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CLASSIFICATION OF KINDERGARTEN CHILDREN FOR FIRST GRADE BY MEANS OF THE BINET SCALE

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In the fall of 1920, at the request of superintendent W. A. Greeson of Grand Rapids, Michigan, Dr. Charles Scott Berry of the University of Michigan was secured to train approximately sixty kindergarten teachers and their assistants to give the Binet test. Through the united efforts of these sixty teachers, assisted by the kindergarten supervisor, Miss Annie J. Blanchard; her assistant, Miss Elizabeth Webster; and Mrs. Cordelia Creswell, supervisor of mental testing, 2029 kindergarten children were tested by June, 1921.

After the testing had been completed, the mental ages were reduced to a September-first basis and classified into three groups as follows: (1) in the X or highest group children seven years or older mentally; (2) in the Y or middle group children six to seven years old mentally; (3) in the Z or lowest group children five and a half to six years old mentally.

Table I shows the distribution of the 2029 kindergarten children according to mental and chronological ages.

TABLE I. THE DISTRIBUTION OF 2029 KINDERGARTEN CHILDREN
ACCORDING TO MENTAL AND CHRONOLOGICAL AGES

CHRONOLOGICAL AGES	MENTAL AGES					Per- cents
	Below 5½	5½-6	6-7	7 and above	Totals	
Below 5½.....	33	29	41	13	116	6
5½-6.....	79	100	255	111	545	27
6-7.....	103	145	530	399	1177	58
7 and above.....	55	23	58	55	191	9
Totals.....	270	297	884	578	2029	
Percents.....	13	14	44	29		100
Groups.....	Sub-Z	Z	Y	X		

It was recommended that the principal and the kindergarten teacher, after taking all factors into consideration, should either place the children who did not test five and a half years according to their mental age on September first, in one of the groups or leave them in the kindergarten. The kindergarten teacher was also privileged to reclassify a child whose mental test score placed him in a group to which, in her opinion, he did not properly belong.

THE WORK ASSIGNED TO EACH GROUP IN THE FIRST GRADE

All groups were to do the same type of work for the first ten weeks of school, i. e., regular first-grade work. This was done in order that first-grade teachers' judgments could be utilized in the experiment. During this probationary or trial period, the first-grade teacher was privileged to move a pupil from one group

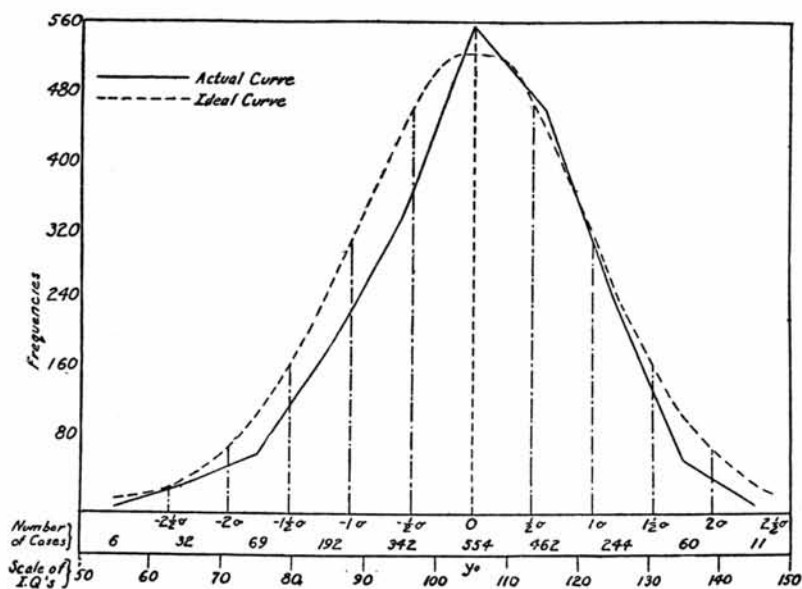


FIGURE 1. THE IDEAL CURVE SUPERIMPOSED ON THE ACTUAL CURVE OF DISTRIBUTION OF THE INTELLIGENCE QUOTIENTS OF 2029 KINDERGARTEN CHILDREN OF GRAND RAPIDS, MICHIGAN. TESTED JANUARY TO JUNE, 1921.

to another whenever in her judgment the child did not properly belong in the group to which he had been originally assigned. After ten weeks were over, or even before, if the first-grade teacher had settled definitely on the members of each group, it was recommended that the Z group go more slowly, doing *at least* a half-year of first-grade work in a year and as much more as the group was able to do. The other two groups were to do regular first-grade work, enriched as much as seemed expedient.

ACTUAL CLASSIFICATION

Even though 2029 kindergarten children were tested for first-grade work it did not prove feasible to form X, Y, and Z groups for each school. In schools in which there was only one first-grade teacher it was not deemed advisable to form three groups from their small number of pupils. Some of the teachers in the smaller buildings formed two groups only, an upper and a lower, designated A and B. The reason given for not forming three groups where there was only one teacher in the first grade, was that to do so would cut down the actual recitation periods of each group 50 percent. For example, three groups reciting their reading lessons for 20 minutes each consume 60 minutes. Were these same pupils divided into two sections, each section could continue for 30 minutes with no longer school day. That is, two 30-minute periods equal three 20-minute periods.

In schools having two first-grade teachers, the pupils could have been divided first into three groups, X, Y, and Z. One teacher could then have taken the X's and high Y's, while the other could have taken the low Y's and all the Z's. Unfortunately, or otherwise, this arrangement was not followed by all the larger schools. Some assigned three groups to each teacher, when it was possible for them to have formed two groups only for each teacher.

In consequence of the above optional types of classification, only 1129 or approximately 64 percent of the first-grade children were actually classified on the X, Y, and Z basis. Table II shows the actual classification of these children.

There were, however, 213 of these 1129 pupils who were not classified according to their mental ages but were placed in groups X, Y, and Z according to the judgments of the kindergarten teachers. The numbers representing these pupils are italicized in Table II. Of the 71 children who were below the mental age of the Z group, 64 were placed by the teachers in Z, 6 in Y, and 1 in X. Of those having the mental age of the Z group, 43 were placed in Y; while of those having the mental age of the Y group, 27 were placed in Z and 45 were placed in X. Twenty-seven of those having the mental age of the X group were placed by the teachers in the Y group. The remaining 916 or 81 percent were placed in the X, Y, and Z groups according to their mental ages.

STABILITY OF GROUPING

During the first ten weeks it was necessary to alter this original grouping to some extent. Of the 64 pupils having a mental age of less than five and a half years, who were placed in group Z, 24 were transferred to Y, or up a group, while 1 of the 6, placed originally in the Y group, was transferred to Z, or down a group. The changes within each group are recorded in Table II. Of the 213 pupils placed according to the kindergarten teachers' judgments, 25 were later transferred to a lower group, while 35 were placed in a higher group. That is, 153 or approximately 72 percent of them remained in the group in which the kindergarten teachers had placed them. In other words, approximately three out of every four remained unchanged.

Of the 916 placed in groups according to their mental ages, 56 were transferred to a higher group; while 82 were changed to a lower group, making a total of 141 transfers. Therefore, 775 or 85 percent of these remained unchanged. If we consider the number of changes within each group we find that 22 percent of the Z group were subsequently changed to another group; while 17 percent of those originally placed in the Y group and 16 percent of those in the original X group were likewise transferred.

TABLE II. THE CLASSIFICATION OF 1129 KINDERGARTEN CHILDREN ON THE X-Y-Z PLAN FOR FIRST-GRADE WORK

MENTAL AGES	Groups										TOTALS (ORIG- INAL GROUP- ING)	PER- CENT	TOTAL NUM- BERS TRANS- FERRED
	Z			Y			X						
	Original number	Number trans- ferred to groups. ^a		Original number	Number trans- ferred to groups. ^a		Original number	Number trans- ferred to groups. ^a					
		Y	X		X	Z		Y	Z				
Below 5½ years.....	64 ^b	24	0	6	0	1	1	0	0	71	6	25	
5½-6.....	109	15	0	43	3	9	0	0	0	152	14	27	
6-7.....	27	2	2	499	41	38	45	11	1	571	50	95	
7 and above	0	0	0	27	4	3	308	41	3	335	30	14	
TOTALS	200	41	2	575	48	51	354	52	4	1129	100	198	

^aThe changes indicated refer to shifts which were made during the first ten weeks of the first-grade work.
^bThe numbers in italics refer to pupils who were placed according to teachers' judgments.

GENERAL STATEMENTS CONCERNING KINDERGARTEN TEACHERS' JUDGMENTS AND TEST SCORES

Some are likely to conclude from these data that kindergarten pupils are grouped better by means of the Binet test scores than by kindergarten teachers' judgments because 85 percent of those placed in groups according to their test scores remained unchanged, while only 72 percent of those placed in groups other than where their test scores should have placed them, remained constant. It is unfair to draw such a conclusion from these data because in all cases the kindergarten teachers' judgments were utilized, for it was with their approval that a child was placed in the group which accorded with his mental age. Doubtful children only were placed in groups other than the one indicated by their test scores. If a kindergarten teacher felt that a child was not strong enough to keep up with the X group, even though he received a score which would place him in the X group, she recommended him for the Y or Z group. If she felt that a child had a language difficulty and did not test up to his ability she oftentimes placed him in a group above the one indicated by his test score. Other exceptional cases were similarly handled.

The conclusion which can be drawn from these data, however, is that it is remarkable that the Binet test, which takes approximately only 40 minutes to give to a kindergarten child, can so accurately group children according to their capabilities. Since only 198 out of 1129 cases were changed during the first ten weeks, there were approximately only 18 percent of the children who were readjusted. In other words, four out of every five were accurately placed according to their original classification.

REASONS FOR TESTING IN THE KINDERGARTEN

In the main, there are three reasons for testing kindergarten children for purposes of classification in the first grade:

1. The percent of failures in the first grade is very large. In fact, it is from two to three times that in any other elementary grade.

2. It is at least suspected that we are asking a great many children to do first-grade work who are not sufficiently developed mentally to do so.

3. First-grade teachers need assistance in diagnosing children's difficulties since the children come to them unsorted.

A report from first-grade teachers, relative to the original classification and changes made by them during the first ten weeks was requested. One important question asked, was, "Do you feel that this grouping by means of the Binet-test results has been of assistance to you? If so, in what way?" Forty-three of the fifty-eight first-grade teachers gave positive answers in favor of it; fifteen left the answer blank; while none gave a negative answer. Granting that all the fifteen who left the answer blank were not in favor of it (which is altogether improbable) the fact still remains that approximately 75 percent favored it.

Some of the typical answers made by first-grade teachers concerning the testing were:

"I feel it has been a great benefit by throwing light on what we should expect of children. If a child tests low, we know we must allow him more time to complete a grade. If he tests normal, but is not doing good work, it should be our duty to find out why and urge him to do better. If he tests superior, he should be given a chance to make the next grade with a little extra help."

"Yes, I think the grouping by means of the Binet test is most valuable. It gives the teacher some definite knowledge of the child and where to place him. This, of course, saves much time as well as giving the valuable information which helps so much in knowing each individual child."

"This means of grouping has been of assistance in the discovery of the very slow pupils before they become bewildered by trying to keep up with the brighter children. On the other hand, it does not subject the bright child to the dulling effect of waiting when a slow pupil is up for recitation."

"Yes, we have two I-I rooms at———. For several years we have aimed at the same grouping that we have this year viz.: X and high Y pupils in Miss ——'s room and the lower Y and Z pupils in my room. This year there has been less need for transfer from room to room. While I have found considerable variation within the assignments made to me as Y and Z groups, the X pupils seem to have been well sorted out."

"It has been of great assistance to me. Each year I have had sent to me for the advanced group children in whom the kindergarten teacher had mistaken manual dexterity for mental ability. Shyness is also often taken for slowness."

"Yes, because the children are better classified."

"I feel that this grouping has been of assistance to me. It has saved much time in having a definite organization of pupils at the beginning."

"At least a week of time was saved at the beginning of the term which is usually used in the adjusting of classes. Children who need special attention are brought to notice at the very beginning of the year."

"Yes, it is much easier to handle a large number in a class if they are of nearly the same type mentally. Because of this grouping we are able to work with two groups instead of three or four as formerly in first-grade rooms."

ADVANTAGES SUMMARIZED

1. Considering the report as a whole there seem to be several advantages to be gained from this testing. Great assistance is furnished the first-grade teacher in analyzing the child. Mere personal opinion is not always a safe guide in the analysis of children's abilities to do first-grade work for there are children who are brilliant in a general sense but dull in a technical sense. That is, by travel, picture-books, magazines, and fine home training they have received a general training far beyond that of children who are much older than they. But when it comes to teaching them that "c" should sometimes be given the sound of "k" and sometimes the sound of "s;" or that 9 and 5 are 14, etc., they fall far short of their teacher's expectations. On the other hand, many children are brilliant in a technical sense but dull in a general sense. That is, through lack of picture-books at home, magazines and travel, combined with indifferent home-training their limited experience with things in general makes them appear dull. But when asked to read page four in their reader, they can not only do it well but they can also reproduce every essential idea of the page, or if asked to give the sum of any of the forty-five combinations, they can do it without hesitation.

2. It is possible by means of the testing to sort out with a high degree of accuracy the children who are below five and a half years mentally and to permit only those who are healthy and seem mentally strong to go on to the first grade.

3. Much time is saved in the grouping of the children at the beginning of the semester. Almost all the experimental grouping is eliminated. Several teachers say that from a week to ten days is saved in the organization of their classes.

4. The teacher has an impersonal check on the teachability of the child. It sometimes happens that children who are teachable will not learn. Some children see no reason for learning to read. Their wants and pleasures are satisfied without knowing how to read, and unless the work can be motivated they put forth little or no effort to master the abstractions of reading. The following incident which happened in one of our schools illustrates the point. A short time ago a first-grade boy who had shown by his test that he was a perfectly normal boy was not learning to read. The teacher had used all her powers in attempting to induce him to try. The principal was called upon for assistance. When asked why he didn't want to learn to read, the boy replied that it would not be necessary for him to know how to read at the work he was going to do when he grew up. When asked what he was going to do, he said he was going to be a clerk in a grocery store like his father. But the principal said, "You will need to know how to read the orders brought in by little boys and girls to your store and also orders which are taken over the telephone, won't you?" The boy was told to talk the matter over with his father at home that evening. On returning to school the next morning he said, "Well, if that's the way of it, I guess I'll learn to read,"—and he did. The principal, and the first-grade teacher of this school, understand the meaning of Binet testing; and through test results they are able to distinguish between apparent and real difficulties. The impersonal feature of the test proves to be a "life-saver" in many cases.

5. A further advantage is to be found in having groups mentally homogeneous to begin with. It goes without saying that when first-grade pupils are grouped according to a teacher's judgment, the children are grouped mainly on performance and effort. When children of similar mentalities are grouped together, the

teacher feels that she should do all in her power to bring out a performance commensurate with the child's mentality before recommending him to a slower group. The child, therefore, has the proper chance with his mental equals in beginning his school life.

6. When there are two first-grade teachers in a building the plan of cutting down the number of groups for each teacher can be used. That is, it is not necessary for each teacher to have a fast, middle, and slow group. One teacher can take the fast and a part of the middle group while the other can take the other part of the middle group and the slow. In this way each teacher will have but two groups.

7. Possibly the greatest advantage lies in the fact that pupils in the first grade may be advanced as rapidly and only as rapidly as their mental development permits. This is not exactly true with each individual, but it is true with respect to the three groups as wholes. In other words, there is opportunity for enriching or accelerating the work of the X group, commensurate with its mental age; of doing ordinary work with the Y group; and of going slowly enough with the Z group so that the amount of work the pupils cover in a semester is within their grasp. Therefore, from the standpoint of habit formation in the thinking processes both as to speed and thoroughness, and from the standpoint of hygienic mental training and development from every angle, children are fed on an educational diet which agrees with them and enables them to grow naturally. In other words, the bright child is not held back and the dull one pushed ahead as is usually the case when children are grouped at random or by unscientific methods. If it be true, as some psychologists say, that bright children oftentimes have fixed their habit of reading as to speed, eye-movement, etc. by the time they have finished the third grade, then great injustice is being done to bright children all over the country since they are forming the habits of ordinary children because they are trained only as ordinary children. The ideal school would be one in which every child progressed according to his own mental level of intelligence and rate of mental

development. This, at present, is impracticable, especially if carried out in its minutiae, since such an organization would undoubtedly entail large expense. The Winnetka schools, near Chicago, are trying out this experiment.

A step can be taken in that direction, however, by grouping together children who vary no more than a year or a year and a half in mental age, instead of following the usual practice of putting children into the same class who differ by as much as three or four years in mental abilities.