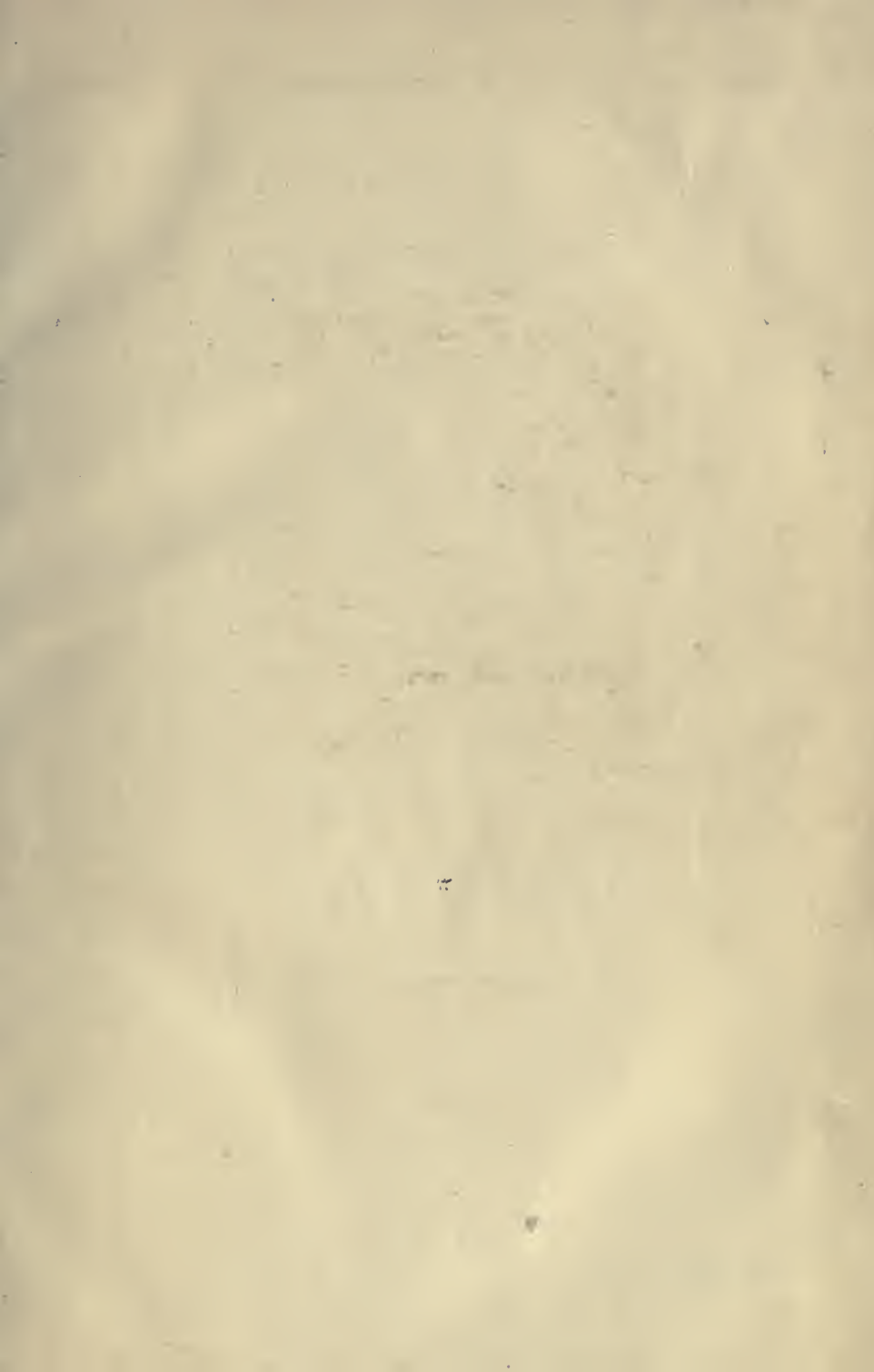


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## SUPERVISED STUDY AS A MEANS OF PROVIDING SUPPLEMENTARY INDIVIDUAL INSTRUCTION

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### *Main points of the paper.—*

1. In recent years the necessity of providing individual instruction to supplement class instruction has been emphasized. Another movement toward greater efficiency of our schools is the growing demand for giving pupils assistance while they are studying and training them in habits of study.

2. To attain both of these ends various plans have been proposed and tried out, one of the best being the provision of organized periods of study, for the purpose of supervising individual pupils who are studying silently.

3. This situation has developed historically according to the following stages:

a) Until the second quarter of the nineteenth century the dominant method of instruction used was the recitation by each pupil to the teacher at the latter's desk, of memorized lessons, often not understood by the pupils.

b) During the nineteenth century, group or class recitations replaced individual recitations in nearly all city schools.

c) Toward the end of the nineteenth century, the necessity of providing variations in instruction was urged in order to adapt instruction to the capacities of individuals.

d) The importance of this point is strengthened by the results of statistical investigations which show that in an ordinarily well-graded class the brightest pupil can do four or five times as much work as the slowest and often twice as much as the average pupil can do in the same time.

e) Home environment is a factor in the formation of study habits. Its influence may be either for good or for bad. The time spent by many pupils in home study is done under such unfavorable conditions as to form bad intellectual and moral habits and to waste an enormous amount of time.

4. During the last twenty-five years, experiments have been organized to provide for individual differences during class instruction. They include the following more important schemes, each having its advantages and disadvantages:

a) The abolition of all class recitation and home study and the substitution of supervised study. This is known as the Pueblo plan.

b) The organization of prescribed supervised study to supplement class instruction; known as the Batavia scheme. It has been tried in high schools in various forms.

5. The experiments which supplement class recitations in the high school with supervised study include the following types:

a) Supervision in the assembly room during the regular high-school study periods by the teacher in charge (Reavis' study program cards).

b) Attendance required of pupils who are falling behind during supplementary supervised study period (Detroit and University of Chicago High School).

c) Voluntary study hours in each department for pupils needing assistance, supervised by departmental teachers (Pittsburgh, De Kalb, and University of Chicago High School).

d) Use of double or divided periods, one part for supervised study, and one part for class recitation (Joliet, Illinois, and University High School, University of Missouri).

6. The general testimony concerning the efficiency of supervised study in improving the work of pupils is strongly favorable. That of Superintendent Hughes of Sacramento is an example from one of the largest systems which has abolished home study.

7. Exact measurements are needed before final conclusions can be reached. Three examples are furnished of measured superiority secured by supervised study in mathematics and history (University of Chicago High School, and the high schools of Bloomington and Oakland City, Indiana; Mr. Rickard's technique for conducting experiments).

8. A special technique for supervising study must be developed. This is easily done for mathematics, but not for many other subjects.

9. Until the high-school school day is prolonged to seven hours, it will probably be advisable to provide for some home study, especially for the brighter students.

#### *Introduction.—*

One of the most pressing problems before the educational public at the present time is to find a means of eliminating the enormous waste of the time of pupils that results from two conditions which prevail in the schools, namely, the failure to provide for the individual differences in capacity found among pupils in the same class, and failure to organize the studying done by pupils so as to avoid the futile efforts which they now put forth to master lessons assigned for home work. One of the most important factors in solving both parts of this problem is the organization of periods for supervised study during school hours. The

chief purpose of this paper is to describe and evaluate the recent experimentation along this line. A brief discussion of the historical development of the present situation will be presented first as an aid in securing a proper perspective view of the whole problem.

*The first method of instruction was the individual method.—*

It is an interesting fact that the first method of instruction in the earliest schools was entirely individual and not class instruction. An examination of pictures of these schools brings this out very strikingly. They show that pupils were always taught as individuals and not in groups. The teacher remained at his desk and called upon his pupils one at a time to repeat the lesson, giving help or explanation whenever necessary.

How wasteful and unsatisfactory this method was can be understood from the testimony of men who received their education in these schools. Thus, Henry K. Oliver, describing the teaching in the Boston reading schools in 1800, says, "I received about twenty minutes of instruction each half-day, and as school was kept three hundred and sixty minutes daily, I had the privilege of forty minutes' worth of teaching and three hundred and twenty minutes' worth of sitting still, if I could, which I could not, playing, whispering, and generally wasting time, though occasionally a picture book relieved the dreary monotony."<sup>1</sup>

Peter Parley, born in 1793, who was educated in a rural school in Connecticut, describes the method as follows: "The children were called up one by one. . . . She [the teacher] then placed the spelling book before the pupil and with a penknife pointed, one by one, to the letters of the alphabet, saying, 'What's that?'"<sup>2</sup>

Even as late as 1855, Grimshaw, writing in *Barnard's Journal*, deplored the time wasted by the old-fashioned and false method of teaching individuals instead of classes. "I notice," he says, "in my visits to the schools, many pupils sitting idle; sometimes part of the school is asleep, or what is worse, making a noise and disturbing the remainder who desire to be industrious."<sup>3</sup>

Thus it is seen that in the early schools individual instruction was the common method used, although to some of the educators its waste-

<sup>1</sup> Parker, *History of Modern Elementary Education*, p. 83.

<sup>2</sup> *Ibid.*, p. 85.

<sup>3</sup> Holmes, *School Organization and the Individual Child*, p. 13.



fulness was apparent. The simultaneous or class method was adopted very slowly. "The individual method by which the master called his pupils to the desk one by one to recite their lessons and to receive explanations lingered late even in the heart of Prussia and in France it was in vogue as late as 1843 in 5,488 primary schools. In Scotland it held sway in some of the leading schools until well into the last quarter of the nineteenth century."<sup>1</sup>

*Exceptional examples of the early use of class instruction.—*

The method of grouping pupils into classes for simultaneous teaching under one instructor was described at length by Comenius (1592-1671) in his *Great Didactic*, published in Latin in 1657. In this book he gave a systematic presentation of his principles and methods. In the separate classes of his school he wants certain books introduced: "Out of these the teacher will read and reread the lesson for the hour, everyone listening to him. If anybody needs an explanation, he will explain it so clearly that it be impossible that they could fail to comprehend it. Then pupil after pupil rereads the lesson clearly and plainly, the others looking into their books and reading silently."<sup>2</sup>

It is probable that other reformers besides Comenius advocated and used the method of simultaneous instruction, but credit for its practical application on a large scale is due to the Frenchman, Jean Baptiste de la Salle (1651-1719). He organized the schools of the Christian Brethren, an association of Catholic laymen who were pledged to devote themselves to the instruction of the poor children. They used the class method of instruction.

The application of his method of class instruction is described in the *Conduct of the Christian Schools* as follows: "While one reads, all the other children in the class follow the words in their books. The master must watch carefully to see that all read to themselves what one is reading aloud, and from time to time, he must call upon some of them to read a few words that he may take them by surprise and make sure that they are really following the reading."<sup>3</sup>

The schools of the Christian Brethren who used this method of class instruction were without doubt the most effective elementary schools in existence before the French revolution (1789). However, in general

<sup>1</sup> Holmes, p. 12; Landon, *School Management*, p. 119.

<sup>2</sup> *Did. M.*, XXIX, 17, III.

<sup>3</sup> Parker, *op. cit.*, p. 100.

France seems to have clung much longer to the individual method of instruction than her neighbors.<sup>1</sup>

In England the individual method was replaced by the monitorial systems of elementary schools. This was due largely to the efforts of two men, Andrew Bell (1753-1832) and Joseph Lancaster (1778-1838). The monitorial system is a method of dividing the children of a school into groups which are taught by the more advanced and competent pupils. The method had been used by some educators before the time of Bell and Lancaster, but these two educators deserve the credit for perfecting it and for putting it into practice on a large scale. Lancaster had in his school in the Borough Road 1,000 boys. "For several hundred children there was but one master but he had for his assistants a picked company of the elder boys who looked up to him with reverence and rejoiced to carry out his plans. . . . Joseph Lancaster had the skill which gains the loyalty of subordinates, and he knew how to inspire his monitors with fondness for their work and with pride in the institution of which they formed a part."<sup>2</sup>

A defect of this system was the tendency to spend too much effort upon class organization and to overlook the individual. However, it brought about a radical improvement in the methods of school management.

*During the nineteenth century the individual method was replaced by the class method.—*

Being not only superior to the common methods of instruction in its effectiveness, but being also a very economical system, the monitorial form of the class method was adopted in the United States in 1806 by the Free School Society of New York City, and was used in other large cities during the first quarter of the nineteenth century.

The introduction of a system of instruction by which all pupils of a group are taught at the same time made it necessary to group children so as to make each group as nearly as possible uniform in ability so that the instruction would be best suited to their needs. A good classification made it possible to create for the child the best possible conditions for successful school work. This led to the "Graded System," or "Classroom System," the system of grouping together a number of children for

<sup>1</sup> Landon, p. 119.

<sup>2</sup> Fitch, *Educational Aims and Methods*, p. 334.

the purpose of instruction, the instruction being given to them as a group and by a trained teacher.

Dr. William T. Harris who deserves much credit for perfecting this plan says in a paper on "The Early Withdrawal of Pupils from School" (1872) with reference to the ungraded school: "The unclassified school has disappeared from our cities and large villages but still exists in the country districts very generally. Whenever the sizes of the schools have been such as to admit it, a system of classification has been introduced, and the immediate consequences have been (a) a great increase in the length of recitation; (b) far more thoroughness in the discussion of the lesson, sifting the different statements and probing the measuring of the same; (c) great stimulation of the mental activity of the pupil through trial and competition with other members of the class. These three advantages can scarcely be overestimated. They multiply the teacher's power just as organization improves the strength of the army."<sup>1</sup>

*Toward the end of the nineteenth century educators criticized the class method.—*

However, the defects of the graded system had become apparent and were keenly felt by Dr. Harris, as he says in the same paper: "It is this very system that is so organized as to prove the very greatest of all causes for the early withdrawal from school. . . . The tendency of all classification is to unite pupils of widely different attainments. The consequence is that a lesson is too short for some and too long for others. The best pupils in the class are not tried to the extent of their ability. . . . The poorest pupils of the class are strained to the utmost. They are dragged, as it were, over the ground without having time to digest it as they should. This develops the result that the overworked pupils are frequently discouraged and drop out of the class, and likely enough out of the school altogether."

Two years later (1874) E. E. White in a paper on "Problems in Graded School Management" criticized the graded system because of its serious defects: "If the teacher of a class adapt this instruction and requirements to the maximum capacity of his pupils, the great majority are hurried over their studies, and receive a superficial and imperfect training. If he adapts his class work to the minimum capacity of the class, the great majority are held back, and as a consequence, not only

<sup>1</sup> *Proceedings N.E.A.*, 1872, p. 266.



sacrifice time and opportunity, but fall into careless and indolent habits of study."<sup>1</sup>

*The importance of providing for individual differences becomes clear in view of statistical proof.—*

It is generally recognized that many children are not as able to succeed in their school work as the larger part of their class. Apparently, mass instruction under which abler children make normal progress is not efficient for backward children, for the principle that a subject is taught in the same way and to the same extent to every pupil fails to make allowance for the wide range of individual differences. Few persons, teachers included, know how great a variation in ability is found among pupils of the same class. Frederick G. Bonser<sup>2</sup> tested 757 children, 385 boys and 372 girls of the upper division of the fourth grade and of the fifth and sixth grades of public schools Nos. 2, 3, 4, 6, and 9, of Passaic, New Jersey. The tests employed were made up of a series of problems and questions designed to exercise the most fundamental four phases of reasoning activity, namely, the mathematical judgment, controlled association, selective judgment, and that complex of analytic and synthetic thinking used in the intellectual interpretation of literature. Table I gives the combined results of all of Bonser's tests. The table shows great variability within the various grades.

In grade 4 A	the ability	varies from	20	to	245	units.
" " 5 B	" " " "	" " " "	35	"	255	"
" " 5 A	" " " "	" " " "	50	"	265	"
" " 6 B	" " " "	" " " "	70	"	265	"
" " 6 A	" " " "	" " " "	80	"	260	"

It is interesting to notice that a large number of 4 A pupils can do more than some of the pupils in the other grades.

Similar statistics are given by Thorndike.<sup>3</sup> In a test in addition given to 83 seventh-grade pupils, all pupils being allowed the same time, they did from 3 to 20 examples correctly.

The abilities of the fourth-grade girls in thinking of the opposites of words vary from 9 to 24; of fourth-grade boys in spelling from 20 to 99; of sixth-grade girls in observing misspelled words from 10 to 94; of

<sup>1</sup> *Proceedings N.E.A.*, 1874, pp. 266, 267.

<sup>2</sup> *The Reasoning Ability of Children of the Fourth, Fifth, and Sixth School Grades.*

<sup>3</sup> Thorndike, *Principles of Teaching*, chap. vi.



TABLE I  
FREQUENCY OF ABILITIES BY GRADES

ABILITY		GRADE 4 A		GRADE 5 B		GRADE 5 A		GRADE 6 B		GRADE 6 A	
		B	G	B	G	B	G	B	G	B	G
20	to 25		I								
25	" 30	2									
30	" 35	2	I								
35	" 40	3	I		I						
40	" 45	I	2								
45	" 50	2	I								
50	" 55		3	I		I					
55	" 60			I		I	I				
60	" 65	3		I			I				
65	" 70	4	I				I				
70	" 75	3	I		I	2			I		
75	" 80	3	I	I	I	I		I			
80	" 85	3			I						I
85	" 90	4	3	I	I						
90	" 95	5	2	I	I	2	2		I		I
95	" 100	3	5		I	2	I				
100	" 105	I	7		I	2					
105	" 110	5	2	3	I	3					
110	" 115	2	2	3	2		I	I			I
115	" 120	I	7	6	6	2	2	4			I
120	" 125	4	3	4	3	I	5	I			I
125	" 130	4	I	3	4	I	2	I	I		
130	" 135	3	5	3	8	5	2	I			
135	" 140	5	7	3	7			5	2		
140	" 145	4	9	2	4	2	5	2	I		I
145	" 150	4	3	I	4		I	2	3	I	I
150	" 155	2	3	5	6	6	I	4	I	2	I
155	" 160	3	4	4	3	I	2	2	5	I	I
160	" 165	I	5	4	3	4	2	2	2	I	
165	" 170	I	I	2	5	4	3	8	5	3	I
170	" 175	2	I	4	2	4	3	3	3	3	4
175	" 180	I	2	3	3	3	3	6	4	4	
180	" 185	I	I	4	3	I	2	4	7	3	3
185	" 190	I	I	I	4	2	3	5	5	I	3
190	" 195	I		3	3	2	2	4	3		2
195	" 200	2		4	2	5	2	6	6	3	3
200	" 205					3		4	4	3	5
205	" 210	2	I	3	2	I	5	7	4	I	2
210	" 215			3	2	2	2	5	5	3	5
215	" 220	2		I	I		I	2	4	2	3
220	" 225	I		I		I	I	I	3	I	6
225	" 230			I				3	2	4	2
230	" 235		I	I	I			2	3	4	I
235	" 240	I				I		I	3	2	7
240	" 245	I						2	I	4	
245	" 250							4		I	I
250	" 255			I				2		2	2
255	" 260							2	I	I	
260	" 265					2	I				

"Grade A" means upper; "Grade B" means lower.  
The columns headed "B" and "G" represent "Boys" and "Girls" respectively.

eleven-year-old girls in addition from 5 to 44; of ten-year-old girls in rapidity of movement from 6 to 41 (number of crosses made in a fixed time); of twelve-year-old boys in observing letters from 28 to 71.

"The range of ability in school children of the same age (defectives not included)," says Thorndike, "is such that in a majority of capacities the most gifted child will in comparison with the least gifted child of the same age do over six times as much in the same time, or do the same amount with less than a sixth as many errors. The teacher of a class, even in a school graded as closely as is possible in large cities where two classes are provided in each building for each grade and where promotion occurs every six months, will find in the case of any kind of work some pupils who can do from two to five times as much in the same time or do the same amount from two to five times as well as some other pupil."

Mr. Search gives the following statistics on individual differences.<sup>1</sup> Members of Holyoke, Massachusetts, grammar school class of 24 pupils representing an ordinary well-graded class accomplished, in the same time, pieces of work in arithmetic varying from 140 to 479. In the Central High School of Pueblo, Colorado, pupils representing an average class in a graded school covered from forty to one hundred chapters in Caesar in the same amount of time when each pupil was permitted to advance at his own rate. In the Field High School of Leominster, Massachusetts, a senior class in review geometry showed a working ability ranging from 40 to 168 units of work.

In view of the fact of these individual differences, it becomes evident that the principle that a subject is to be taught in the same way and to the same extent to every pupil applies neither to the slow nor to the bright pupils. The bright pupil commonly has to be idle half of his time. The slow pupil is being hurried constantly. Not only does he fail to get clear understanding, meeting difficulties for which he is not prepared, but often because he needs more time than his classmates, he is being looked down upon by them. It is not surprising that he becomes discouraged, and failing in his work, drops out of school. Inability to understand the work and difficulties within the course are among the chief causes of failures. With some encouragement and individual attention, many pupils would be saved from failing. The large number

<sup>1</sup> P. W. Search, *An Ideal School*.

of failures in our high schools demands serious consideration on the part of every teacher.

C. R. Rands and H. B. Kingsbury<sup>1</sup> found recently that, in 46 high schools with an enrolment of 33,276 pupils studying English, only 81.44 per cent passed. In the same schools only 75.25 per cent of 24,404 pupils studying mathematics were able to receive credit.

A committee of the Chicago High School Teachers Club reports the statistics of failures in the Chicago high schools, as given in Table II.<sup>2</sup>

TABLE II

	NO. OF PUPILS		NO. FAILED		PERCENTAGE FAILED		AVERAGE PER CENT	PERCENTAGE FAILED IN	
	Boys	Girls	Boys	Girls	Boys	Girls		Eng.	Math.
First year . . . . .	279	375	176	135	49	40	44.0	14.6	26.0
Second year . . . . .	212	343	63	100	29.7	29.1	29.4	.....	.....
Third year . . . . .	256	363	59	75	23.	20.7	21.7	.....	.....
Fourth year . . . . .	224	313	44	32	19.6	10.2	14.1	.....	.....

The reasons for failure given by the pupils themselves are significant. One-tenth or more of the pupils who failed stated as the cause that the work was too hard, one-tenth say they were absent too much. One-fourth of those who failed in algebra said that they did not understand the work, and 50 per cent of the failing pupils in geometry said that they did not like the study.

Dr. Otis W. Caldwell reports the following statistics. Of 432 pupils who entered the Freshman class of one of our large high schools in the autumn of 1909, only 94 remained after the third semester, the other 338 having left school without completing the third semester. Of these 338 pupils, 124 made no passing grade in the school, 121 passed in only 57 per cent of the subjects which they took, and 93 passed in 78 per cent of their subjects making grades averaging above 80 per cent, the passing grade being 75 per cent. The 94 pupils who remained in school received credit in slightly more than 95 per cent of their subjects. "It seems possible that this case is more striking than would usually appear from such investigations since the problems associated with this particular

<sup>1</sup> *School Review*, November, 1913.

<sup>2</sup> *Educational Bi-monthly*, October, 1913.



school may be peculiarly difficult. In a careful study made by Mr. G. R. Johnson, of St. Louis, and covering records from twelve high schools with a total number of 18,926 pupils, he finds that approximately 90 per cent of those pupils who were failing in their work left school, while but 10 per cent of those who were making 90 per cent or better in their work left school. This percentage of those who failed and left school remains almost constant throughout the four years, with the exception that in the Chicago and Kansas City schools rather a larger percentage of the failures drop out in the earlier years than in the later years, while in the smaller schools the percentage of dropping out of those who fail remains about the same throughout the whole high-school course."<sup>1</sup>

*Reaction against home study and class recitation.—*

It is well known to parents and teachers that a very large percentage of children of our schools do not know how to study properly and profitably. When pupils are told by the teacher to study, they seem to do everything but the right thing with the result that much energy is dissipated and a great waste of time and effort is incurred.

Many teachers and parents depend upon assigned home work to develop the ability to study. It is argued that there is great value to the student in his unaided attempt to surmount difficulties; that he is gradually becoming independent by learning to read his books alone; that in the brooding of the pupil over the solution of a problem or some other assigned work the development of will power is realized; that it gives him an opportunity for quiet thinking which he cannot find in the classroom; that home work develops a habit of neatness not obtainable during the rapid progress of class work; that it is of greatest importance that the pupil should get further drill and review of the work done in the classroom; etc. In all of these arguments the great value that is claimed for home work is found in the ethical effect of being held responsible for a definite piece of work to be carried out independently and in the fundamental demand that the pupil must master it without help, using only his textbook and class notes.

There are also many teachers and parents who deny practically all of what has been mentioned in favor of home work. They claim that the notion that there is some value to the student in his unaided effort

<sup>1</sup> Dr. Otis W. Caldwell, "The Laboratory Method and High-School Efficiency," *Popular Science Monthly*, March, 1913.



to surmount difficulties is mistaken; that the effect of home study upon school progress is overestimated; that hasty and unmethodical use of books at home takes all the attractiveness out of them; that it means needless waste of undirected effort which might be replaced by much admirable and effective work; that it does not train, but weakens the pupil, since there is no more discouraging and nerve-destroying task than to be obliged daily to do mental work that has no meaning; that either pupils are being trained to evade duties and to use dishonest means of getting possession of the required work, or the mass of required work leads to cramming and mechanical memorizing and thus bars all spontaneous thought and activity, so that when the pupil gets through, he does not know much of anything.

Whatever may be the right view regarding home work, it is a fact that the great majority of the teaching public follows tradition rather than try new theories which in the end might be more advantageous. Therefore lessons are assigned regularly and most conscientiously, and since one of the great fears of a teacher is that of being unable to complete the requirements of the course within the limit of time, lessons covering advanced work are assigned only too often. It is very easy for the teacher to say to his class: "Study the next four pages for tomorrow; you will find some difficulties, but you are only expected to try seriously to overcome them." But the conscientious pupil will sit up late into the night neglecting his other work, spending hours fruitlessly because of his wrong viewpoint, being expected to do what was the proper function of the teacher to carry out. So it happens the *preparation* for the class work, not the class work itself, burdens the lives of the pupils.

An incident illustrating this fact is given in the *Ladies Home Journal* for January, 1913: A widow came to the superintendent of schools with the following complaint: "I have four little girls attending your schools. I am up at five o'clock in the morning to get them off to school and to get myself off to work. It is six o'clock in the evening when I reach home again, pretty well worn out, and after we have had dinner and have tidied up the house a bit it is eight o'clock. Then, tired as I am, I sit down and teach the little girls the lessons your teachers will hear them say over on the following day. Now, if it is all the same to you, it would be a great help and favor to me if you will have your teachers teach the lessons during the day, and then all I would have to do at night would be to hear them say them over."

That very few pupils have a clear knowledge of what is required in order to study and make their own a lesson as it is ordinarily assigned by the teacher is seen from the following experiment: Dr. Lida B. Earhart<sup>1</sup> assigned to 812 sixth- and seventh-grade pupils a short section from a textbook in geography with the following instruction: "Here is a lesson from a book such as you use in class. Do whatever you think you ought to do in studying this lesson thoroughly and then tell (write down) the different things you have done in studying it. Do not write anything else." It was found that 710 of these 812 pupils gave indefinite and unsatisfactory answers.

In a later test in which children were asked to find the subject assigned only 317 out of 828 were able to discover the most important part of the lesson. Yet determining the subject and the leading facts are among the principal topics needed for successful study of a lesson.

This shows that the greatest care on the part of the teacher in assigning the lesson is needed.

It is true that the better teachers give careful suggestions with each assignment as to method of attack, aim, and meaning of the assignment. Usually this enables the better pupil to do the work without undue difficulty, but it does not help the slow pupil who fails to make the connection between the assignment and the suggestions given by the teacher.

That in beginning classes of the high school suggestions given with the lesson are not sufficient to enable the pupil to do his work, and that the pupil's difficulty in studying his lesson is much greater than is usually assumed, is illustrated by the following occurrence: The parents of a pupil just beginning first-year mathematics in the University of Chicago High School complained to the teacher that the daughter came home day after day with home work assigned, but with no idea how to do it. The girl had told them it was the teacher's custom to assign problems with no suggestions. Feeling that this procedure was unreasonable, the parents spent the evening hours working the problems and explaining them to the child. When they were unable themselves to do the work they called on a ministerial friend living in the next block, who was good in mathematics and kind enough to help. Finally the parents came to the teacher and complained: "Sometimes even all of us cannot do the work you assign; how do you expect her to do it alone?" The teacher was surprised to learn that, after all the careful preparation in

<sup>1</sup> Strayer and Thorndike, *Educational Administration*, p. 240.

the classroom, a pupil, no matter how slow, should not even know that suggestions were given. Asked whether any suggestions for the next day's lesson were given, the girl said she knew of none. To satisfy the parents, the teacher took a quarter of a hour to go over the preparation of the lesson with the parents and daughter exactly as had been done in the classroom. It was found that the girl remembered it all, but failed to see how it would help her to study her lesson. It was now the parent's turn to be surprised. They went away feeling that the child, not the teacher, was at fault. But this experience shows clearly that the teacher's method of instruction did not accomplish the desired results, for at any rate this pupil had failed to make the connection between suggestions and assignment.

To ascertain to what extent the other members of the class might have this difficulty, the following experiment was tried. In assigning the next lesson, suggestions were given with unusual care. The pupils were then told that the next fifteen minutes would be given to studying the lesson, and that they should begin the assigned home work immediately. The experiment showed at once that the pupils did not appreciate the value of limited time, for all were slow in beginning work. It took some of them the whole fifteen minutes to go through the technique of getting started. Several evidently were not in the habit of working alone, for they looked about helplessly and simply imitated the others. However, these same pupils had come to the classroom daily with the lessons well prepared. Very little was accomplished in the fifteen minutes, indicating that the pupils very probably wasted much time in studying their assignments of home work. Although the class had been in the high school only a short time, the teacher had been presupposing a habit of study which did not exist. Much of the difficulty is due to lack of knowledge as to how to study and how to use time to advantage. The remedy in this case is, of course, definite instruction as to methods of study.

In the high schools one often hears a teacher require a class to study a given lesson, but seldom does one find a teacher much concerned about the method employed in satisfying this demand.

The need of teaching high-school pupils how to study becomes even more apparent when one considers the difference between the methods of the elementary and high school. Dr. Caldwell calls attention to this difference in his article in the *Popular Science Monthly*.



In the elementary schools from which these pupils have come to the high school, the school day runs from 8:30 or 9:00 to 3:30 or 4:00 o'clock and the greater part of all study is done during school hours, under direct or indirect supervision of the teacher. The teacher is present to correct any misunderstandings in assignments, to give a directing question or suggestion, or to quicken the endeavor, when such is needed. The work of one year is fairly well connected with that of the preceding years and partially new and partially old ground is covered each year. On the other hand, in the high school, particularly, in the first year, the subjects of study are largely or wholly new, often so new as to constitute fields quite unknown to the pupils. Even when some of the subjects are not new, we have a larger change than occurred between any two elementary grades. Pupils in a given subject go to the special room of the teacher for their recitations, recite, and receive their assignment, and then go to another classroom for another subject, or return to their assembly room or to their homes with their assigned work for the next day. The teacher in the elementary school ordinarily meets the pupils of a given grade for most or all of their work and knows them as they appear in all their work. In high school each teacher is especially interested in one or a few subjects and this one or few are the only ones in which the teacher knows his pupils. In the elementary schools the teacher usually stands as representative of one grade of pupils. In the high school the teacher usually stands as representative of a subject.

The conditions for home study present all the possible variations, but most home study must be done under discursive influences—a little study, a little conversation about irrelevant matter, an intermittent discontinuance for small household duties, a prolonged intermission for recreation, with the half-consciousness of wrong doing because of unfinished and overhanging lessons, even interrupted sleep because of a number of unfinished tasks, a final effort to secure categorically such facts regarding the assignment as are essential to enable the pupil to meet the teacher, a consciousness of incompleteness of preparation and a hope that, if called upon at all, the call may come for the facts that are in the pupil's meager store. Often the pupil's own initiative to home study must be supplemented by commands or entreaties from parents, and sometimes parents must do pupil's work for them, under penalty of family chagrin due to impending failure of the child. In most cases poor habits of study result from purported home study, though some pupils of good ability and strong individuality may do quite effective or superior work through home study. The habit of dawdling, waste of time in getting to work, wondering whether the work really must be done, whether a lexicon, cyclopedia, or parental answer to questions may not be found, leaves an entirely improper attitude toward real study. Sham work, at first as a makeshift, later becomes the only kind of which some individuals are capable.



William C. Reavis made an investigation as to the relation between the habits of study of a pupil and his home surroundings.

The investigation covered the home conditions of three hundred and ninety-three children. Data about these homes were gathered and graded according to the following points. Educational interest on the part of the parents, means to provide adequate food, clothing, medical attention, books, papers, magazines, and entertainment, moral atmosphere that would encourage honesty, earnest effort, regard for the right of others, and a due measure of self-respect. The homes were divided into three equal tertiles and designated as Rank I, II, and III. It was found that 75 per cent of pupils of home environment of Rank I, 32.4 per cent of Rank II, and 15.3 per cent of Rank III have habits of study of the first class; 19.7 per cent of Rank I, 48.2 per cent of Rank II, and 40.7 per cent of Rank III have habits of study of the second class; and 5.3 per cent of Rank I, 19.4 per cent of Rank II, and 44 per cent of Rank III have habits of study of the third class. The investigation shows that there is a marked correlation between the rank of the home environment and the habits of study of the pupil and points out the fact that the possible origin of many of the habits and attitudes of school children is in the home. Table III classifies pupils who do, or do not do, their home work assigned by teachers. It is seen that there is a large percentage of pupils doing home

TABLE III

	Rank I	Rank II	Rank III
Home study.....	38.5 per cent	54.2 per cent	7.3 per cent
No home study.....	4.1 " "	43.8 " "	52.1 " "

study coming from homes of the first and second rank and that there is a large percentage of pupils not doing home study coming from homes of the second and third rank.<sup>1</sup>

Thus, home study cannot be depended upon to develop the pupil's ability to study and it is left to the school to make the pupil able to work efficiently without help and to teach him to use his mind and his books, one of the most important lessons in the preparation for life.

However, the class system commonly in use in our high schools does not develop efficiently this ability. The class period is used partly for assigning home work and partly for recitation purposes. Usually this last part is the more prominent. Its purpose is primarily to determine

<sup>1</sup> Factors That Determine the Habits of Study of Grade Pupils," *Elementary School Teacher*, XII, 71-81.

whether a pupil can give a satisfactory account of the given topic which he was to prepare in his home study. Necessarily the recitation is largely devoted to clearing up difficulties. It gives usually little additional stimulus to pupils who have mastered the lessons and who therefore have little interest in the helpless efforts of their classmates trying to reproduce the assignment.

As a result the recitation as a test of a pupil's home preparation is likely to become monotonous, especially when a slow pupil recites; it encourages lack of attention and divided interest. It fails to rouse pupils to their actual capacity of effort. If, as happens frequently, the whole class period is given to recitation purposes the assigned home work is likely to be on advanced work to be followed the next day by another uninspired reproduction, etc.

This is the class system commonly in use in our high schools. It is wasteful of time and energy, productive of loss of interest, and not efficient in developing ability to study.

*Experiments to provide for individual differences during class period.—*

From the preceding review it is seen that both individual and class instruction fail to get the best results in school work. To go back to the individual method obviously would be a mistake, while under class instruction the variety of human nature is not recognized. It must choose those stimuli which are for the greatest good of the greatest number of those who are most deserving.

While the slow pupil is struggling with unnecessary difficulties, the bright pupil who, in the same time, can do four or five times as much work as the slowest in the class without making one-sixth as many errors is held back and is not profitably employed. He wastes time, may lose ambition, and finally become satisfied with little progress.

Thus mass instruction fails to provide for the very bright and for the very slow. The latter must either receive additional instruction or have provided for them a method which is more efficient for the individual than mass instruction.

Dissatisfied with the uniformity of classroom methods, parents, administrative officers, and teachers in schools of all grades have tried to develop methods which will be more effective for the individual pupils; which will provide for individual differences without losing the great advantage of the uniform method. A number of plans have been advo-

cated as being effective in providing for the varying needs of the pupils due to the differences between the bright and slow.

In the following, some of the more successful plans will be presented:

#### ABOLITION OF ALL RECITATIONS AND HOME STUDY

Perhaps the best known of the plans to provide for individual instruction is the so-called Pueblo plan which became generally known through the publications of Superintendent Search from 1894 to 1901.

##### *The individual, or Pueblo plan.*<sup>1</sup>—

The school day is divided into six one-hour periods. Four and one-half hours are devoted to language, science, mathematics, history, literature, and drawing. Three periods a day are definitely assigned to three literary studies carried on together. The additional one and one-half hour is regarded as extra time to be spent wherever the pupil needs it most, or in some cases according to his individual bent. In the high school a fixed program is followed. In the grades below the high school the work is entirely by flexible programs. The work is conducted largely by what is called the laboratory method, each teacher arranging a plan of work one week in advance. There is no recitation as it is generally conducted in schools. There is a class exercise for the presentation of fundamental principles in beginning a new subject, for the giving of working directions, or for the discussion of general principles applying to all individuals. Promotions are based entirely upon ability to do. There are no marks, no mechanical reward for doing right, no rankings or discriminating honors of any kind.

Various claims are made in favor of this plan by its advocates.

1. Better health: There are no excessive hours of labor. When a student leaves school, he turns the key on his school books and school-room work. His energies find expression through some other channel.
2. Trained, independent, self-reliant workers are produced. Since the pupil realizes that a lost hour cannot be made up by a later application, there is no passiveness or dead time to encourage wandering thought. All the work, being done under direction, is better done. Each pupil is the absolute maker of his own success.
3. More work is accomplished and the work is more thoroughly done. The experience of the school has shown that more is accomplished.

<sup>1</sup> *Proceedings N.E.A.*, 1895, pp. 398-405; Preston W. Search, *The Ideal School*, p. 250; *Educational Review*, February, 1894.



4. More enthusiasm in work: The opportunity for daily and continuous promotion is an immense stimulus and results in enthusiasm for work.

5. Less discouragement: The individual is appealed to because he is permitted to work in his own place and according to his own strength. Pupils who otherwise would be lost are held in school because at the beginning of the year each pupil starts just where his work the year before stopped.

6. No opportunity for additional and outside work: The demands of the school do not crowd to the wall the duties and relations of home, church, and social life.

The individual system was tried successfully<sup>1</sup> in Central High School, Pueblo, Colorado, in 1894, the Oakland (California) High School, the Los Angeles High School, the Holyoke High School, in 1900, the Field High School, Leominster, Massachusetts, in 1899, the Girls' High School, Boston, and the San Diego High School, of California, according to Mr. Search's account.

The Pueblo plan was tried later<sup>2</sup> by Mr. Gilbert B. Morrison, principal of the Kansas City (Missouri) Manual Training High School. The results reported by him were very favorable. Pupils who ordinarily would have failed were able to make creditable grades. Some pupils were able to finish a subject in less than the prescribed time. If there were strained relations between the teacher and pupil, they soon died out. The experiment was repeated later by Mr. Morrison in the McKinley High School in St. Louis with the same favorable results. Pupils were able to get a better grasp of the subject and the percentage of failures decreased considerably.

The plan has been criticized unfavorably because it fails to recognize the school as a social institution, in which members should work not only for themselves but also with and for others. The entire loss of the recitation is regretted, as it offers opportunity for competition that comes with group activity, which is eliminated by a system of individual instruction. Although skilled teachers may succeed with the system, it is difficult for the ordinary teacher to use the method successfully. It involves an enormous amount of mental bookkeeping on the part of the teacher.

<sup>1</sup> *The Ideal School*, pp. 252, 253.

<sup>2</sup> Swift, *Mind in the Making*, pp. 254, 255.



The last objection is so serious as to constitute the deciding argument against the plan in the minds of many skilled administrators. Thus, I. M. Allen, principal of the Kansas City High School, while investigating plans to provide for individual differences taught an algebra class using the Pueblo plan in order to determine its merits. It secured practically all the results claimed for it, but the difficulties involved in keeping in mind the work of 25 or 30 pupils at different stages of advancement and of making daily prescriptions for them taxed his memory, inventiveness, and skill to the utmost. Obviously the ordinary untrained teacher, found in an ordinary high school, would have even greater difficulties to direct five sections of 30 pupils each by this method.

#### ORGANIZATION OF PRESCRIBED SUPERVISED STUDY PERIODS SUPPLEMENTARY TO RECITATIONS

The following plan aims to combine the advantages of individual and of class instruction.

##### *The Batavia plan.*<sup>1</sup>—

The plan was accidentally discovered by John Kennedy, superintendent of schools, in Batavia, New York. It was the custom in his schools to divide overcrowded rooms. For some time Mr. Kennedy had been interested in individual instruction as a supplement to class recitation, and it occurred to him, rather than to divide a class, to put in an additional teacher to find the weaknesses of the pupils and to help them remove the difficulties that kept them from making normal progress. As one teacher conducted the class exercise in the usual manner, the other gave individual help to slow pupils in the studying group, making it possible for them to keep up with the bright pupils in the room. Encouraged and surprised by the favorable results, the plan was introduced into other classes with equally good results. It was therefore demonstrated that the success of the experiment was not due to the strong personality of any one good teacher, but that it worked with others.

The experiment was then varied so as to repeat it in small classes with one teacher and also in high-school classes. Half of the class period was devoted to individual instruction, the other half was left for recitation purposes. The results showed that the plan was as successful

<sup>1</sup> *Proceedings N.E.A.*, 1901, pp. 295-300.

in a one-teacher room as in a two-teacher room. The experiment has been repeated successfully in Westerly, Rhode Island, in the Kansas City High School, and in some schools in Minnesota.<sup>1</sup>

The following advantages are claimed for the Batavia system.

Slow pupils are helped without overpressure. Bright children are kept from marking time. Special relief is brought to teachers whose health is injured by the strain of too large classes. Under this plan there is no strain. Children (and parents) are relieved from overwork and worry, as children no longer come home with large amounts of back work to make up. Order and discipline are greatly improved. Very many apparently hopelessly dull pupils may be intellectualized. Because of the small number of failures, pupils are not withdrawing from school in as large numbers as formerly, causing a large increase in high-school attendance. The number of pupils going to college is increased correspondingly. Instead of producing dependence, as it might seem at first glance, it produced independence. Because of the individual instruction provided, it is easy for pupils to make up for losses due to absences. The per capita cost of education has been reduced since the introduction of the plan.<sup>2</sup>

Unfavorable criticism of the plan is to the effect that too much help given to a pupil will make him dependent upon the teacher. However, discretion on the part of the teacher may overcome that. It is also found difficult in a one-teacher class to keep bright pupils profitably employed when the slow members of the class receive the needed individual help. The application of the Batavia plan in the high school includes various types of adjustment which will be described below.

#### *Supervision of study during the regular high-school school day.—*

Home study being an important factor in the high school, it is necessary to organize the pupil's time and work so as to make him able to do the required home study and to supervise that study.

Wm. C. Reavis, Oakland City, Indiana, worked out a plan by which both of these aims were to be accomplished.<sup>3</sup> Each pupil had to make out on a printed card a definite program for the school day, stating

<sup>1</sup> Bagley, *Class Room Management*, p. 222.

<sup>2</sup> John Kennedy, "The Batavia Plan after Fourteen Years of Trial," *Elementary School Teacher*, June, 1912, pp. 449-62.

<sup>3</sup> "The Importance of a Study-Program for High-School Pupils," *School Review*, June, 1911, pp. 398-405.

the periods of study and of recitation. The teacher in charge of the study room had on file duplicate copies of these cards, making it possible for him to supervise closely the work of each pupil. Each pupil was urged to divide his time at home in a similar manner, thus arranging for regular study hours and the parents were asked to see that the program was carried out. This was done by the large majority of pupils. The study-program card contained ten suggestions for effective study. The following are claimed to be the results of the method:

1. The problem of discipline in the school was largely solved as each had a regular program to follow and there was no time or necessity for idleness.

2. Since certain subjects were specified for home study each day no time was lost by the pupil in trying to decide what he should study. This is especially valuable to the pupils who have not learned how to organize their time. It helps them to decide how much time they are to take for the preparation of each subject.

3. The pupils avoid the mistake of preparing several subjects in one period without preparing any of them thoroughly.

*Required supplementary study hours have been used by some schools to supervise the pupils' study.—*

Dr. Otis Caldwell in his article "The Laboratory Method" mentions the following experiment:

In the Detroit Central High School a different plan has been followed in some experiments in algebra and Latin. Principal David McKinzie writes: "We have experimented somewhat with a plan to give additional direction to the weaker pupils of the ninth grade. I cite two cases of first course in algebra and Latin. At the end of ten weeks all pupils who were marked failing in these subjects were grouped together for special work in addition to their regular recitation periods. They were given twenty lessons each on the ground covered during a period of six or seven weeks. Each pupil was treated as a pathological subject. In the final test they were marked as follows:

LATIN

Total number of pupils . . . . .	15
Number marked "Excellent" . . . . .	1
Number marked "Good" . . . . .	6
Number marked "Fair" . . . . .	3
Number marked "Weak" . . . . .	1
Number marked "Not passed" . . . . .	3
Number marked "Left" . . . . .	1



## ALGEBRA

Total number of pupils . . . . .	20
Number marked "Excellent" . . . . .	2
Number marked "Good" . . . . .	4
Number marked "Fair" . . . . .	3
Number marked "Weak" . . . . .	5
Number marked "Not passed" . . . . .	3
Number marked "Left" . . . . .	3

It is plainly evident that a large number of ninth-grade pupils need greater direction than they receive at present, and I am convinced that we must resort to some plan to give them this additional help, if we are to eliminate excessive mortality in this grade.

In the year 1912-13 the Department of Mathematics of the University High School, at the University of Chicago, adopted the following plan of giving special attention to pupils who are likely to fail in the course or who wish to withdraw from the course because it is too difficult for them. The experiment was at first tried in first-year classes. In the first semester of the year 1911-12, ten first-year pupils failed, two were conditioned, and sixteen withdrew from the course before the close of the semester. In the following year, it seemed that this experience was likely to be repeated, as a few weeks after the beginning of the school year twenty pupils were not doing work of passing grade. It was hoped that with proper individual attention given early enough it might be possible to save some of these from failure and to keep them from withdrawing from the course. To give them this special attention in the classroom is not possible, and it is hardly fair to hold back a class for the sake of a few, if a different arrangement can be made. Therefore a special class was formed for those who could not keep above passing grade in their work. Pupils were registered for this class with the understanding that they were to return to the regular class as soon as they could do work above passing grade. Of the twenty regular members, five returned to their classes before the end of the semester. All of those were able to continue without help. In the final examination they received grades of 63, 65, 71, and 100, respectively (60 being the passing grade), one having left school before this time. Three pupils left school before the end of the semester and six of the remaining pupils failed. At the end of the school year this class had fourteen members. These pupils had covered and understood the year's work, but could not

remember it well enough to pass an examination. Some of them were apparently capable enough, but could be induced only at periods to do their best. Very little would have been gained by having these pupils repeat the course. Those who in the judgment of the teacher were worthy received credit for the course with the understanding that in case they wished to take up the second year's work, they would have to repeat the second half of the first year's course. This left four failures at the end of the second semester. These pupils must repeat the second half of the course, as a year's work in mathematics is required for graduation in the University of Chicago High School.

In the autumn of 1913 the number of failing pupils in Freshman mathematics was found to be very small. This is partly due to the change of classroom method brought about as the result of some experiments with supervised study to be described later in this paper. Although a special class was started in the expectation that the number of failing pupils might increase, it was discontinued after several weeks. The seven pupils failing in the first year's work are now allowed to remain with their classes, but are required to attend a special-study class organized for all pupils having difficulty in courses in mathematics given in the second, third, and fourth school years. Because of their small number it is possible in that study period to give to these seven pupils the needed individual attention. This arrangement makes it possible to give to the slow pupils no more attention during the regular class period than to the remainder of the class. Of the two plans just described, the preceding one was the more satisfactory. With no failure in any of the Freshman classes at any time during the year, the first-year course was completed more easily and with better results than ever before. On the other hand, most of the slow pupils were able to complete the year's work within the year's time with better results than are usually obtained by having them repeat the course.

For all pupils taking courses above the first year, a daily "study class" has been arranged. If a pupil is doing unsatisfactory work, i.e., below passing grade, he is requested to go to the study class in addition to his regular class. All absences from this study class are reported to the office and regulated by the office in exactly the same manner as absences in other classes. The time of the class is after school hours, at 3:00 P.M., and therefore not too convenient for the pupil, as it is likely to conflict with other appointments such as music lessons, dentist

appointments, etc. This serves as an incentive to a pupil to improve as rapidly as possible.

*Voluntary study hours in departments.—*

To give the benefit of this special class to the largest number possible, it was decided to urge pupils to attend if they were in danger of failing and needed instruction in addition to what they received in their classes. Those who failed to understand some particular lesson or had missed some work because of illness have the privilege of visiting the afternoon class and of asking questions at the proper time. A large number of pupils make use of this. It seems that this alone makes the undertaking worth while.

The study class is conducted as follows: As soon as the pupil has taken his seat, he begins to think about his lesson or, if no lesson is assigned, he finds review work. After the roll is taken (silently), the teacher passes from student to student, informing himself as to what pupils are doing, giving them help, suggestions, or whatever else is necessary to get them started on their work. Thus with twenty to twenty-five pupils in the room, the teacher is able to see each one three or four times in the hour. Some need very little help, others need several minutes each time.

It is surprising how rapidly some pupils improve who seem to have no habits of study when they come at first. At the present writing (tenth week), a number of pupils have improved enough in their regular class work to be excused by their teachers from further attendance during the study period. The fact that not only failures but often very good pupils are members of this class removes all feeling of disgrace so often attached to such classes. Parents have expressed themselves favorably about the plan, as doubtless it will do away with much of the private tutoring. Some parents regret that children are kept indoors at a time of the day when they should be outside, but are reconciled by the fact that the pupils are through with their home work or review work in mathematics, leaving them time for other things in the evening.

However, the pupil is not the only one who derives benefit from this study class. Without question the teacher learns much in working with slow pupils. The fact that more pupils fail in mathematics than in other subjects indicates either that teachers of mathematics are not as well prepared to teach their subjects as other teachers, which seems



unlikely, or that the subject itself is not as well adapted to the needs of the pupils. Without doubt the more teachers know of the difficulties boys and girls meet in a subject the better will they be able to shape a psychological course of study. The question might be raised concerning the possibility of more than one department in a school having a similar study period. This would require some administrative regulation, but there is no reason why it could not be satisfactorily arranged, especially for the few subjects in which individual assistance is most necessary.

*One required study period per week in each subject.—*

In the De Kalb (Illinois) High School study hours for several departments have been introduced.<sup>1</sup> Superintendent F. M. Giles of De Kalb describes the plan as follows:

We took five minutes from each of the six recitation periods, which we have in our school day, and put these together to make a thirty-minute study period coming once a day. In order that each class might receive the benefit of this period, we arranged that the first period class use the time on Tuesday; the second period class on Wednesday; and the third period class on Friday; the following week that the fourth, fifth, and sixth period classes use the period for supervised study. On Monday and Thursday the teacher uses this study period by having come to her room for individual attention, such students as she thinks may need individual help. So much for the plan.

In regard to the results, we have found that the plan is of greatest advantage with the younger students, and in the first part of a subject. That is, the younger students need direction in method of study, and all the students find it helpful when learning the method of attack upon a new subject.

We find it necessary, of course, to keep some definite check upon the work of the students. This is done by setting for them certain concrete problems in their study. For instance, to work out a certain number of examples; to be ready to prove a given theorem; to pick out the topic sentences in a given paragraph; to determine the most important points of a certain topic in physics; to pick out the leading events in a given historical topic, etc. We find the method works very well in mathematics, science, and history. Some difficulty has been experienced in the study of an English classic, such as *Macbeth*, in making the work of the study period definite. We are working at this problem.

Besides teaching methods of study, we have found one decided advantage of this study period is that by reason of it, the teacher gets a considerable

<sup>1</sup> See editorial in *School Review* for January, 1913, p. 58.

insight into the methods of study of the various students and can discover those who waste time, who have faulty methods of attack, etc.

Another point which we have found as a result of this work is that the teachers themselves are not at all clear as to definite methods of study. There have been a number of problems raised as to how a student should study.

The success of the plan is perhaps due to the following advantages:

1. Some progress is made in that the teacher has an opportunity to find out the real difficulties that the pupils experience in the various subjects.

2. Backward or dull pupils can receive assistance on points which are not clear, and can receive assistance at definite periods where otherwise they would tend to become discouraged.

The greatest disadvantage of the plan is the limited amount of time given to this study class. It gives the teacher little opportunity to supervise in any effective way the study of pupils. Pupils can come merely for assistance on difficult points. Little opportunity is offered for individual work with the pupils. The time which the teacher spends with the pupil is too short for the teacher to do much in aiding the pupils in acquiring proper methods of study.

In the Pittsburgh high schools, supervised study was arranged for by using one class period a week for each of the subjects, English, mathematics, Latin, and German. For this period no arrangement of lessons is made and no preparation is required, while no grade of any sort is given for the work of the hour. The time is used by each teacher as he or she may think best, either as (1) a review of the past work, (2) preparation for future work, (3) emphasis on particular portions of the work which require attention, (4) a "clearing-house" period for review, drill, handing back papers, discussion, or personal help to pupils who may be back in their work on account of excusable absences, or (5) "spell-downs," or other games to clinch the work covered in the class periods. After a year's trial, the experiment was considered a success because of the following advantages gained:

1. Increased efficiency in the quality of the work done, due to a better understanding of the work.

2. The students became enthusiastic over the conference hour and took a keener interest in the classroom work.

3. Pupils felt free to discuss the difficulties of the assigned work, since no marks of the hour were kept.

4. Every pupil was given an opportunity to have any part of the work covered in the regular class period discussed freely and any difficulties explained.

5. Teachers had an opportunity to develop right habits of thinking, proper methods of attacking new problems, and correct methods of study.

The following disadvantages of the plan are apparent:

1. The time allowed—one hour a week for each subject—is not sufficient to do the most effective work.

2. The time could more profitably be spent in really supervising the study of the pupils rather than, as now, in clearing up difficult points or emphasizing important points, which makes out of it little more than a regular recitation period.

3. Unless the teacher were a good disciplinarian and at the same time enthusiastic over her work, there would be a tendency to regard these periods as recreation periods when nothing was expected, and as a consequence little would be accomplished.

4. Only the brighter class of students who were efficient and who really required little help would be likely to bring up questions of difficulty. The careless or indifferent pupil who really needed to be taught how to study would have no points to discuss.

*The double- or divided-period plan is in use in many schools.—*

In the Joliet Township High School, this method of supervising study has been tried for about three years. In response to a letter of inquiry, Principal J. Stanley Brown describes the plan as follows:

The plan means that two periods of forty minutes each are set aside for first- and second-year classes. One of these periods is devoted to recitation work. The second period, which immediately follows the first with an intermission of a minute or two, is given up to supervised study. The teacher passes about the room, directs the work of the pupils, assists them when absolutely necessary, and thinks she accomplishes as much in that single period as the pupil alone unaided could accomplish in two periods. This supervised work has been applied especially to mathematics work, arithmetic, algebra, geometry, in the first and second years in the school. It has been applied with excellent results to beginning foreign language work, Latin, German, French. Of all the teachers who have had experience in this experiment, only one is unfavorable, so I think we can say the experiment is fairly successful. At any rate, we shall continue to use the plan mentioned until we find something



better. We have various other experiments going on all the time, most of which prove unsuccessful, but if after five new experiments, we secure one favorable result, we think the result was worth while.

At the University High School, Columbia, Missouri,<sup>1</sup> a plan is followed by which study under the teacher's supervision is made possible by reducing the time of the recitation to a minimum. Approximately one-third of the class hour is spent in recitation, leaving the remainder for study and careful assignment of lessons, thus reversing the common practice by which little time is given to study but most of it to the recitation. The class hour is divided into three parts: (1) Study: The object of this is not to make home study unnecessary, but to train the pupil so as to make more effective home study possible. He is taught the methods of study. (2) The assignment of the next day's lesson: The assignment is not necessarily new work. It supplements the home study done in class or continues and completes work begun there. (3) The recitation: The recitations are no longer poor and time consuming, because the preparation was well done. Thus the standard of the recitation is greatly raised.

*General testimony concerning success of supervised study.—*

The general testimony concerning the efficiency of supervised study in improving the work of pupils is strongly favorable. A good example is the testimony of Superintendent Charles C. Hughes, of Sacramento, California. A news item stating that in the Sacramento schools home study had been abolished and supervised study introduced suggested a letter of inquiry to Superintendent Hughes who replied in a letter as follows:

I feel quite sure of my stand in this matter, since as early as 1899 when city superintendent of schools of Alameda, California, I abolished home study, and substituted for it actual periods for each subject demanding study in the school-program, thus providing, under special supervision of the teacher, intensive study during school hours. The Alameda schools still retain the plan, and several of my principals who have become superintendents since are firm advocates of the plan, and have instituted it in their departments. I found that children were not learning how to study. The University and the high schools complained that students came to them ignorant in this matter. I found that the average home made no preparation for children's study. If the standard was low the light was inadequate, and the surroundings often

<sup>1</sup> J. L. Meriam, "Reaction and Study," *School Review*, November, 1910.

pernicious. As the home standards were raised, the social life of the family interfered, and the case was rare where a study room, or even a study place properly lighted, heated, or ventilated, was prepared for the child or children in the family. The parents were found either unable or unwilling to aid their children in study. We discovered that we were shifting to the home the duty which belonged to the school.

After the plan was put into operation we soon discovered that, although we had cut down the number of recitations considerably, the periods of intensive study under supervision made up many times for the reduction.

We also found that we could make a better measure of the children—that teachers were, under the old system, apt to pat the quick boy on the back and praise him, when he had studied probably not more than a few minutes at home, and scold his slower brother who had really put in considerable time, thus making a prig or bluffer of the one, and eventually discouraging the other. The school should not be a recitative machine. Study is more important than the recitation. We are getting better results in our work and the teachers know their pupils better. The school is taking upon its shoulders its whole duty, instead of only part of it.

Our plans for supervised study in the elementary schools are embodied in the inclosed schedules, which I am glad to send. We have extended the idea, only in part, to the high school. I have no printed data showing the efficiency of supervised study.

Under the first question I have given you the result which any teacher will testify to. The high schools are feeling it where it is in operation, since the boys and girls come to them better prepared as independent students. We have departmental work in our grammar grades and the success of departmental work depends very largely upon the abolition of home study. Young children would be handicapped and the departmental work ruined if each teacher were allowed to give as much home work as she believed her subject called for. Under our system, her judgment is immediately impeached when she gives more than the study period set aside for that purpose.

One of the defects of our modern high school with its fine specialization lies in the fact that each teacher gives as much as any child can do in an evening, which results in a child having three or four times as much as he can do, with the further result that he becomes discouraged, or attempts to bluff his way through.

*Experimental proofs of superiority of supervised study.—*

Before final conclusions are drawn regarding the efficiency of supervised study, the general testimony should be supported by exact measurements. The following three examples show the superiority secured by supervised study in mathematics and history.

To measure the effect of home study upon class progress, the following experiment was tried in the Department of Mathematics of the University High School, University of Chicago,<sup>1</sup> with two algebra classes. No home work was assigned in one section, so that the time usually taken up with the discussion of home work was gained for study. In another class, taking the same work, home work was assigned. The method of instruction in both sections was the same. Both sections spent fourteen lessons on the chapter on simultaneous linear equations, at the end of which the same test was given to both with the following results:

	A	B	C	D	F	Average
Section A (Home work with no supervised study).....	7.1	21.4	21.4	0	50	62.8
Section B (Supervised study with no home work).....	0	6.2	37.5	25	31.2	65.5

The low grades received in both classes may be explained by the fact that the test was not easy, and that no review was given in preparation for the test. If the time had allowed it, a second and fairer test would have been given.

Some idea as to the relative ability of these classes can be obtained from the results of the departmental final examination given at the end of the preceding semester. The grades were distributed as follows:

	A	B	C	D	F	Average
Section A.....	25	25	37.5	12.5	0	81.4
Section B.....	29.4	23.5	23.5	17.7	5.9	79.4

It is seen that section B, though a little weaker than section A, came out a little stronger on the average after supervised study without home work. The poorer students profited particularly by this method. Supervision seems to have enabled pupils at least to make up for the loss of time due to lack of assigned home work. The average amount

<sup>1</sup> "Teaching High-School Pupils How to Study," *School Review*, XX, 505-15.



of time spent on home work in section A was one hour and fifteen minutes per lesson. However, when the number of problems worked in each section was counted, it was found that in section A the average number of problems per pupil was two less than in section B. These results indicate that the amount of home work may be reduced in high-school classes, provided a method of instruction more effective than the common method is used.

It was interesting to notice the progress of the class working under supervision. At first the class was very slow, and it did not get along as rapidly as the other section. During the third lesson, however, it became evident that the pupils were learning to work independently. After the fourth lesson both classes were doing the same work, and they were kept together for the remainder of the time the chapter selected was being studied.

The section under supervision worked with more confidence and pleasure. This was especially true of the slow pupils. A girl who had failed during the first semester and was in the class on condition made a grade of 78 in the test on this chapter. Her grade in the final examination at the end of the first semester had been only 40. A boy who barely received a passing grade at the end of the first semester, and who at first seemed to be unable to do anything under supervision, suddenly found that with a little greater effort he could do as well as his classmates. There was an immediate improvement, and one day when a speed test was given he surprised everybody, even himself, by leading the class. A girl returning after a week's illness, and still in a weakened condition, said she "could not understand anything that was said," and felt greatly discouraged. By giving her a little more attention than the other pupils she was enabled to do the work before the end of the recitation, and had no further difficulty. Under the common system of instruction very little attention is paid to such cases. The teacher usually allows a certain amount of time in which the pupil must "catch up." Very often, in addition to the difficulties found in understanding the class work, "back work" is assigned. The injustice of all this at times drives some pupils to use dishonest means of getting possession of all this required work.

The following chapter, on "operations with fractions," was covered by both classes in six lessons. However, section A now worked under supervision, and section B took home work. A test was given to both

classes as soon as the chapter was completed. The grades in this test were as follows:

	A	B	C	D	F	Average
Section A.....	31.2	25	18.7	12.5	12.5	77.5
Section B.....	52.9	23.5	5.9	11.8	5.7	86.4

The average amount of time per lesson spent on home work was thirty-six minutes. The number of problems could not be computed because much oral work was done in section A, but there was very little difference. The power obtained by section B in the preceding chapter, while working under supervision, persisted and was strong enough to be helpful in the following chapter.

Before any final conclusions can be drawn, evidently further experimental work is needed. The results of the foregoing tests, however, corroborate the impression received during the time the study of these classes was being made. Both classes accomplished the same work within the regulation time, although section B did no home work and section A spent an hour and fifteen minutes daily on the assigned lesson. Section B, the weaker section at the end of the first semester, came out stronger than section A, after nearly three weeks of supervised study, and proved to be still stronger during the study of the next chapter. In both classes progress under the new method was very slow at first, but there was rapid improvement.

Following these experiments in the Department of Mathematics in the University High School, some of the instructors there practically omitted home work because their experience showed that better results could be obtained by giving the time of the class period to class work on the part of the pupil rather than to reciting the lesson. In the final departmental examination of the first year classes the section in which home work was minimized ranked second, while in the second- and third-year courses, the classes doing little home work ranked first. Thus with supervised study loss of home work did not retard the progress of these classes.

*The same superiority of supervised study was shown in an experiment in classes in mathematics in Bloomington, Indiana.<sup>1</sup>—*

Thirty-six pupils were divided into two groups of eighteen each and of abilities as nearly equal as possible. Their abilities had been

<sup>1</sup>J. H. Minnick, "An Experiment in the Supervised Study of Mathematics," *School Review*, December, 1913, p. 670.

determined by the average grades of three semesters' work in algebra. The group which was to have supervised study was not quite as strong as the unsupervised group. The unsupervised class recited the first period and prepared the assigned home work wherever they saw fit. The supervised class recited the second period and prepared the home work under supervision during the third period, with the understanding that no further work was expected of them. Every pupil was kept busy during this study period either by working on the assigned home work or by additional work. The experiment was carried on for fifteen weeks, and the weekly average marks received for recitation were compared. It was found that the supervised class had the higher average. The results of the examination are given in Table IV.

TABLE IV

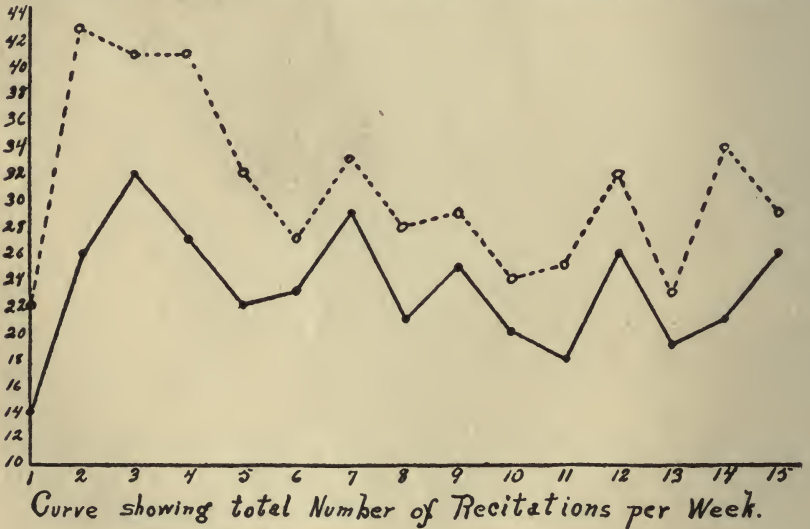
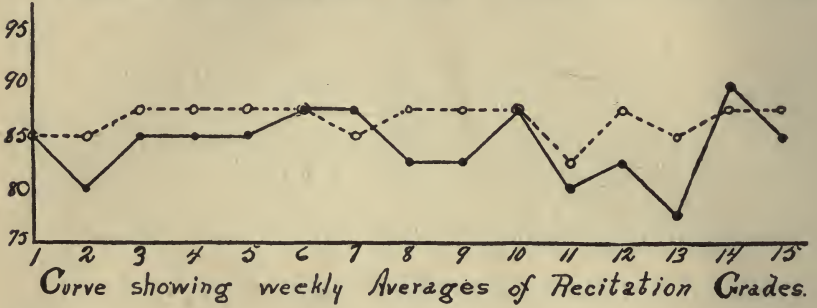
KIND OF EXAMINATION	NO. OF EXAM.	AVERAGE OF CLASS		AVERAGE NUMBER SOLVED	
		Supervised	Unsupervised	Supervised	Unsupervised
Six-weeks examinations	1	77.3	68.7	4.2	3.55
	2	81.2	80.4	4.3	3.9
Final examination.....	1	92.4	80.1	12.7	12.2
	1	82.4	73.9	4.8	4.4
Tests consisting of new materials.....	2	87.3	70.2	4.8	3.7
	3	77.6	56.2	2.1	2.1
	4	82.8	77.3	4.2	3.8

Thus in each of the six-weeks examinations and the final examination the supervised class excelled in both the average grade and the average number of problems solved. As these examinations covered only the work discussed in recitation, the results indicate that this class had mastered the text better than the unsupervised class. In each of the remaining four tests the average grade of the supervised class was decidedly better than that of the unsupervised class and in only one case did the average number of problems solved by the unsupervised class equal that of the supervised class. As stated above, these tests consisted of problems which were new to both classes and the results therefore indicate that the supervised class was the more able to attack new problems, thus contradicting the arguments of those who believe that supervised study makes the student dependent upon the instructor.

A record of both the amount and the quality of the recitation work was kept. The amount of work was indicated by the number of times students made definite recitations, such as demonstrations and constructions. The quality of the work was indicated by a recitation grade given at the time the recitation was made. A comparison of these records for the two classes is shown in the graphs below. In each curve the horizontal units represent weeks.



The vertical units of the first curve represent weekly averages, while those of the second curve represent the total number of recitations per week. The continuous curves represent the work of the unsupervised class and the dotted curves represent that of the supervised class. An examination of these curves



○ — Supervised Class.

● — Unsupervised Class.

shows that the supervised class had the higher average for ten of the fifteen weeks. The unsupervised class ranked higher for two weeks and the averages were the same for the other three weeks. The second set of curves shows that the supervised class made the larger number of recitations every week throughout the semester.

There were no failures in the supervised class at the end of the semester, while in the unsupervised class two pupils failed. The pupils' attitude was in favor of the supervised plan.

*There is need for similar studies in other subjects.—*

Mr. Garrett E. Rickard, principal of the Oakland City High School, Oakland City, Indiana, has prepared the following scheme for testing methods of instruction in history.

In investigating the relative merits of class recitation and supervised study in high-school history teaching, the preliminary problem divides itself logically into three parts: (a) the setting up of definite aims or ends to be reached by history teaching; (b) the devising in detail of two distinct methods of instruction, one based on class recitation, the other on supervised study; (c) the construction of laboratory conditions which shall leave but one variable element, namely, the method of instruction.

#### A. Aims

##### 1. *To develop the pupil's ability to answer questions based on:*

- (1) Acquisition of the proper concept of new and technical terms.
- (2) Mastery of the subject-matter of the text.
- (3) Interpretation of source material.
- (4) Abstracting collateral reading and connecting it with the outline of the text.

##### 2. *To develop the pupil's ability to act by:*

- (1) Arranging logical outlines and abstracts of the subject-matter of the text.
- (2) Arranging tabulations of time sequences of events and persons, grouped according to some convenient unit, as decades or centuries.
- (3) Drawing maps which shall more or less closely approximate some ideal which the instructor has previously analyzed into its elements.
- (4) Collecting material on a given topic, organizing it logically, citing references and preparing bibliographies.

#### B. Methods of instruction

##### 1. *Class recitation which involves:*

##### (1) On the part of the instructor:

- a) A definite assignment (usually taking the form of questions) involving one or more of the above aims. (Time 5 minutes at the beginning of the period; the following involves the remaining 35 minutes.)

- b) A ten-minute examination at the beginning of each recitation on questions chosen at random from the previous day's recitation.
  - c) Elucidation of obscure points of previous day's assignment.
  - d) General instruction as to method of procedure. (See A, 2.)
  - e) Criticisms of pupils' performances, maps, tabulations, etc. (See A, 2.)
- (2) On the part of the pupils:
- a) Making a memorandum of the assignment. (Time 5 minutes at the beginning of the period. Remaining 35 minutes to be spent as follows:)
  - b) Answering questions on previous day's assignment.
  - c) Asking questions on previous day's assignment to clear up obscure points.
  - d) Submitting maps, manuscripts, etc., and criticizing those of other pupils.
2. *Supervised study which involves:*
- (1) On the part of the instructor:
- a) A ten-minute examination at the beginning of each day's recitation on questions chosen at random from the previous day's supervised study.
  - b) Assisting the individual pupil by the aid of reference books or questions to get proper concepts of the new and technical terms of the assignment just made.
  - c) Assisting the pupil definitely to arrange the outlines, tabulations, or maps of the assignment just made by pointing out to him the elements in his task to be striven for, and criticizing constructively his work.
  - d) Giving to each pupil an approximately equal amount of time.
- (2) On the part of the pupil:
- a) Making a memorandum of the assignment. (Time, 5 minutes. The following to occupy the remaining 35 minutes.)
  - b) Study with the teacher as per above.
  - c) Independent work with pen, books, and paper on the assignment just made, when he is not being assisted by the teacher.

### C. Laboratory conditions

1. Have the whole class study and recite as usual for a given period. (Three weeks will be convenient.)
2. Have the pupils write on a topic discussed on the previous day for ten minutes at the beginning of each period.



3. Grade the papers with one of the following marks: 100-90, 89-80, 79-70, 69-60, 59-50, below 49, or in letters, A, B, C, D, E, F.
4. Average each pupil's grade for the period.
5. Rank pupils on the basis of their grades, putting the highest first, the lowest last.
6. Let the odd numbers constitute section A; the even numbers section B.
7. Allot to each section forty minutes of your time.
8. Proceed with section A by the class recitation method (B-1), with section B by the supervised study method (B-2).
9. Give each section the same assignment on the same day.
10. Instructor and pupils should keep an accurate dated record of the assignments.
11. All maps, tabulations, outlines, and reports should be graded as in C-3 above, and filed.
12. Bring both sections together for the same written examination at the close of each month.
13. These papers should be graded as in C-3, and filed.

In accordance with this scheme Mr. Rickard has been testing for the last two months the effect of supervised study. He introduced supervised study into a class in history whose average grades for one month had been found to be slightly lower than the averages of another group of pupils taking the same work. After this class had been subjected to supervised study, its daily average grades became higher than the average grades of the other class.

Thus it seems that all of these three experiments are favorable to supervised study. With supervised study in the high school, the amount of home work to be expected of pupils could probably be lessened, or omitted entirely if the class periods or the school day were lengthened. Even as little as five minutes added to each recitation would mean much to the supervised study classes while the addition of that much time would hardly be felt as a burden by pupils or teachers. There could always remain a certain amount of good home work for the brighter pupils, but the slow pupil would do almost all of his work at school during school hours under guidance of his teachers.

*Sometimes objection to supervised study is made on the ground that it would cause additional expense.—*

Mr. Minnick argues in his paper that supervised study would not increase the expense of instruction as much as it is supposed, because the

instructor can handle more pupils in a supervised class, because consultation periods could be abandoned and because the decreasing number of failures lessens the number of pupils repeating courses.

*A special technique is to be developed for supervised study classes.—*

Unless a system is such that the ordinary teacher can use it successfully without too much additional work, it will be of value to a small part of the teaching public. It is comparatively easy to organize supervised study in classes of mathematics, but rather difficult in other subjects. Assuming that the teacher himself has a knowledge of the principles of learning, the two general characteristics of conducting a supervised study period should be to find out what the pupil is thinking in struggling with the assigned lesson and to guide him properly without giving him too much assistance. The various suggestions given by teachers who have introduced supervised study in their classes are summarized in the following:

1. Teachers should take a new attitude toward home work. They should break themselves of the habit of prescribing the regulation amount of home work daily. Pupils cannot be expected to prepare lessons well unless they know definitely what is expected of them. Rather than to assign a lesson of doubtful difficulty and to receive lessons poorly and dishonestly prepared they may omit the home assignment altogether. Home work should have the character of completing the class work of the previous day, not of preparing for the next. This will enable even the slow pupil to apply his time to it with success and profit. Let the pupil struggle with really new work under the supervision of the teacher, but let home work be preceded by enough similar work in the classroom to furnish a pupil a clew to prevent his working in the dark. With this new rôle assigned to home work a change in class methods should follow.

2. The time ordinarily used for recitation should be shortened or omitted altogether. The time gained can then be used for supervised study and for the development of new work. This is the teacher's opportunity to teach pupils how to study. As he watches the pupils at work, instead of ignoring a pupil who is slow and apparently backward, unable to do what some more gifted pupil can easily do, he finds out the difficulty that prevents a normal rate of progress. Perhaps he must go back to the foundation, where the pupil has real knowledge, to make progress with new material possible. False assumptions, false errors,

false methods are corrected as quickly as they appear. By analyzing the habits of study of a pupil his weakness may be discovered and conscious steps be taken to form or strengthen certain habits that need attention. This work should receive most careful attention. Pupils when left to themselves do not appreciate the value of time. In the classroom they can be taught to start a piece of work promptly and to keep at it at a rate of accomplishment not too slow, but not too high to interfere with accuracy and neatness. An economical use of time is the true mode of securing leisure. Ability to select, arrange, or pick out facts according to their value or "method" is a most important factor. Method enables a larger amount of work to be done with satisfaction. The cultivation of undivided attention must be going on always with special emphasis upon effort to retain. One of the most essential habits of study to be developed constantly is the ability to read carefully with understanding, not mechanically. This ability is commonly presupposed. Yet it is often lacking. Let the teacher ask the pupils to retell what they have read. This will make them read with attention and concentration, learn how to skip judiciously, and will fix what they have read in the memory as in no other way.

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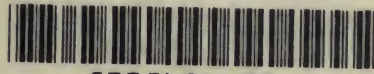
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