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Differentiated Assignments in Classroom Management (Teacher's Manual)

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PREFACE

“ Differentiated Assignments in Classroom Management ” represents an effort to adapt classroom teaching to meet the varied individual needs of students who study a course in school organization and control. The distinctive feature of the system here projected consists in adapting the principle of differentiation to a professional subject of study, which means adapting the principle to a content subject. This departure from the traditional practice in teaching classroom management is usable in high school, teacher training school, and in teachers' college classes.

The work submitted in this manuscript is the result of experimentation with college classes. The period of trial under actual schoolroom conditions extended over a considerable time. All the students who participated in this departure from customary teaching entered into it heartily. Miss Keo King, Supervisor of Intermediate Grades, Practice Teaching, used the course in her class for one quarter, during which time she offered valuable criticism.

Professor H. L. Miller, of the University of Wisconsin, should be credited with having given the author an initial interest in the need for and the possibilities of differentiated instruction. The faculty of the Department of Education at the University of Minnesota have crystallized that interest. For such a crystallization of attitude and ideas I feel grateful, particularly, to W. E. Peik, Professorial Lecturer in Education, whose course work emphasizes the need for recognizing individual differences in students, and decidedly to Dr. L. J. Brueckner who, as Director of Educational Research for the schools of Minneapolis, has done some wonderful work in using the principle of differentiated instruction in the elementary schools.

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ABERDEEN, SOUTH DAKOTA
February, 1928

INTRODUCTION

Changes do not occur in educational practice with great rapidity. There is a tendency in this field as there is everywhere to hold fast to long established procedure and to look with disfavor upon innovations, and especially is this true of teaching. Somehow or other we think that the old way of teaching is the best way and we hesitate to experiment with it for fear that the new way may be no better.

Many years of experience were required before we learned that method is something which cannot be disassociated entirely from subject matter. There were times when we thought that method depended upon the instinctive nature of children or the emotional enthusiasms of the teacher or that it was some sort of skeletal outline or form of technique which could be passed from individual to individual without modification. Gradually, however, we learned that not any one of these and not all of them combined, constitute a satisfactory and workable concept of method. We came to believe that the materials which are being taught determine to a very large extent the way in which they should be taught.

However, it is a fact that we have had, since the middle of the sixteenth century, two methods of study, one represented by the humanistic studies and the other represented by the scientific studies. These two fields encompassed different spheres of knowledge and represented different methods of approach for the discovery and mastery of knowledge. Without knowledge on the part of the advocates of either, the lines of influence from each of these movements converged more and more with time with the lines of influence of the other movement. The teachers of the humanities, formerly, and even now, in many instances, regard their fields as the fields of scholarship. They looked upon science as a method, a way, a mode of attack, a means for discovering new things, but not as

a field of scholarship. The point of view of science was unwelcome in the academic fields, and yet during all the time that the teachers of the humanities were clinging with tenacity to traditional conceptions with regard to their subjects, science, both as to materials and methods, and especially the latter, was gradually transforming the thought and work of these fields. No one twenty years ago would have talked about the use of scientific methods in the teaching of history or in the teaching of mathematics, or in the teaching of foreign languages, and yet even these subjects have succumbed in recent years to the methods of science, and we find that teachers of these subjects are attempting to justify their existence on strictly modern grounds.

In the fact of this sweeping and almost overwhelming change of attitude, a change which has come about quietly but nevertheless effectively, there have been only sporadic efforts here and there really to modify both the material and the technique of instruction in any of the academic fields so as to make the work of these fields more truly experimental and scientific in character than heretofore. There have been few efforts to present a subject of study in such a way as to exemplify the interrelationship of materials and methods. The methods of science and of experiment have been applied more frequently, to be sure, but still rarely, to the academic fields themselves but even then the application has been made usually by those who are engaged in the technical study of education in general.

In the field of science there have been two contending modes of opinion, one represented by those who believe in the application of rigid methods logically arranged and systematically pursued in the consideration of any problem; the other represented by those who believe in the study of phenomena for the purpose of arriving at generalizations and inferences which may be more or less universal or characteristic of similar phenomena. This conflict, of course, is as old as science itself. The true scientist, however, is no longer involved in any philosophical dilemma or difficulty for he knows how and when to apply deduction and how and when to apply induction.

The application of these two methods to a field of learning, so that the mastery by that field comes about naturally and still logically is an achievement much to be desired. Learning has frequently been a matter of compulsion. This may have been due partly to the fact that both the materials and the methods were foreign or at best remotely related to the knowledge and interests of the students. It may also have been due to the fact that wonder, curiosity, problem-solving were not aroused in the students by either the materials or the methods used.

The changes which we have been describing really find expression in a most emphatic and logical way in this particular manuscript.

It is true that what we are about to say has happened in some other fields but this is really the first time that it has happened, so far as we know, in the field of education. There have been few subjects in the field of education that have enjoyed academic responsibility for many years. The number of subjects entitled to such station has been increasing but many of the subjects, for example, school organization, school management, educational administration, school costs, have been looked upon as courses of methods, means, ways of doing things. Furthermore, it has been assumed that progress in these fields depended upon observation, experience, and philosophical deduction. There were those who said that what should be done in each of these fields should be determined by social standards, social influences, and social sanctions lying outside of the school. There were others who said that what should be done should be determined by the instinctive development, the intellectual characteristics and aptitudes of children. One group insisted upon arranging subject matter in logical fashion and of presenting it step by step analytically and sequentially. The other group more recently at least has insisted upon the presentation of materials problem by problem, arranging the problems in some sort of natural sequence. In other words, the conflict between logic and psychology, between what is known as the "logical approach" and what is known as

“the psychological approach” in teaching has been especially prominent in the fields of education.

This manuscript represents an attempt to apply the laboratory method to an education subject. It is an ingenious attempt to meet the individual needs of students pursuing a course in school management. The ordinary practice of conducting classes consists in using one textbook and in keeping the class abreast of the same topic in that textbook. Emphatically this practice means that the bright students must keep the pace set by the average students. We have long recognized that a better schoolroom procedure would consist in each student proceeding with his work at a rate which is commensurate with his ability. This would permit the bright student to forge ahead and complete his required work in a short time, the average student would maintain his average pace, and the dull student instead of being failed would plod on until the course might be successfully completed, even though it took extra time.

This manuscript is a definite attempt to provide for individual differences among students to take work in school management. It is not a textbook in the ordinary sense. It can be modified from time to time; as a matter of fact, it is expected that it will be, as new literature appears in the field bearing upon any of the problems in school management. It presents a constantly expanding form of instruction, one which will be continually modified in light of new thought and new material.

The value of such a manuscript as this is greatly enhanced by the fact that it will be used by persons preparing to teach. They will acquire by their own study this method of attacking problems. They will be forced to widen their scope of reading, to interpret their reading in light of the problems under consideration, and to exercise a reasonable degree of originality and initiative in the solution of these problems. While the manuscript calls for an orderly and progressive development of students and while it calls for an emphasis upon certain generally accepted fundamental principles, it does not call for routine thinking or routine practice. Here at last we have a manuscript

in education which attacks problems in the field of education in much the same way that the students in medicine are expected to attack problems relating to the human body and to its diseases. Science, in other words, has come in to point the way to a more intelligent way of studying. Instead of lessening, it increases the interest in the subject; instead of destroying, it increases the academic respectability of the subject; instead of minimizing, it increases the usefulness of the subject.

The manuscript is a happy combination of method and material, or earlier methods with modern thought, of logical presentation with psychological needs, of a demand for thoroughness with a continually fresh and ever-growing interest in a field of learning.

L. D. COFFMAN

MINNEAPOLIS, MINNESOTA
February, 1928.

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TEACHER'S MANUAL

I

SUMMARY OF THE MAIN POINTS IN THE TEACHER'S MANUAL

1. **Individual Differences in Students.** — “Differentiated Assignments in Classroom Management” is a system of teaching designed to meet individual differences in the abilities of students. This system encourages them to work at individual rates of progress. It permits a recognition of the quantity as well as the quality of a student's work.
2. **Forms.** — “Differentiated Assignments in Classroom Management” is a system devised in three forms: namely, Form A, Form B, and Form C. *Do not use the same form in two consecutive quarters or semesters. Rotate the three forms.*
3. **Material Needed.** —
 - a. By the teacher:
 - (1) “Differentiated Assignments in Classroom Management (Teacher's Manual).”
 - (2) Class Record Sheets, X, Y.
 - (3) Objective Examination Questions with Key.
 - (4) Tables 1, 2, 3, 4.
 - b. By each student:
 - (1) Copy of “Differentiated Assignments in Classroom Management (Exercises).”
 - (2) Copy of Reading References.
 - (3) Folder for Completed Work.

(When ordering material always indicate which form is wanted.)
4. **Plan of the System.** —
 - a. **Fields.** — According to this system of differentiating class work, the course in school management is divided

into twenty-three fields. A field corresponds to a chapter.

- b.* Sections. — Each field is subdivided into *sections*. A *theme* is the central thought of each section.
- c.* Problem-questions. — Each section contains a problem-question which embodies for its central thought the theme of its section.
5. **Assignments.** — Only one assignment is made for the quarter (or semester). It consists of a study of all the sections in all the fields beginning with Field I. This constitutes the minimum of work. All of it is required.
6. **Supplementary Problems.** — These are optional assignments, except in the case of Problem 12 which is required of all. The supplementary problems enrich the course. They should usually be answered after the twenty-three fields are finished.
7. **Supplementary Sections.** — Work on these sections is optional. They constitute material which can be used to enrich the minimum requirements of this course.
8. **References.** — Each student is supplied with specific references to accompany each field. No references are listed with the supplementary problems.
9. **Textbook.** — It is possible to adopt *any textbook* in using "Differentiated Assignments in Classroom Management." A textbook may probably be dispensed with if the library is well stocked with books on classroom management.
10. **Study.** — The students study all the themes in every field regardless of the form (A, B, or C) which the teacher is using.
11. **Class Recitation.** — The students recite on all the themes in every field regardless of the form (A, B, or C) which the teacher is using. The instructor's lectures should be based mainly upon questions which the students should be invited to ask about their difficulties in studying the themes which accompany the sections.
12. **Writing.** — The students write answers to some of the problem-questions in each field. Most of the writing

should be done in class, and some may be done at any time *when the teacher is present*; no writing may be done if he is continually absent a large part of the writing time.

13. **Grading the Written Work.** — The students are graded on (1) the answers to the problem-questions and on (2) the objective tests. Two-thirds of the grade is contributed by scores on the problem-questions, and one-third of the grade is contributed by the scores on the objective tests. A second option is possible in grading, in that the problem-questions may constitute *three-fourths* of the final mark and the objective tests, *one-fourth* of it. The teacher grades all answers to the problem-questions; the students grade the answers to the objective tests.
14. **Objective Goals.** — Each student is required to keep an individual record of his cumulative scores. He records these on a graph in his book of exercises. The students also record their progress on a Class Record Sheet.

The teacher keeps an Instructor's Record of the Cumulative Point Scores.

II

ILLUSTRATING THE PROCEDURE IN USING DIFFERENTIATED ASSIGNMENTS IN CLASSROOM MANAGEMENT

1. Supply each student in the class with a copy of "Differentiated Assignments in Classroom Management (Exercises)."
2. Assign Field I for the students to study. Call attention to the references which accompany this field. Each student is supplied with a copy of the references for all the fields.
3. Advise the students to study the succeeding fields as fast as they choose to do so, providing that at least an average rate of progress is being made by each member of the

- class. The average rate of progress is indicated on Line A of the Class Record Sheet.
4. Devote the time in the succeeding lecture-recitation-discussion to answering questions upon the themes which are difficult for the students.
 5. Follow two or three days of lecture-recitation-discussion with one day of written work. In assigning such work consult the "Guide to Recurring Sections for the Students to Answer." Thus, according to this guide, the students answer three even-numbered sections on Field I if they are using Form A.
 6. The answers to problem-questions in this field are detached by the student and are placed in a folder which is reserved for that purpose.
 7. The day devoted to writing is now followed by several days of lecture-recitation-discussion of other fields.
 8. While the students write, the instructor may mark the answers to the problem-questions. He should record the value of each field opposite the student's name and number on the Instructor's Record of Cumulative Point Scores, Table 4. This value should also be recorded in the upper right-hand corner of the field. The latter mark is for the student's use.
 9. The student transfers the point score on each field to his Individual Record and he continues to record his accumulated totals, A. T.
 10. Each student translates his accumulated totals into marks of B, C, C-, etc., by the use of the table on the Class Record Sheet and then marks his grade on the Student's Graphic Record.
 11. As soon as a student has completed writing the answers to Field I, he indicates this fact on the Class Record Sheet with a cross. Each completed field after being answered is recorded in a similar manner.

III

DIAGRAMMATIC REPRESENTATION OF THE COURSE



DIAGRAM 1. DIAGRAMMATIC REPRESENTATION OF THE MINIMUM COURSE AND OF THE SUPPLEMENTARY MATERIAL. The minimum course is symbolized by the horizontal line. The Roman numerals stand for fields. The short dashes above the fields indicate the number of supplementary sections and supplementary problems which the students may answer before proceeding to work on the next succeeding field. By following this plan enrichment of content parallels the work on the minimum course.

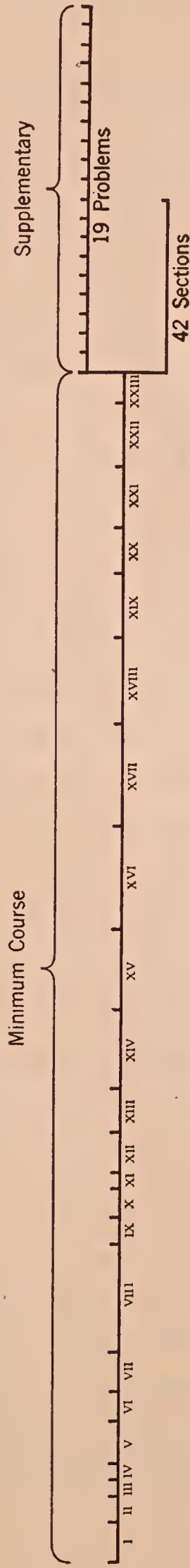


DIAGRAM 2. DIAGRAMMATIC REPRESENTATION OF THE MINIMUM COURSE AND OF THE SUPPLEMENTARY MATERIAL. The minimum course is symbolized by the horizontal line. The Roman numerals stand for fields. According to this plan of procedure all work on the minimum course is completed before the supplementary assignments are undertaken. For such assignments the students may choose the problems only, or the sections, or a combination of the two. The author recommends the plan of procedure depicted in Diagram 2 for the use of those teachers who use this system of teaching for the first time.

IV

CONDUCT OF THE RECITATION

General Suggestions. — Consider the recitation period, or a series of them, to serve two purposes: namely, (1) lecture-recitation-discussion, and (2) writing. From two-thirds to three-fourths of the time, or perhaps even more of it, should be devoted to the first procedure and the remainder of the time to the second. The lecture-recitation-discussion procedure may consume several successive recitation periods. These may be followed by one or two class periods taken up with writing, or the lecture-recitation-discussion procedure may occupy two successive recitation periods followed by one period devoted to writing by the pupils. The general plan of the relation of the two procedures is merely suggestive; the details must be adapted by the instructor to meet the needs of the class.

Lecture-Recitation-Discussion. — Though the lecture-recitation-discussion consumes the greater part of the quarter's (or semester's) work, even then *it is impossible for the instructor to lecture upon or discuss with the class each section in a field.* The instructor should, therefore, invite the students to raise questions about sections difficult for them, at the beginning of every lecture period. Answering and discussing the students' questions usually will consume the entire class period. It should be understood by the students that unless they raise questions or specifically request a discussion of difficult sections, that the instructor presumes all sections to have been carefully studied and *understood.*

The instructor should use as the basis of his lecture, *not the problem-question* but the theme¹ of a section. Hence, if a student asks the instructor to answer a problem-question listed under a theme no answer may be supplied; *the theme only should be discussed.* The reason for observing these suggestions is apparent, inasmuch as the problem-question eventually

¹ The theme is printed immediately after the number of a section, thus, "S 1. Rooming and Boarding Place."

becomes an examination question, which the student is required to answer.

The questions being disposed of, the balance of the lecture-recitation-discussion procedure should be devoted by the instructor to a discussion of such section or sections as, in his judgment, require elaboration and enrichment to supplement the information which the students glean from a study of the references.

Experimentation in five classes with this system of teaching school management for over a year, leads me to believe that the students profit most from the class work when the instructor bases most of his lectures on the questions which are asked. The instructor's answers should be brief and to the point, for the students ask many questions and the work in the course needs to proceed with dispatch.

Under no plan of teaching used in the conduct of class work is it possible for the pupils and the teacher to discuss fully every point in an assignment, nor is this possible under the plan here projected. Economy of time and effort and a due regard for the student's ability to accomplish something for himself, justify the class discussion of only a part of the ground covered by assignments.

Written Work. — Each field is divided into a number of sections. All the sections in a field must be studied, but it is not required that all the problem-questions be answered by the students, in doing the written work. The plan of differentiated assignments used here provides for Forms A, B, and C. Form A requires the students to answer in writing only some of the problem-questions which accompany the even-numbered sections. This is desirable, since to answer all of the even-numbered sections is very time-consuming. This principle concerning itself with the number of sections that may be answered pertains to Forms B and C also.

An illustration will clarify the meaning of the foregoing statements. Suppose that the student is using Form A, that he had studied Field V which contains sixteen sections. Accordingly there exists the expectation that problem-questions

on Sections 2, 4, 6, 8, 10, 12, 14, and 16 will require answers. It is unnecessary for the students to write answers to all of these sections because their number is large and much time would be consumed in writing. The instructor may designate that fewer, say five, of these problem-questions be answered. To preclude incomplete preparation by students, those who reach this field first may be asked to write on five even-numbered sections and the later ones to write on any other possible combination of five of the even-numbered sections. Thus some students will write on problem-questions 2, 4, 6, 8, 10, others on 4, 6, 8, 10, 12, others still on 2, 6, 10, 12, 14, etc.

When assigning sections to write upon in any one field, arrange the assignment so that each student answers certain sections which are *common* to every paper containing answers. This suggestion is made because it is easier for the instructor when scoring the papers to keep in mind only a few recurring sections than to remember many different ones. Thus, select for one student to write on, say, sections 2, 6, 8, 12, 14, making sections 6, 8, 12, common to every paper. A second student might be asked to write on 4, 6, 8, 12, 16, sections 6, 8, 12, recurring in the second student's answers. It is obvious that in giving these written tests, the writing should be done immediately after the sections have been assigned to the students. *For a student to write the answers to questions at his leisure after they are assigned defeats the plan of this system of teaching.*

The instructor should collect all the manuscripts at the end of the period else some students may keep them and write outside of the classroom when the teacher is absent. Such a practice is undesirable.

APPORTIONMENT OF THE COURSE BY WEEKS

Apportionment by Weeks. — It must not be presumed that the content of any course should be completed with any speed of absolute uniformity so that a definite amount of subject-

matter will be finished at the close of each successive week. However, it gives both the instructor and the students a definite goal toward which to work by distributing the content of a course on a time schedule. Such a time schedule should be very flexibly interpreted and, therefore, need not be closely followed. The subject matter in this course in classroom management should be completed by the class at a speed which approximates the suggestion on the Class Record Sheet used for displaying student progress. For a graphic representation of the rate of class progress, see line "A" on the Class Record Sheet. A part of the line is here reproduced.

LINE "A"	First week	Second week	Third week	etc.
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VI

ASSIGNMENTS

Lesson Assignments. — Every student is supplied with a list of references to facilitate the study of each field. In most instances the references are arranged under the appropriate theme of each section. Such themes as comprise the minimum of this course and the accompanying references constitute the immediate goal toward which the students work. The minimum course embraces the term's assignment. *Every student in the class should be made to see that there is set for him the task of completing the goal at least at the prescribed speed indicated in Chapter V which explains "Line A."* When this is understood no further explanations of assignments for the remainder of the term are necessary. Inasmuch as goal-setting is a new idea to most students, it may be necessary to remind them several times during the quarter of their progress toward the objective. The best means of doing this is through the use of the Class Record Sheet for recording progress.

References. — Several references are supplied under each section. No student is required to read every one of them, but a sufficient number of references should be read to satisfy the reader that he knows about the theme accompanying a section *as it pertains to the field under which it is listed.*

VII

EXAMINATIONS

Subjective. — The recitation period or a series of them is divided into two parts: namely, (1) lecture-recitation-discussion and (2) writing. The written work constitutes a major part of the final examination grade. The point scores earned through such written work are cumulative in character and contribute a part of the total mark toward the minimum requirement for the entire course.

By the use of a table on the Class Record Sheet "X," the cumulative score constitutes three-fourths of the total examination mark and the objective test constitutes one-fourth of the mark; by using the table on Class Record Sheet "Y," the ratios of the scores are two on the problem-questions and one on the objective tests. The object of using two tables is to give the teacher the option of making one of two choices in grading the students' written work. According to one option the written answers constitute a larger part of the final score than according to the other. Some teachers may prefer to have the objective tests count for only a fourth of the final mark while others only one-third of it.

Objective. — The other part of the grade is contributed by tests on objective questions. Three objective examinations are administered to the students, the first at such a time when the average number of students have completed the study of and have finished the written work on Field X. This is approximately when the first third of the quarter is ended, which is at the close of the fourth week of the course. The second objective test is administered when the average class membership has completed the study of and has finished the written work on Field XVI. This is at the close of the eighth week. The third objective test is given at the close of the term.

To determine the score on the objective test use either of two formulæ.

- (1) Formula to use when the objective test constitutes one-fourth of the final mark:

$$\frac{4 \times \text{number right} \times 4}{4}$$

- (2) Formula to use when the objective test constitutes one-third of the final mark:

$$\frac{4 \times \text{number right} \times 4}{3}$$

VIII

DIRECTIONS FOR CONDUCTING WRITTEN WORK

Writing Answers to Problem-Questions. — *Each problem-question is based upon the theme and field which it accompanies. The answer to a problem-question should always be controlled by this fact. It should always answer only what is required by the problem-question, since the evaluation of all answers to the questions is made strictly on this basis. All answers should be brief and to the point. The average answer should be satisfied by six to twelve hand-written lines in average-size script.*

In marking the papers, award four point scores for a perfect answer. Such an answer should contain first, a statement of the principle involved; second, a statement of the relevant facts which are required by a correct answer to the question, the facts being combined in some manner with the principle. To facilitate speed in marking answers the student should label the first part of the answer (*a*), enclosing the letter in a double parenthesis; the second part of the answer should be labeled (*b*.)

An answer which satisfies condition (*b*) only will be scored two; one which satisfies condition (*b*) by contributing the correct facts without relation to the principle involved *or* the correct facts and the wrong principle, *or* inappropriate facts and the right principle, will be scored one point. If the facts in (*b*) are partly given and the principle is poorly related to them,

score the answer one or zero, according to the quality of the answer.

Objective Tests. — The answer to each part of this examination is right or wrong. A correct answer receives a score of four points; an incorrect one, a score of zero. Give no part credit for any answer.

IX

DIRECTIONS FOR MARKING WRITTEN WORK

Marking Problem-Questions. — For information on this matter review the directions to be observed for writing examinations. *Make it a point to mark answers to the problem-questions while the students are writing.*

Marking Objective Tests. — Immediately after such tests are administered have the students exchange papers and mark them while you read the key answers. Usually it will be unnecessary for the instructor to recheck these papers. His discretion should guide him in determining the need for rechecking the papers.

Form A of this course requires the students to write answers to problem-questions which bear the even numbers only. Since some of the fields are short and others long, the total number of answers required of students varies with the length of the field. A long field may require fifteen answers. It does not seem necessary that in such a case the student be required to answer each of the odd-numbered questions. Perhaps any six to ten of the fifteen odd-numbered fields would make a written assignment of sufficient length. The student's time is conserved by requiring the shortened assignment.

All the members of the class should be required to answer the same number of questions, but Student A may write answers to a given field before the other students do; Student B will write answers when he is ready as will the rest of the students when they each in turn are prepared to do so. Since there are

individual differences in the progress rates of the several students, a given field may be answered at different times by the various individuals in the class. To make impossible the study of only those sections in a field which are answered by the first students who are ready to write, the subsequent students may be required to answer other sections than those which are assigned first. Suppose that a field contains thirty sections, fifteen of which are designated by odd numbers; also, suppose that the instructor wishes to have answered only seven of the questions; then, Student A may be required to answer, say, sections 1, 3, 5, 7, 9, 11, and 13. Student B and others who work on this field at the same time, after A has finished, may be required to answer sections 3, 9, 13, 17, 19, 21, and 23. Other students who work on this field still later may answer another combination of seven odd-numbered sections. (See page 8.) Before a student writes, the instructor needs specifically to designate by number the sections a student is to answer, so that sections of the instructor's choice and not of the student's, are answered.

The instructor may mark the answer to only one section in a short field, and two or more answers in the longer ones, but it seems unnecessary for him to mark the answers to more than five sections in any field. The teacher's marks on a few chosen answers are a sample of what the answers to the entire field are worth. To resolve the point scores on a few fields to an average point score for one section and then to evaluate the entire paper for a given field, involves much simple calculation. Three tables, Tables 1, 2, 3, are prepared to obviate such calculation.

TABLE 1
 USED TO DETERMINE THE AVERAGE POINT SCORE IN ONE SAMPLE (ANSWER) WHEN THE SUM OF ALL THE POINT SCORES
 AND ALSO THE NUMBER OF THE SAMPLES (ANSWERS) MARKED, IS KNOWN

Average Mark on One Sample	Sum of Point Scores on Samples																			Number Samples Marked	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		20
1.	2.	3.	4.																		1
.5	1.	1.5	2.	2.5	3.	3.5	4.														2
.33	.66	1.	1.33	1.66	2.	2.33	2.66	3.	3.33	3.66	4.										3
.25	.5	.75	1.	1.25	1.5	1.75	2.	2.25	2.5	2.75	3.	3.25	3.5	3.75	4.						4
.2	.4	.6	.8	1.	1.2	1.4	1.6	1.8	2.	2.2	2.4	2.6	2.8	3.	3.2	3.4	3.6	3.8	4.		5

Use the table thus: If the sum of the point scores is 2 and two samples are marked, the average point score on one section is 1. This number is found at the intersection of the second vertical column at the left and the second horizontal column. If the sum of two samples is 6 the average point score is 3, which number is located at the intersection of the sixth vertical and the second horizontal columns. If the sum of five samples is 13, the average point score on one answer is 2.6. (Tables 1, 2, and 3 are reproduced on a separate card to facilitate their speedy use by the instructor.)

TABLE 2

CONTAINS THE PERIODIC SCORES ON ANY FIELD FOR DIFFERENT AVERAGE POINT SCORES PER SECTION. DEvised ON THE BASIS OF ASSIGNING $\frac{3}{4}$ VALUE TO PROBLEM-QUESTIONS. DIRECTIONS ON PAGE 16.

Sections in Fields	4	6	7	8	10	11	15	16	18	20	22	25	26	27	Ave.	
Periodic Scores	0	0	1	1	1	1	2	2	2	3	3	3	3	4	.2	
	0	1	1	1	1	2	2	3	3	3	4	4	4	5	.25	
	0	1	1	1	2	2	3	3	4	4	5	6	6	6	.33	
	1	1	2	2	3	3	4	4	5	6	6	7	7	8	.4	
	1	2	2	3	3	4	4	5	6	6	7	8	9	9	10	.5
	1	2	3	3	4	4	6	7	7	9	9	11	11	12	.6	
	1	3	3	3	4	5	7	7	9	9	10	12	12	13	.66	
	2	3	3	4	5	6	8	9	10	11	12	13	14	15	.75	
	2	3	4	4	6	6	9	9	10	12	13	15	15	16	.8	
	3	4	5	6	7	8	11	12	13	15	16	18	19	20	1.0	
	3	5	6	7	9	9	13	14	16	18	19	22	23	24	1.2	
	3	5	6	7	9	10	14	15	16	18	20	23	24	25	1.25	
	3	6	6	7	9	10	15	15	18	19	21	24	25	27	1.33	
	4	6	7	8	10	11	15	16	18	21	23	26	27	28	1.4	
	4	6	7	9	11	12	16	18	20	22	24	28	29	30	1.5	
	4	7	8	9	12	13	18	19	21	24	26	30	31	32	1.6	
	4	7	8	9	12	13	19	19	22	24	27	31	32	33	1.66	
	5	7	9	10	13	14	19	21	23	26	28	32	34	35	1.75	
	5	8	9	10	13	14	20	21	24	27	29	33	35	36	1.8	
	6	9	10	12	15	16	22	24	27	30	33	37	39	40	2.0	
	6	9	11	13	16	18	24	26	29	33	36	41	42	44	2.2	
	6	10	11	13	16	19	25	27	30	33	37	42	43	45	2.25	
	6	10	12	13	17	19	26	27	31	34	38	43	45	47	2.33	
	7	10	12	14	18	19	27	28	32	36	39	45	46	48	2.4	
	7	11	13	15	18	20	28	30	33	37	41	46	48	50	2.5	
	7	11	13	15	19	21	29	31	35	39	42	48	50	52	2.6	
	7	12	13	15	19	21	29	31	36	39	43	49	51	53	2.66	
	8	12	14	16	20	22	30	32	37	41	45	51	53	55	2.75	
	8	12	14	16	21	23	31	34	37	42	48	52	54	55	2.8	
	9	13	15	18	22	24	33	36	40	45	49	56	58	60	3.0	
	9	14	16	19	24	26	36	38	43	48	52	60	62	64	3.2	
	9	14	17	19	24	26	36	39	43	48	53	60	63	65	3.25	
	9	15	17	19	24	27	37	39	45	49	54	62	64	67	3.33	
	10	15	17	20	25	28	38	40	45	51	56	63	66	68	3.4	
	10	15	18	21	26	28	39	42	47	52	57	65	68	70	3.5	
	10	16	18	21	27	29	40	43	48	54	59	67	70	72	3.6	
10	16	19	22	27	30	41	43	49	54	60	68	71	74	3.66		
11	16	19	22	28	30	42	45	50	56	61	70	73	75	3.75		
11	16	19	22	28	31	42	45	51	57	62	71	74	76	3.8		
12	18	21	24	30	33	45	48	54	60	66	75	78	81	4.0		
Sections in Fields	4	6	7	8	10	11	15	16	18	20	22	25	26	27		

How to use Table 2: With the use of Table 1, find the average point score for one sample (answer). Find the number of sections contained in the field for which you would determine the periodic score. Suppose the average point score is 2.0 and that the field contains 10 sections. Locate 2.0 in the extreme right hand vertical column of Table 2, and locate 10 in the top horizontal column of this table. The intersection of the columns to the left from 2.0 and down from 10, locates the number 15. This number is the periodic point score.

If the average on 20 sections is 3.0, the periodic point score is 45; if the average on a field of 27 sections is 4, the periodic score is 81.

According to this table the point scores on the problem-questions constitute *three-fourths* of the final mark; hence, the score on perfect answers to a field of eight sections is $4 \times 8 \times \frac{3}{4}$ or 24.

How to use Table 3: With the use of Table 1, find the average point score for one sample (answer). Find the number of sections contained in the field for which you would determine the periodic score. Suppose the average point score is 1.0 and that the field contains 16 sections. Locate 1.0 in the extreme right-hand vertical column of Table 3 and locate 16 in the top horizontal column of this table. The intersection of the columns to the left from 1.0 and down from 16 locates the number 10. This number is the periodic point score.

If the average on a field of 20 sections is 3, the periodic point score is 40; if the average on a field of 27 sections is 4, the periodic score is 72.

According to this table the point scores on the problem-questions constitute *two-thirds* of the final mark; hence, the score on perfect answers to a field of six sections is $4 \times 6 \times \frac{2}{3}$ or 16.

TABLE 3

CONTAINS THE PERIODIC SCORES ON ANY FIELD FOR DIFFERENT AVERAGE POINT SCORES PER SECTION. DEVISED ON THE BASIS OF ASSIGNING $\frac{2}{3}$ VALUE TO THE PROBLEM-QUESTIONS.

Sections in Fields	4	6	7	8	10	11	15	16	18	20	22	25	26	27	Ave.
Periodic Scores	0	0	0	1	1	1	2	2	2	2	2	3	3	3	.2
	0	1	1	1	1	1	2	2	2	3	3	4	4	4	.25
	0	1	1	1	2	2	3	3	4	4	4	5	5	5	.33
	1	1	1	2	2	2	4	4	4	5	5	6	6	7	.4
	1	2	2	2	3	3	5	5	6	6	7	8	8	8	.5
	1	2	2	3	4	4	6	6	7	8	8	10	10	10	.6
	1	2	3	3	4	4	6	6	8	8	9	10	11	11	.66
	2	3	3	4	5	5	7	8	9	10	11	12	13	13	.75
	2	3	3	4	5	5	8	8	9	10	11	13	13	14	.8
	2	4	4	5	6	7	10	10	12	13	14	16	17	18	1.0
	3	4	5	6	8	8	12	12	14	16	17	20	20	21	1.2
	3	5	5	6	8	9	12	13	15	16	18	20	21	22	1.25
	3	5	6	7	8	9	13	14	16	17	19	22	23	23	1.33
	3	5	6	7	9	10	14	14	16	18	20	23	24	25	1.4
	4	6	7	8	10	11	15	16	18	20	22	24	26	26	1.5
	4	6	7	8	10	11	16	17	19	21	23	26	27	28	1.6
	4	6	7	8	11	12	16	17	20	22	24	27	28	29	1.66
	4	7	8	9	11	12	17	18	21	23	25	29	30	31	1.75
	4	7	8	9	12	13	18	19	21	24	26	30	31	32	1.8
	5	8	9	10	13	14	20	20	21	24	29	33	34	36	2.0
	5	8	10	11	14	16	22	23	26	29	32	36	38	39	2.2
	6	9	10	12	14	16	22	24	27	30	33	37	39	40	2.25
	6	9	10	12	15	17	23	24	28	31	34	38	40	41	2.33
	6	9	11	12	16	17	24	25	28	32	35	40	41	43	2.4
	6	10	11	13	16	18	25	26	30	33	36	41	43	44	2.5
	6	10	12	13	17	19	26	27	31	34	38	43	45	46	2.6
	7	10	12	14	17	19	26	28	32	35	38	44	46	47	2.66
	7	11	12	14	18	20	27	29	33	36	40	45	47	49	2.75
	7	11	13	14	18	20	28	29	33	37	41	46	48	50	2.8
	8	12	14	16	20	22	30	32	36	40	44	50	52	54	3.0
8	12	14	17	21	23	32	34	38	42	46	53	55	57	3.2	
8	13	15	17	21	23	32	34	39	43	47	54	56	58	3.25	
8	13	15	17	22	24	33	35	40	44	48	55	57	60	3.33	
9	13	15	18	22	24	34	36	40	45	49	56	58	61	3.4	
9	14	16	18	23	25	35	37	42	46	51	58	60	62	3.5	
9	14	16	19	24	26	36	38	43	48	53	60	62	64	3.6	
9	14	17	19	24	26	36	38	44	48	53	60	63	65	3.66	
10	15	17	20	25	27	37	40	45	50	55	62	65	67	3.75	
10	15	17	20	25	27	38	40	45	50	55	63	65	68	3.8	
10	16	18	21	26	29	40	42	48	53	58	66	69	72	4.0	
Sections in Fields	4	6	7	8	10	11	15	16	18	20	22	25	26	27	

X

INSTRUCTOR'S RECORD OF CUMULATIVE
POINT SCORES

All the point scores given on the problem-questions and on the objective questions are cumulative in character. The point scores credited to Field II are added to the point scores credited to Field I and the scores credited to Field III are added to the accumulated score obtained by adding the scores on the first two fields. This principle of score cumulation is followed through the twenty-third field which is the last one in the course. The following form is used for the purpose of recording the cumulative score.

The student's number and name appear in the left-hand margin. The symbol, Σ , means sum.

Opposite the symbol, Σ , is recorded the sum of the point scores earned by the student on such of the sections as the instructor marks. Student 1 received a sum of 7 on two sections in Field I. This field contains 10 sections. The number of sections in a field is represented by a figure immediately under the Roman designation which latter stands for the number of the Field. By Table 1 the average score on one section, if two are marked, is 3.5. By the use of Table 2 the periodic score on Field I for Student 1 is 26. The periodic score is written opposite T, total, in the column reserved for Field I. This total is the accumulated total, A. T. The sum of the two sections marked in Field II is 4. By Table 1 this gives an average of 2 point scores for one section. Field II contains 6 sections (see small figure under Roman II). With this information and the use of Table 2, the total, T, 9, on Field II is obtained. All the sums and totals are arrived at in the way illustrated above.

The accumulated totals on all the fields except the first are obtained by adding the total in one field to the accumulated total of the preceding field. Thus, the total for Field II, or 9, and the accumulated total, 26, for Field I, give 35, the accumulated total for Field II.

It is unnecessary for an instructor to figure all the accumulated totals for each student. He may, for the purpose of checking the students' scores, accumulate the totals twice or three times during a quarter. This is a very simple process. The accumulated total, or 219, through Field X, is the sum of the totals on Field I to X, inclusive; the accumulated total through Field XVI, or 545,¹ is the sum of all the totals preceding Field XVIII. The accumulated total in Field XVII also includes the totals of the first and second objective examinations.

XI

TABLES FOR DETERMINING THE TOTALS

The instructor may use either of two tables for obtaining the totals. Table 2 is constructed with a view to giving a three-fourths value to the problem-questions and one-fourth value to the objective examinations. Table 3 gives two-thirds value to the problem-questions and one-third value to the objective examination. It is evident that though a teacher may use either table, he must adhere to the use of one table only throughout the quarter.

When the teacher uses Table 2 for determining the point scores to the problem answers, the students should use the formula,

$$\frac{4 \times \text{number right} \times 4}{4}$$

in figuring the *objective* test scores.

When the teacher uses Table 3, the students should use the formula,

$$\frac{4 \times \text{number right} \times 4}{3}$$

in figuring the *objective* test scores.

¹ See page 19.

XII

STUDENT'S INDIVIDUAL RECORD

Student's Individual Record. — Under this individual system of instruction each student is required to keep an individual record of the point scores which he earns. For this purpose he uses a tabular form¹ like that which is illustrated above.

The point score values of the fields are recorded by the instructor. His record is made in the upper right-hand corner of the first sheet for each field. Thus the records may be 26 for Field I, 9 for Field II, 6 for Field III, 6 for Field IV, 33 for Field V, 13 for Field VI, etc. The student transcribes these totals to his Individual Record and then accumulates them as is illustrated above.

XIII

STUDENT'S GRAPHIC RECORD

Student's Graphic Record. — Each student keeps a graphic record of the grades which he earns on each field.

By consulting the table on the Class Record Sheet used by the class for recording progress, the accumulated totals may be resolved to grades as B, C-, etc. The grades are recorded on a graph like the illustration.

XIV

SUPPLEMENTARY EXERCISES

Supplementary Assignments. — Two kinds of assignments are used for supplementary purposes. One variety consists of problem-questions which are in every respect like the problem-questions in the twenty-three fields. The other variety consists of long problems which are more extensive in nature than

¹ See inside front cover of "Differentiated Assignments in Classroom Management (Exercise)."

the preceding. The two kinds of supplementary problems are designed to enrich the course.

The highest possible point score on each supplementary problem-question is four. The standard for grading it is the same as the standard used for all the problem-questions in the several fields.

Work on the supplementary assignments is wholly optional with the students, with the exception of long problem Number 12. This one is required of all the students.

The possible point score is indicated after the theme of each long problem. Since the possible scores on the long supplementary problems are from four to eight times the possible score on any section, the long supplementary problems should be much more fully answered to warrant a perfect score than the problems which accompany the sections.

From practical experience with this system of teaching classroom management, *it seems best to permit students to work the supplementary problems after the twenty-three fields have been finished.*

XV

SCORES ON SUPPLEMENTARY PROBLEMS

Recording Scores on Supplementary Problems. — The point scores earned on the supplementary problems are added to the accumulated total obtained by a student up to the time he answers any given problem. Thus, since Problem 1 supplements Field II, this problem may be answered by the students after the sections in this field are finished. In that case the student's score is the cumulative score on Field II plus the score on Supplementary Problem 1. If the supplementary problems¹ are answered after all the fields are finished, the scores on all the supplementary problems are added to the accumulated total obtained on the third objective examina-

¹ A student may answer as many supplementary problems as he chooses. The only possibility of earning a grade of "A" is by answering a sufficient number of supplementary problems or supplementary sections.

tion. Thus if the accumulated total on the third objective test is 1200 and the total of scores on the supplementary problems is 250, the total score is 1450, which being one point score higher than that required for a grade of " B + " entitles the student to a grade of " A."

In a number of instances the sum of the accumulated total on the third objective test plus the scores on the supplementary problems will be too low for a grade higher than " B +." Under these conditions an otherwise low grade is raised by the student who answers a number of supplementary problems.

XVI

OBJECTIVE QUESTIONS

Objective Examination Questions.— There have been prepared three sets of objective examination questions. One set, Form A, accompanies Form A of the problem-questions; another set, Form B, accompanies Form B of the problem-questions; a third set, Form C, accompanies Form C of the problem-questions. Each set, or form, is divided into two parts, Parts I and II. Either part may be used as an appropriate objective test in the form, A, B, or C, of which it is a part. The objective tests are accompanied by a " key " for the teacher's use.

STUDENT OPINION OF DIFFERENTIATED ASSIGNMENTS IN CLASSROOM MANAGEMENT

While this course was in the process of development, and therefore during a period when it was in a state of imperfection, the students who enrolled in classes in which the system of differentiation was being tried, were invited to contribute their opinion of this class procedure, which was entirely novel to them. These students were supplied with specific questions to be answered. The meaning of the questions was explained by the instructor. It was made plain that the character of the answers to the questions would not influence grades. To insure full freedom of expression the students were requested not to sign their names to what they had written. Many of the answers were tabulated by the students themselves.

There were used the following questions to elicit student opinion regarding the character of differentiation in teaching compared with the traditional method of procedure.

I. Does this system of differentiation in teaching, compared with the traditional method, require on your part —

1. More or less self-directed study?
2. More or less initiative?
3. More or less evaluation of knowledge?
4. More or less organization of knowledge?
5. Sufficient emphasis on facts?

II. Does this system stimulate you more because of the constant access to grades?

III. Does it make cheating possible?

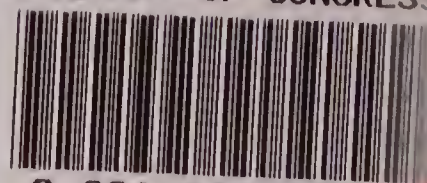
The students' opinions in answer to the question are tabulated below.

TABLE 5
TABULATION OF STUDENTS' OPINIONS

	More	Less	
1. Self-directed Study	68	5	
	More	Less	
2. Initiative	72	5	
	More	Less	
3. Evaluation of Knowledge	67	7	
	More	Less	
4. Organization of Knowledge	67	7	
	Enough or more	Too little or less	
5. Emphasis of Facts	48	13	
	Stimulating	No better	
6. Effect of Constant Access to Grades	70	1	
	As much	None	Less
7. Cheating	12	47	10

According to the depositions of the students this course in differentiating the work in classroom management and organization, is a vast improvement over the traditional way of teaching this content subject.

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