20	.05	.21	.52	.63	.39	.48
A	January and June.....	.70	-.07	.69	.62	.64	.54	.60
B	June and January.....	.51	.62	.59	.37	.20	.63	.84
B	January and June.....	.74	-----	.48	.24	.39	.64	.70
C	June and January.....	-.10	.00	.13	.18	.03	.75	.35
D	do.....	.52	.11	.71	.16	-.16	.64	.61
D	January and June.....	.74	.54	.33	-.04	.51	.37	.49

⁵ Kelly, F. J. Teachers' Marks. Teachers College, Columbia University. Contributions to Education, No. 66. 1914.

These correlations show that there is a considerable relationship between marks in successive semesters in the same subject for all subjects except penmanship. However, these relationships are not as large as those reported between intelligence test results and achievement test results, or between successive measures of achievement for various time periods by Gates and La Salle.

The relation between interests and achievement at the elementary school level has not been examined to any great extent. One of the best studies is that of Wyman⁶ who used a word association test to determine intellectual, social, and activity interests with elementary school children and found that these interest measurements were valid. She found a correlation of .49 between intellectual interest and achievement in the elementary school when the intelligence factor was nullified.

FACTORS IN ELEMENTARY EDUCATION PROGNOSTIC OF HIGH-SCHOOL SUCCESS

Studies showing typical relationships between marks in the elementary school and marks in the high school are those of Miles, Kelley, and Ross. Miles⁷ found the correlation between average elementary school marks and average high-school marks to be .71. Kelley⁸ calculated correlation coefficients between marks in each of four of the elementary-school grades and the first year of high school. These results are as follows:

Fourth grade and first year of high school.....	.624
Fifth grade and first year of high school.....	.531
Sixth grade and first year of high school.....	.728
Seventh grade and first year of high school.....	.719

Ross⁹ computed a correlation of 0.60 between the simple average of the elementary-school marks and first-year high-school marks.

PROGNOSTIC FACTORS IN HIGH SCHOOL

In high school, results on group intelligence tests are related in a moderate degree with high-school marks. Typical results are those found by Jordan.¹⁰ He used four intelligence tests. His results are:

Otis intelligence and high-school marks.....	.45
Army Alpha and high-school marks.....	.476
Miller intelligence and high-school marks.....	.476
Terman group intelligence and high-school marks.....	.492

⁶ Wyman, J. B. Tests of Intellectual, Social, and Activity Interests. Genetic Studies of Genius, Chap. XVI. Stanford University Press, 1925.

⁷ Miles, W. R. Comparison of Elementary and High School Grades. University of Iowa, Studies in Education, Vol. I, No. 1. Iowa City, Iowa.

⁸ Kelley, T. L. Educational Guidance. Teachers College, Columbia University. Contributions to Education, No. 71. 1914.

⁹ Ross, C. C. The Relation between Grade School Record and High School Achievement. Teachers College, Columbia University. Contributions to Education, No. 166. 1925.

¹⁰ Jordan, A. M. Correlations of Four Intelligence Tests with Grades. Journal of Educational Psychology, 13: 419-29, October 1923.

The rating of conduct of high-school pupils in relation to other factors has been the object of a study by Symonds and Jackson.¹¹ They find that "there is a real relationship between school achievement and conduct so that conduct ordinarily considered commendable is positively correlated with achievement, and undesirable conduct is negatively correlated with achievement." They also find that "there is a slight but real tendency for teachers to be influenced by undesirable behavior in assigning marks lower than is justified by the real relationship between achievement and conduct." The results of this study indicate that a conduct record may not only be diagnostic regarding conduct, but also is definitely related to such factors as achievement in high-school subjects as represented by standardized tests and by teachers' marks.

RELATION OF AGE TO SCHOOL ACHIEVEMENT

In addition to the general significance of age as related to the probability of leaving school and entering into trades, and the like, it has been found that the age of a pupil in a grade is significantly related to achievement. Kelley¹² found a correlation of $-.31$ between age and average class standing in the elementary school. This means merely that the younger pupil made the better class marks. Approximately the same correlations were found also by Fretwell¹³ in the elementary school, by Ross¹⁴ in the first year of the junior high school, and by Flemming¹⁵ in the senior high school.

THE PREDICTION OF COLLEGE SUCCESS

The description of cumulative record forms in this bulletin is limited to the elementary school and high-school levels. We are nevertheless concerned with the relationship existing between the records on these cumulative forms and the possibilities of success in different vocational lines in vocational schools and colleges. This is an important consideration in our whole guidance scheme. The relationships of marks and various test results obtained in high school to scholarship in college are given in detail by Segel.¹⁶ It was found that the average relationship between general mental tests given before entering college and general college scholarship is represented by a correlation coefficient of $.44$, while the relationship between general achievement tests over

¹¹ Symonds, P. M., and Jackson, C. E. *Measurement of Personality Adjustments of High School Pupils*. Bureau of Publications, Teachers College, Columbia University, New York City, 1935.

¹² *Ibid.*

¹³ Fretwell, E. K. *A study in Educational Prognosis*. Teachers College, Columbia University. *Contributions to Education*, No. 99. 1919.

¹⁴ *Ibid.*

¹⁵ Flemming, C. W. *A Detailed Analysis of Achievement in the High School*. Teachers College, Columbia University. *Contributions to Education*, No. 196. 1926.

¹⁶ Segel, David. *Prediction of Success in College*. Washington, U. S. Department of the Interior, Office of Education, *Bulletin* 1934, No. 15.

high-school work and college scholarship is represented by a correlation coefficient of .545. The average correlation between average high-school marks and average college marks is represented by a coefficient of .55.

TEST RESULTS IN A TIME SERIES

Courtis has been attempting to show that all school learning follows the well-known learning curve if successive measures are plotted. He¹⁷ has shown how the development in learning certain elements of arithmetic, or in learning to spell, conforms roughly to the learning or growth curve. Most educational psychologists probably will agree with Courtis that the learning curve is the fundamental representation of learning. However, since subjects in school are complex and the learning is subject to many arbitrary forces producing retardation at one time and acceleration at another time, it is probable that we shall have to rely on the learning trends which are actually discovered in practice. This the cumulative record will enable us to do. An ability which is allowed to develop naturally, even though complex, does show the normal growth curve tendency. This is illustrated by the general growth in intelligence of the type measured by our ordinary group mental tests. According to the average of several studies, this curve presents in its upper stages the typical growth curve. This curve is given in figure XXIII. The broken extension shows the probable growth in this particular ability, assuming that it follows the normal growth curve throughout its entire development.

Although it is admittedly a difficult job to construct a learning curve for each of the subjects of the curriculum for each child, it probably is an acceptable hypothesis for most educators and psychologists that several measures spread over a period of time will give a fairly good indication of the future possibilities along that line. Cumulative records of pupil accomplishment, attitudes, and interests are of immediate use in projecting the talents of the individual into the future, and at the same time cumulative records will furnish the material for research on the subject, so that prognosis will become more and more accurate.

What evidence is there that the validity of the final prognosis is increased by a series of measurements over a period of years? One study which has attempted to answer this question not only for reading but for spelling, geography, and arithmetic and general intelligence is that of Keys.¹⁸ He used the test results for the year 1926 as a criterion and correlated the results of the years 1925, 1924, and 1922 in-

¹⁷ Courtis, S. A. The Prediction of Growth. *Journal of Educational Research*, 26: 481-92, March 1933.

¹⁸ Keys, N. The Improvement of Measurement through Cumulative Testing. *Teachers College, Columbia University. Contributions to Education*, No. 321. 1928.

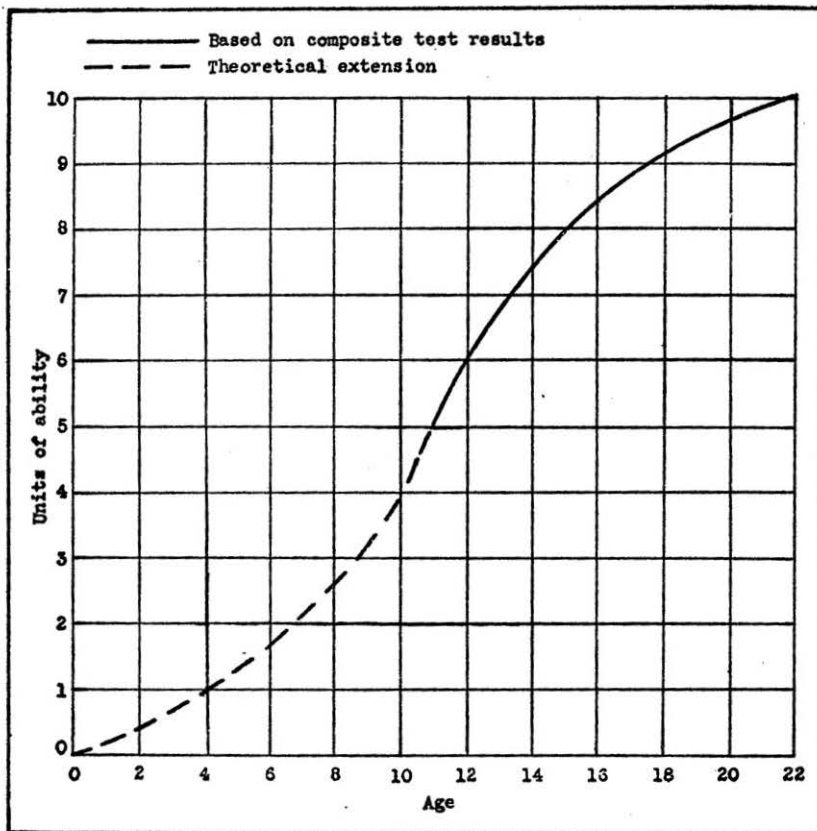


FIGURE XXIII.—Curve of growth in achievement in a composite of certain subjects.

dividually and in various combinations with these 1926 results. The average results for all tests for three types of scores were as follows:

Years correlated with 1926	Types of scores					
	Raw scores		Quotients		B scores	
	Simple ¹ average	Using ² optimum weights	Simple average	Using optimum weights	Simple average	Using optimum weights
1	2	3	4	5	6	7
1925 alone.....	.693		.731		.744	
1925 and 1922.....	.710	.728	.760	.764	.767	.775
1925 and 1924.....	.745	.748	.772	.774	.787	.789
1925, 1924, and 1922.....	.740	.757	.774	.781	.785	.795

¹ Simple average means a simple correlation such as r_{12} , $r_{1(2+3)}$, $r_{1(2+3+4)}$, etc.

² Optimum weighted correlations are multiple correlation coefficients such as $R_{1.23}$, $R_{1.234}$, etc.

These correlations indicate that tests given as much as 2 years, and in some cases 4 years previously actually add to the validity of the prognosis. The value of the 1922 test scores (from tests given 4 years before the criterion tests) is so small that from a practical standpoint it would not warrant the use of this result unless the test results for other years might be missing. These results of Keys show the value of a continuous record.

THE COMBINATION OF PROGNOSTIC FACTORS

The other value of a cumulative record is to show the growth in different subjects over a period of years, so that a better prediction can be made both for success in general in future education and also so that a better differential diagnosis or prediction can be made. Some studies have been made of the value of combining test items. Flemming¹⁹ found a multiple correlation between a combination of Terman test results, Otis test results, teachers' ratings for industry and energy, and age, on the one hand, and school marks in junior high school on the other hand to be .845. Fretwell¹⁹ found a correlation between the results of a composite of tests given to sixth-grade pupils with the results of the same tests given to the same pupils in the seventh grade of .79.

Many studies of the efficiency of combinations of factors gathered in the high school in predicting success in college have been made. These have been brought together by Segel.¹⁹ Simple averages of the multiple correlation coefficients established in these studies have been computed. These are:

Type of prediction	Number of studies	Average multiple coefficient of correlation
Relationship between general college scholarship and various combinations of predictive items.....	18	.656
Relationship between scholarship in certain individual college subjects and combinations of high-school marks.....	8	.490
Relationship between scholarship in certain individual college subjects and combinations of test results.....	8	.610

These correlations show that there is a value in bringing together different factors in predicting future success in scholastic work. It may be inferred that the combination of other single valid items relating to social qualities, vocational fitness, interests, and health might also be combined in studying the cases of individual pupils.

Statistical studies of the effect of combining several successive measurements in each of several different fields have not been made. However, graphical representations have been made on cumulative blanks and have been used to good advantage in counseling. A

study of individual cases using such graphical representation has been made in the *Study of the Relations of Secondary and Higher Education in Pennsylvania*.²⁰ Figure XXII is a sample of such record keeping for a period of 4 to 5 years. A study of this record shows some important variations subject by subject, but also some very important consistencies in test scores and marks year by year, as well as the general level of practically all subjects. The abilities associated with reading and English are uniformly high, whereas those abilities associated with detailed accuracy, such as arithmetic and the language portion of English, tend to be lower.

¹⁹ Op cit.

²⁰ Progress Report IV: Case Studies and Special Curricula Proposed for Secondary Pupils Expecting to Enter College. Carnegie Foundation for the Advancement of Teaching. 1931.



