A STUDY OF A MODIFIED PLAN OF GROUPING
PUPILS IN A LARGE ELEMENTARY SCHOOL

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by
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CHAPTER I

INTRODUCTION

Statement of the Problem

Our democratic ideal of life guarantees to every man the right to develop to the fullest of his capacity. Education in a democracy is based on the assumption that every child is unique and has the right to attain his optimum in development. Education ideally is individualized to meet the needs of each unique child. He is helped to achieve and carry out purposes commensurate with his ability and interests. His uniqueness is respected.

The school has the problem of how best to meet the needs of each child in a heterogeneous group and of how to individualize instruction so that it fits the needs and challenges the abilities of all. Quoting Walter W. Cook by permission:

When teachers are asked to state the most difficult problems they face in the classroom, their answers tend to cluster about those problems involved in adjusting instruction to the wide range of the needs and abilities of individual pupils - how to motivate different pupils, how to find material suited to their various levels of ability, how to differentiate assignments, how to diagnose and correct difficulties, how to present materials to different pupils, and how to test and evaluate achievement. As the teacher spends her energies day after day searching for the solutions to these problems, she continues to hope that some plan of promotion and grouping will be found that will make future classes more homogeneous.
and reduce the difficulties of her task.  

It was decided to experiment at Bowman School, Mansfield, Ohio with a plan whereby individualization of instruction might be made easier for the teacher in that she would not have the full heterogeneous range of abilities to reach but which plan would not create a homogeneous grouping unlike society. The problem of this thesis is whether pupils can be grouped to reduce heterogeneity in the classroom while still maintaining a life-like situation.

Purpose of the Study

Many administrators have tried to reduce the variability in their classrooms. It is oftentimes felt by the teacher that a group is so completely heterogeneous that an almost insurmountable obstacle confronts directed group learning and group experiences. Walter W. Cook states that:

In any grade above the fourth a teacher may expect that almost the complete range of elementary school achievement will be represented. The only thing we can say with assurance regarding a seventh-grade pupil is that he is in the seventh grade. His achievement in any subject may be anywhere from that of an average second grader to that of an average senior in high school.

The efforts of the administrator and teacher to reduce this variability often results in homogeneous grouping.

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2 Ibid, pp. 29, 30.
In homogeneous grouping it is often assumed that the group is homogeneous and that each member of the group will respond to like instruction and will carry out like purposes and goals. Instead of promoting sensitivity to individual differences homogeneous grouping may make for mass treatment. Another limitation to homogeneous grouping is its separation of children into classes. The children and parents become aware of the homogeneous grouping and those in the bright group, however designated, may get the idea they are privileged or better than others, while those in the low group may feel stigmatized. This warped social sensitivity will not benefit them or others in a heterogeneous society.

The purpose of this study is to see if the heterogeneity of a classroom can be reduced through grouping without running into the limitations of homogeneous grouping. This thesis proposes to study the modified plan of grouping to see if it is successful in making easier the individualization of instruction, and if it has brought about any credible increase in the quality of children's work, perhaps due to the greater individualization of instruction.

**Definition of Grouping and the Philosophy of Grouping**

The meaning of the term grouping has changed in the educational literature of the last twenty years. This change in meaning has come about as the influence of organ-
ismic psychology has permeated the organization of our schools. As schools have begun the transition from the traditional type to the progressive type of organization, grouping has taken on a broader meaning. In the traditional school grouping came to mean a fairly inflexible stratification of school room society. Grouping signified the segregation of children into limited groups as a result of some common characteristic. The common characteristic was usually the possession of a certain amount or degree of intelligence or the lack of a specific level of intelligence as determined by tests. In other cases the groupings were based on achievement tests in school subjects. Such groupings of children were known as homogeneous grouping or ability grouping. While any plan which seeks to reduce heterogeneity forms homogeneity, there are here two conceptions of the problem. Homogeneous grouping, according to Burr\(^3\), places children so that they will be as nearly alike as possible in achievement in school subjects, while ability grouping places children according to innate ability or the capacity to do school work. Obviously one plan seeks to put together children whose subject matter needs are alike, whereas the other puts together those whose mental levels are similar, without regard to subject matter achievement levels.

Homogeneous grouping is inherent in the philosophy of the traditional school. The traditional school put its emphasis on the learning of subject matter for future need. The teacher played a more or less autocratic role of task-master or accepted fixed subject matter requirements of a text or course of study in determining the future needs of the pupils and in seeing that each child accomplished the same pre-determined goals.

Since the traditional school had as its goal the mastery of subject matter, it follows logically that any plan of organization which facilitates the teaching of subject matter is good by that criterion. The placing together of children of like ability would seem to guarantee better subject matter results. The slow pupils would not hamper the bright pupils and the slow could be given extra specialized drill as it seems logical that more drill is necessary in order that the slow may "catch on". Sauvain states that:

Many who make claims for grouping are influenced by philosophies which are based upon the traditional type of school, with subject matter mastery as the chief goal. The system is largely organized with a view to more intensive mastery of bits of subject matter, the arguments being advanced that under grouping the slow pupils do not hold the bright ones back, that the slow pupils do not become discouraged by being in close contact with the bright who master subject matter so much more easily, that it is less difficult for teachers to teach under ability grouping (teaching again meaning getting bits of subject matter mastered), that the curriculum (subject matter) can be more readily
adapted to the needs of individual pupils, in short that the use of ability grouping leads to more efficient mastery of subject matter by all concerned.\(^4\)

The traditional school does not recognize that the individual develops and grows intellectually, spiritually, and socially through participation. It looks upon the child as having a fixed place in a rather static society. The child's innate intelligence was thought to be the deciding factor in determining his place in society. Organismic psychology has brought about a new concept of intelligence and development. Man does not have static qualities and his place in society cannot be predetermined. Man is dynamic, not passive. He has an energy system which is constantly seeking release from tensions. These tensions keep man in a becoming process and all action is a constant readjustment to his environment. Man is multi-potential and can become one of many selves according to his experiences or adjustment to his environment. This organismic viewpoint conceives action as caused or purposeful. Man's energy is released for a purpose, for achieving a goal, as tensions are built up and as tensions are released. There is a biological necessity for activity as death will ensue when man is in perfect equilibrium and has no

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more tensions or no more adjustments to make to his changing environment.

Organismic psychology shows us that intelligence is not the ability to memorize or master subject matter in a traditional school nor is it something that can be measured specifically on a test for the purpose of placing children in like groups. Intelligence in action is the practical ability to use experiences. Dr. Goddard defines intelligence as "the degree of availability of one's experiences for the solution of immediate problems and the anticipation of future ones."5 Alice V. Keliher thinks of intelligence not as "scholastic aptitude" but as a "dynamic factor in the organization and integration of experience." She believes that intelligence is ever growing and changing and is only truly tested through behavior. To quote Dr. Keliher:

Intelligence in this broader way of thinking is intelligent action, and its test is in the active display of deliberation and choice. Intelligence, thus expanded, liberalized, and released from its academic limitations becomes at once the property of each individual.6

Progressive education takes its philosophy from organismic psychology. Every child has intelligence, has pur-

5 Quoted in a letter from H. H. Goddard in Dr. George W. Crane's column in The Columbus Citizen, Columbus, Ohio for July 16, 1946, pp. 9.

poses and goals, and reacts and adjusts to his environment. Every child lives in an ever changing environment and is ever in the process of becoming. Therefore the narrow confines of the traditional school and of homogeneous grouping are no longer feasible. The progressive school has become a place where children "learn by doing", where children participate, plan, create, and evaluate. The emphasis is put on the purposes, needs, and initiative of the children. No longer does the school rely on subject matter as an end in itself, but uses subject matter as a means of using past experiences of the race in furthering present day growth and understanding. The school provides a living, vital environment in which the child learns to purpose wisely with a group and learns group interaction, integration, and democratic principles. This is where the term "grouping" develops a different meaning than in the traditional school. The group becomes a flexible, changing part of society bound together by common interests and purposes as in real life. The group is no longer homogeneous in subject matter abilities and is no longer limited to a certain membership as a result of intelligence tests.

The group in a progressive school achieves its full importance as a learning device because it is realized that the individual can develop to his fullest only in and through experiences with others. The function of education
is to develop social behavior and this comes only through experience in living and interaction with other unique and varied personalities. Baxter and Cassidy make the statement in their book that:

The group exists for the individual -- never is the individual the tool of the group. The end is the individual's growth; the group experience is the means; individuals are never to be used as means with the development of the group as the end. It is clear, then, that the group exists for the individual because upon the individual rests the responsibility for all action. Any group accomplishment is simply the concerted action of individuals. The group is suggested as the matrix within which individual persons react to one another and at the same time act for one another. It serves as a socializing agency and as a means of personal development. 7

In their book Leonard, Miles, and Van Der Kar 8 think of grouping as socializing. They see children of similar interests and abilities working together in the same classroom but in a flexible, changing group. The smaller group of children can arrange themselves informally about a table or around the teacher and the social atmosphere of the small group helps overcome any feeling of timidity or self-consciousness. In these small groupings the teacher can make allowance for individual differences and adapt the curriculum in such a way that the bright child is kept working to

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capacity, while the slow child is kept thinking constructively and functioning as a part of a successful group experience. These authors state that these groups should never be named in any way so that the children believe that one group is more fortunate than another. Alice V. Keliher conceives of a school group as a small society in which allowance should be made for the "flux and interchange" which is found in society. She says:

It is conceivable that groupings within schools should be made and remade on the basis of common purposes and needs. This might, within reason, often mean that children of various ages, various intellectual levels, and various school attainments would form a temporary grouping for a particular purpose. 9

Although the philosophy of grouping has changed, as has been shown in this chapter, still the lag between philosophy and practice is great. The slow permeating hold of conservative thinking supports many traditional practices such as that of inflexible grouping according to ability. Many schools have moved toward socialized, flexible grouping according to interests, purposes, and needs of the children, while other schools still feel the need of the traditional idea of grouping but also realize the import of the new psychology and the more democratic philosophy. These schools cling to both as in modified grouping.

9 Keliher, op. cit., p. 150.
Homogeneous grouping arose from the desire to organize schools in such a way as to care for individual differences of pupils in the ability to achieve in regard to the learning of subject matter. This desire was one direct result of the influence of the Stanford Revision of the Binet-Simon Intelligence test in 1916. Educators then believed that they had an absolutely valid measurement of any given pupil's native capacity and of the pupil's degree of brightness or dullness. In keeping with this belief, Thorndike made available research findings which showed that excellence in reading or arithmetic tended to go with a high intelligence score and handicaps in reading or arithmetic tended to go with a low intelligence score. Thorndike's theory that high intelligence and high achieving tend to go together did much to promote the widespread of homogeneous grouping in the elementary school. Ralph McGaughy states that:

...the theory of homogeneous grouping was accepted in many cities before acquiring experimental evidence as to how the plan worked in actual practice. Thorndike said, 'Good things tend to go together'. It must follow that those children whose scores were high on intelligence tests would be outstanding in their abilities in the traditional subjects of the elementary
So without more ado many school administrators over the country adopted the seemingly logical basis of placing pupils of a single grade into supposedly homogeneous groups. Those with high scores on intelligence tests were placed in so-called "bright groups", those with low scores in "low groups", and those with average scores in "middle groups". The development of group intelligence tests greatly facilitated the ease with which pupils were tested and assigned to their respective groups.

Following this trend to homogeneous grouping, many studies were concluded presenting data both for and against ability grouping. In this chapter the writer will attempt to review some of the important studies presenting data on the subject of grouping.

Billet made a study in which he shows that homogeneous grouping is a practical way to individualize instruction. His experiment was conducted with ninth grade pupils for a period of three years. Each year a control group of heterogeneously grouped pupils was maintained. He presents data to support his conclusions that in homogeneous grouping,


2 Roy O. Billet, A Controlled Experiment to Determine the Advantages of Homogeneous Grouping. Unpublished Master's Thesis, Ohio State University, Columbus, Ohio, 1927.
(1) most of the advantages in gain go to the pupils of low intelligence quotient, (2) that the average profit but not so much as the slow, (3) that the bright lose a little in measurable results due to the fact that in the heterogeneous group the activity, recitations, and adaptation of the class is instinctively around the few bright ones in the class, while in a class which is composed of many bright students, each student does not receive the individual attention he receives in a class of fewer bright ones. Billlet recommends homogeneous grouping since "no teacher in one and the same recitation can supply the materials and occasion for the educational activity most profitable to all three types". 3

Burr 4 conducts a study in which it is shown that homogeneous grouping is not justified by the fact that Group I exceeds Group II on the average in achievement and that Group II exceeds Group III, etc. Grouping according to intelligence has been justified on that basis and the fact ignored that there was a great range of achievement represented by the medians of groups on the same intelligence level but in different schools. He examines some educational achievements of homogeneous groups to determine variability and the overlapping of achievements within a grade. A

3 Ibid, pp.113-14.
4 Burr, op. cit.
purpose of the author was to evaluate statistically the extent to which homogeneous grouping eliminates the need for further adjustment to individual differences in achievement. Burr secured the test records of over three thousand pupils in the 4th, 5th, and 6th grades of six large cities. His data shows that when groups are made non-overlapping in achievement in a subject as reading they overlap greatly in other subjects. When groups are made non-overlapping in one phase of a subject, such as arithmetic reasoning, they overlap greatly in other phases of the same subject such as arithmetic computation. There can be no specific basis for forming groups that will be really homogeneous because pupils themselves are not homogeneous and the problem of individual differences still remains.

Keliher\(^5\) makes a study of homogeneous grouping after setting up values which should come from education. She believes that education is life and that the school should deal with the child as a whole. The child should be treated as an integral organism whose every experience alters his whole organism. This study was made with the purpose of safeguarding the whole child. Keliher states that grouping is assumed to reduce the variations within a grade but the restriction of deviations would have a deadening influence on society. The school grade is a small society and

\(^5\) Keliher, op. cit.
to reduce variations within that small society may result in mediocrity, as we move ahead on "unique superiorities".

Keliher chose groups which could be said to typify progressive public school practice, which were heterogeneously grouped. She observed responses and found that situations can and do exist in classrooms where the academically slower children respond and enter into an activity as do the bright children. She also conducted an experiment with homogeneously grouped children to find out if children knew what group they were in and what it meant. The conclusions were that the children did seem generally to know their own grouping and many responses indicated the presence of self-pictures, a large number in terms of inferiority or superiority to other children.

Sauvain\(^6\) set up a study to try to determine how grouping affects most children. Since it is practically impossible to get any real measure of the way in which grouping affects children from the children themselves, he decided the best alternative was to find out what those closely associated with children think about its affect. Those people were the parents and teachers.

Sauvain sent a questionnaire to cities where grouping was extensively used. There were check blanks for administrators, teachers, and parents. Sauvain concluded from

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\(^6\) Sauvain, op. cit.
his data that parents on the whole, were favorable to the use of grouping, especially the parents of children in the higher sections. Many more parents said they knew the ability sections of their children than did correctly state the sections. This happened twice as often among the parents of children in slow groups, as they either did not admit that their children were in slow groups or did not know it. Parents knowing and admitting that their children were in slow groups were more opposed to grouping than other parents with children in slow groups, while parents knowing and stating that their children were in bright groups were far more in favor of grouping than other parents having children in bright groups. Over four fifths of all parents believed that their children knew in which ability section they were placed. Teachers and administrators seemed to like ability grouping somewhat more than did the parents. They believed that grouping improved social attitudes, led to better work by pupils and increased the happiness of children.

Another experiment in the field of grouping was conducted by Hartill. His purpose was to determine whether under a plan of homogeneous grouping in which adjustments were made in the program to fit the ability of the pupils,

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the mean accomplishment of children in certain grades of the elementary schools in New York City was higher in certain traits than under a plan of heterogeneous grouping in which there was no adjustment made. Children from 5A grades, 5B grades, and 6A grades in which each grade had three classes were used in the experiment. Half of the children were grouped homogeneously and the other half heterogeneously. In the homogeneous groups the slow children were given more time for drill while the brighter spent more time in creative work. The following term those who were grouped heterogeneously were grouped homogeneously, and vice versa.

Hartill concluded from test results that when all the children were considered as one group there were no significant differences between the gains made by those in homogeneous grouping and by those in heterogeneous grouping. The bright children as a group made larger gains in subjects tested under heterogeneous grouping with the exception of reading. Dull children made larger gains under homogeneous grouping and normal children did equally well under either method. Hartill concludes that the kind of homogeneous and the kind of heterogeneous grouping that was studied put undue emphasis on subject matter mastery. He believes that heterogeneous grouping would be better than homogeneous if the emphasis were placed on the child rather than on subject matter. One cannot help but wonder whether the opportunity to experience creative learning was a privilege which favored
the brighter groups. Drill may have had deadening effects which reduced achievement.

McGaughy\(^8\) devotes a chapter to the discussion of homogeneous or ability grouping. He uses as the basis for his statements studies which indicate that grouping produces good results and other researches which take the opposite stand. It seems to McGaughy that it is reasonable to conclude that the problem of grouping, in the light of present evidence, must be solved on the basis of the philosophical or psychological problem involved, rather than on the statistical evidence of the achievements of pupils. The person evaluating grouping has a set of values which should show grouping to be right or wrong, better or worse. McGaughy shows that the correlation coefficient among the scores on tests has very little predictive value in the grouping of children. A child's being good in one test is no prediction that he will in another. No child is himself homogeneous but differs widely in his various capacities and abilities. He may be a genius in one field and be a moron in another. He may suffer from administrative labeling as dull or slow as the result of grouping. McGaughy sees as the best solution a teacher who is aware of abilities, capacities, and interests, and assumes responsibility for guiding each child to do better what he can do, in a heter-

\(^8\) McGaughy, op. cit.
Eisenhart gives a description of a modified plan of grouping. He reports that it has done away with several bad features of homogeneous grouping and has permitted the promotion of almost every child, but he presents no statistical data. According to Eisenhart an unfortunate situation grew out of the grouping of pupils into fast and slow groups. The parents were dissatisfied and the children were oversensitive. The result was very disastrous to the personalities of the children involved. Children from the "fast-room" ridiculed children from the "slow-room" taunting them with the fact that they belonged to the "dummy" room. Serious discipline problems developed. To remedy this situation the children were divided into two average groups, namely a high-average group and a low-average group, and into a high group and low group. A low-average and a high group were assigned to one classroom and teacher and a high-average group and a low group were assigned to another classroom. The enrollment of the two rooms was as follows:

| High-average group and Low group | High group and Low-average group |

The children were divided according to I.Q., the high group having I.Q.'s of 100 and above, the average group, 75 to 99,

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and the low group, 74 and below. Also achievement tests and teachers' ratings were considered in the placement of the children. The children were shifted from one group to another depending on their work. In the year of his report 67 pupils were transferred from a lower to a higher group, and 52 from a higher to a lower group.

Eisenhart and three fourths of all the elementary teachers believed that the placing together of two groups of pupils to the same room, who differed more or less in ability, reacted favorably upon each other, stimulating and inspiring to better work.

These studies for the most part show overwhelming evidence that homogeneous grouping is not based on sound principles. They indicate that homogeneity cannot be obtained and that the problem of individual differences still remains.
CHAPTER III

INVESTIGATION OF THE PROBLEM

Description of the Situation

The school in which the experiment of modified grouping was carried out was Bowman School, a large elementary school of Mansfield, Ohio. Mansfield is an industrial town with a population of approximately 40,000 people. Bowman School is located in a rather below average residential district. While many children come from good average homes, many others come from overcrowded dwelling houses in which a number of families live, and from below average homes around the steel mill. Most of the parents are skilled, semi-skilled or unskilled laborers and many of the mothers are employed in factories or restaurants. Many of the children are of foreign nationality and many others have recently moved to Mansfield from Kentucky. A number of the children have no books at home, and their parents regard the school as a place where one receives textbook learning and drill in subject matter. Their parents judge their success in school almost exclusively by the marks on their grade cards.

Bowman School has an enrollment of approximately 875 pupils, some of whom are brought to school by bus from the country and from Roseland, a housing addition near Mansfield. The classes at present have an enrollment of from 35 to 40,
although three years ago when the grouping plan was installed the classes were much larger, averaging from 45 to 48 pupils. The decrease in enrollment was brought about by sending some of the bus pupils across town to another school. There are three sections of each 4th, 5th, and 6th grades and four sections of each primary grade. The school has a faculty consisting of a principal, twenty-four teachers, and a nurse who is in the building part of each day. A psychologist, two visiting teachers, and an attendance officer are also available.

The cultural, social, and economic backgrounds of the children are very heterogeneous. Due to this extreme heterogeneity and the large size of the classes, it was very difficult for the teacher to give each child the individual attention he needed. Some children were attempting to work beyond their capacity with the result of becoming bewildered, nervous, and showing signs of anti-social behavior. Some children were not working up to their capacity due to lack of group motivation to work beyond the achievements of the average. As an attempt to overcome these shortcomings, the principal, Mr. Edward Kissel, worked out a plan whereby the shortcomings would be modified somewhat. Instead of each teacher having the full range of heterogeneous ability in her room she would have two distinct groups. These two groups in a room would provide a heterogeneous situation similar to society, yet would not be entirely lacking in homogeneity.
with which to work. Since there were three teachers to each grade, the children were listed as to mental age and divided into sixths. Following this first year of grouping the children were placed according to I.Q. instead of mental age. Each teacher received two groups but not the groups next to each other. This diagram shows how the groups were arranged.

Teacher A has placed in her room the top sixth of the pupils but also has the sixth just below the median. Teacher C who has the lowest sixth also has the sixth just above the median. Teacher B has the sixth next to the highest and also the sixth next to the lowest. Each teacher has two distinct groups on the ability scale, yet there is no class obviously better than another or obviously poorer as meets the eye.

It is probably pertinent to state here that the desired result of this grouping was not in reference to subject matter gain alone in the traditional sense. While it seemed necessary in this school to put a great degree of emphasis on text book material, a great deal of em-
phasis was also put on the child's needs and problems of adjustment. The text books are supplemented by concrete situations, projects, and school trips. Home visits are often made and suggestions offered to the parent for promoting the child's healthy development. It seemed possible in this grouping plan that some children with like difficulties and problems in the subject matter skills and in adjustment to school would be brought together in the same group, which would facilitate the dealing with these various needs and reduce the wide range of special needs considerably.

How the Situation Was Studied

Since one of the purposes of the grouping was to better meet individual needs while teaching the school subjects, it is well to look at the achievement of the pupils. The writer began the study by obtaining from the cumulative records of the sixth grades the test data which could be compared for improvement in school work. The children had been grouped since their entrance into the fourth grade. So the third grade test records were compared with the fourth grade test records to see if any large gain was made which might be attributed to the grouping. The test records for the achievement test given in September and April of the sixth grade were also obtained to see if any exceptional gain occurred during a year of grouping. The test records were procured from another school of approximately the same socio-economic
standing in which this kind of grouping was not practiced. Test records of children of similar intelligence quotients were compared with those of the children who had been grouped for three years. Thus there was a control group with which to compare the gains made in school work as shown by tests.

The sixth grade of the school which was chosen as a control group was also large enough to be placed in three sections with three teachers. The classes in the control group had a little smaller enrollment per teacher which could influence the results, but otherwise conditions seemed fairly even. The gains of the total number of children in each school were not compared for a few of the children enrolled in each room had not been in the school since the third grade. There were also children for whom the test results for the three years were not complete. Also only the children who had been promoted were included in the experiment although some were included who were overage due to previous retention in a grade.

Another purpose of the grouping was to better meet individual needs in promoting the whole development of the child, so it is well to look beyond the mere subject matter gains. It is difficult to determine many results of grouping, such as social adjustment, changes in attitudes, interests, or work habits. Cornell, who made a study of the effects of grouping determinable from published studies, found that practically no evidence was attainable on this topic except the opinions
of principals, teachers, parents, and occasionally of children. Nevertheless, the effects on the pupils should be the most important consideration in grouping although it is almost impossible to measure objectively. Therefore it was decided to get the opinions of the teachers of the experimental groups as to the effects of the grouping.

This chapter describes how the data were obtained which will be presented in the following chapter.

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CHAPTER IV

THE DATA

As has been stated in the preceding chapter, test results were obtained for purposes of comparison. Table I shows the grade achievement in grade and months of the experimental and control groups and the gain made between the giving of the first test and the follow-up test. In the third grade the children were given the Metropolitan Achievement Test on March 2, 1943 which was followed by the same test the following year on February 9, 1944. At the time of the third grade test, all the children were heterogeneously grouped but at the beginning of the fourth grade the experimental group had been placed in a modified grouping situation. In the sixth grade, the children were given the Progressive Achievement Tests, Elementary Battery, Form A of the California Test Bureau on September 20, 1945 and the same follow-up test on April 10, 1946. At this time, the experimental group had been placed in a modified grouping situation for three years while the control group was still in heterogeneous sections. The forty five children chosen from each situation for purposes of comparison were chosen by matching intelligence quotients as closely as possible with regard to both the California Test of Mental Maturity given in the third grade and the Herron Nelson Tests of Mental
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<table>
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<th>Percentage of Experimental Gain</th>
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**TABLE I**

GAINS IN TEST RESULTS OF EXPERIMENTAL AND CONTROL GROUPS.
Ability, Form B which was given in the sixth grade. That is if the child has a certain score on the third grade intelligence test, he may be compared with a child who has a similar score, but not if that child makes a high score on the sixth grade intelligence test while the other child for some reason makes a low score. Both scores were taken into consideration. This method of comparing pupils who seem approximately equal in intelligence which might bear on the progress shown by the tests is used by Purdom in similar tables.

Table I shows the gain made in several subject matter fields and also total achievement by each pair of children, for example, the tenth pair, the experimental child shows a gain of .4 or 4 months in total achievement between the third and fourth grades while the control child shows a gain of .7 or 7 months. These same children in the sixth grade show a gain in the interval between the two tests in total achievement of .6 or 6 months for the experimental child and of 1.6 or one year and six months for the control. These gains are averaged for each group in order that it may be seen if the experimental group shows a superiority over the control group in total gains in school work. In Reading, the whole experimental group showed a mean gain of .68 or 6 4/5

1 Luther T. Purdom, The Value of Homogeneous Grouping, University Research Monographs No. 1, Baltimore: Warwick and York Inc., 1929, pp. 38-41
months between the third and fourth grades while the control group showed a gain of .72 or 7 1/5 months between the third and fourth grades. The experimental group shows a minus superiority, the control group having gained .04 or 2/5 of a month more. In the third and fourth grade tests the control group shows a higher gain in all subject test gains with the exception of Spelling.

In the sixth grade tests in Arithmetic, the total experimental group shows a mean gain of .58 or 5 4/5 months while the control group makes a gain of 1.16 or one year, one and three-fifths months. The control group shows superiority in gain by .58 or 5 4/5 months. In the sixth grade tests, the control group shows superiority in all subject test gains with the exception of Language. The experimental group is superior by .21 or 2 1/10 months gain over the control group between the two sixth grade language tests.

In Figure 1, the total achievement on the California Progressive Achievement Test for September is presented in graphic form so that a comparison between the achievement of the experimental and control group can be made. In September the achievement of the experimental group seems to be more bunched in an area of from 4.5 to 7.4. The distribution of the control group is more uneven. Figure 2 shows the distribution of the two sixth grade groups in the April test. The distribution shows improvement for both groups. The experimental group does not show such a bunched distribution
TOTAL ACHIEVEMENT ON CALIFORNIA PROGRESSIVE ACHIEVEMENT TEST OF THE TWO GROUPS OF FORTY-FIVE CHILDREN, SIXTH GRADE IN SEPTEMBER.
TOTAL ACHIEVEMENT ON CALIFORNIA PROGRESSIVE ACHIEVEMENT TEST OF THE TWO GROUPS IN APRIL.
in April but is distributed over a wider range.

Figures 3 and 4 show the distribution of the experimental and control group in norms on the California Progressive Achievement tests given in September and April. In the control group more children have shown progress from a lower percentile rating to a higher one. These percentiles presented here in graphic form are also listed in Table I. In September, fifty-three per cent of the experimental group had a percentile of fifty (the standard norm) or over while the control group had sixty-four per cent of the children at the fiftieth percentile or over. In April, fifty-seven per cent of the experimental group were on the fiftieth percentile or over as compared with sixty-eight per cent of the control group.

Table II has included the grade achievements of the total sixth grade enrollment of the two schools with no selection of children in matched pairs as to intelligence or with no regard to numbers of pupils. The scores of each of the three sections are given and the mean grade score computed to see if the experimental school has any superiority in grade scores when its total enrollment which has been placed under a modified grouping situation is considered. In almost every case the control school has achieved a mean grade score which is superior to the experimental. This bears with the results found in Table I, where only a matched number of pupils from each school were taken into consideration,
FIGURE 3

PERCENTILES ON CALIFORNIA PROGRESSIVE ACHIEVEMENT TEST, SIXTH GRADES IN SEPTEMBER

Experimental

Control
PERCENTILES ON CALIFORNIA PROGRESSIVE ACHIEVEMENT TEST. SIXTH GRADES IN APRIL

FIGURE 4

Experimental
Control
## TABLE II

**COMPARISON OF THE TWO SCHOOLS IN GRADE ACHIEVEMENTS**

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<th>Arithmetic</th>
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**Total Number of Cases**: 103 88 103 88 103 88 103 88 103 87 103 87

**Grade Median**: 5.75 5.75 6.25 6.25 5.96 6.00 5.87 5.87 5.87 6.57 5.87 6.57
that this plan of modified grouping did not result in superior subject matter gains.

Another factor bearing on the study is the influence of the modified grouping upon the attitudes and adjustment of the children who are involuntarily placed in a certain group. In Chapter II, studies of homogeneous grouping are reviewed in which it is concluded that homogeneous grouping often has undesirable effects on personalities and their social development. It is of prime importance to know if this holds true in modified grouping. This cannot be decided with certainty but conclusions may be drawn from what the teachers have observed in three years of grouping as these teachers have been concerned with the children's individual needs and adjustments.

The teachers were asked several questions by the writer. They were asked in a personal interview if the children knew and understood the grouping and if they had any evidence that the parents knew of the grouping. The teachers were certain that the children did not know of the grouping at all. The situation appeared to the children and parents to be that of a heterogeneous group, as far as was possible to determine. No evidence had come to the administrative office that the children or parents regarded the sectioning of the rooms to be different from that of the usual heterogeneous sectioning in the primary grades. If there were any truth in the old maxim, "What one doesn't know, doesn't hurt
one"; it might be safe to assume that if the children are so grouped that they appear to be in a heterogeneous, life-like situation, no harm is done to their personality development as a result of the grouping. It seems that this modified grouping has eliminated the idea of the "bright group" and the "dull group" since two sections, widely differing in range of ability, were in each room.

On a questionnaire, the teachers were requested to answer these questions:

1. Does the grouping plan at Bowman School simplify the work for the teacher by reducing the range of individual differences?

2. Do you think the children can accomplish more and adjust better to their group since there is not such a wide variation in ability in their room?

This questionnaire was given to the ten teachers of the 4th, 5th, and 6th grades in the experimental school. To the first question, eight teachers answered "Yes", and two teachers answered "No". To the second question, nine teachers answered "Yes", and one teacher answered "No". In this modified grouping situation eighty per cent of the teachers believed that their work had been simplified due to a reduction in the range and variety of necessary provisions for individual differences, while ninety per cent of the teachers believed that the children were better adjusted due to this same reduction in variation.

In this chapter the data obtained during the course
of the study have been presented. In the following chapter, a brief summary will be given and conclusions will be drawn from the study.
CHAPTER V

SUMMARY AND CONCLUSIONS

This study began as an investigation to see if in a modified plan of grouping, children can be so devised that better provision can be made for individual differences without resulting in the undesirable limitations of homogeneous grouping. This study has shown the limitations of homogeneous or ability grouping as grouping has usually been practiced. Also material is given which shows that heterogeneous sectioning is most in accord with our democratic philosophy of education. Nevertheless, because of reasons stated previously, it was believed that the modified plan of grouping, here studied, might have values for this particular school. Data have been collected from which conclusions might be drawn as to whether in modified grouping the optimum in growth of the whole child can be achieved, not only in subject matter knowledge but in social adjustment, group interaction, and ability to achieve and function as a thinking, creative member of society.

From the test data the conclusion can be drawn that in modified grouping children did not make quite as large gains as children of the control group who were in heterogeneous sections. These two groups were evenly matched as to intelligence quotients so that thus paired, each child except
for other unique differences, might be assumed to have the same opportunity to do equally well in the tests. On the whole, neither group showed a marked superiority to the other group on test results, so the differences, when this is the criterion, cannot be assumed to be significant. Test results of other groups which have been placed in modified grouping for several years could well be compared with a control group to determine if there is any significant difference in the quality of their work as shown by test results. Since the modified grouping in many respects also retains features of heterogeneous grouping in that it sets out to maintain a certain wide range of variability in individual differences in each room, the conclusion might be drawn that no significant difference could be expected in test results, as are found in studies of homogeneous grouping such as the study by Billet which shows that children do better when homogeneously grouped than they do when heterogeneously grouped.

The conclusion may be drawn from the opinions expressed by the majority of the teachers that the grouping did accomplish its purpose in simplifying the work of the teacher in her attempt to adequately deal with all the individual needs and differences found in the classroom. These teachers who were also concerned with the adjustment and healthy social development of the children felt that children were

1 Billet, op. cit.
able to adjust and work together better as a result of being grouped in this manner. Thus from these opinions it may be concluded that the modified grouping does not have a disturbing influence on the personality of the children. The children did not realize that they had been placed in other than a heterogeneous situation, so there has been no evidence of any harmful influences as one might find in the stratification of children into the "bright", "average", and "dull" groups of a homogeneous situation.

Although in the last analysis, in a democratic society, a heterogeneous, flexible grouping in which concern is shown for each child's welfare is preferable, it may be that in certain large schools which seem to have an almost impossible range of individual differences, a modified plan of grouping can be administered in a way which simplifies the teachers' attempt to meet individual needs, while practicing a democratic philosophy of education.
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