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ABSTRACT

A variety of methods can be used for instructing classes having highly heterogeneous students, including individualization of instruction, homogeneous grouping, team teaching, and modifying whole-class instruction. Through classroom observations and teacher interviews, the prevalence of such methods in 32 second- and third-grade classrooms were studied, and the relationships between these methods and student achievement were examined. A greater variety of approaches to heterogeneity was observed in reading instruction than in mathematics instruction. Very few relationships were found between use of the various approaches and achievement gains in mathematics. In reading, however, greater achievement gains were associated with the extent of team teaching arrangements, use of individualized instruction, and several other variables. (Author/JD)

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Abstract

A variety of methods can be used for instructing classes having highly heterogeneous students, including individualization of instruction, homogeneous grouping, team teaching, and modifying whole-class instruction. This study examined the prevalence of such methods in 32 second- and third-grade classrooms. In addition, the relationships between these methods and student achievement were examined. A greater variety of approaches to heterogeneity was observed in reading instruction than in math instruction. Very few relationships were found between use of the various approaches and achievement gains in mathematics. In reading, however, greater achievement gains were associated with the extent of team teaching arrangements, use of individualized instruction, and several other variables.

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Introduction and Background

Heterogeneity with respect to student academic ability is and will continue to be an important concern for teachers. Although it is only one of many facets of student diversity, student entering achievement is generally regarded as the most salient feature of individual differences that affects a child's success in basic skills instruction. A common response to individual differences is to alter the organization of the class and attendant instruction. Instructional alternatives, including individualization and homogeneous ability grouping, that have been used to accommodate diversity have been reviewed by Artley (1981), Calfee and Brown (1979), and Good and Stipek (1983). The research does not provide clear answers regarding optimal grouping or instructional practices, and reviewers do not always arrive at the same conclusion. For example, Good and Stipek observed, "The educational implication that we draw from research on classroom organization and reward structure is that no particular structure maximizes learning in children of all ability levels" (p. 28). However, in his synthesis of 46 studies on cooperative learning strategies, Slavin (1983) indicated, "Thus, there are two factors that must be present if cooperative learning methods are to be more instructionally effective than traditional methods: group rewards and individual accountability" (p. 442). These conclusions are not

necessarily conflicting, because somewhat different bodies of research were reviewed; however, they do illustrate the diversity of opinion that exists regarding how best to accommodate individual differences.

Teachers inevitably are confronted by two inescapable facts: diverse students and the need to organize and instruct them. Not to accommodate individual differences in basic skills risks mismatching significant numbers of students with instructional materials and tasks, resulting in low success rates and a variety of concomitant negative effects. Not to provide suitable activities and materials for the more academically able students risks the loss of their involvement as well as parental dissatisfaction. Given the absence of compelling research evidence supporting particular strategies for teaching heterogeneous classes, it is little wonder that a teacher's decisions may be strongly influenced by more immediate concerns for student involvement (Buike, 1981; Doyle, 1979), particularly when the result of decisions about organization or the effects of instructional patterns on student learning are likely to be distant and confounded by other factors.

Conflicting or insufficient research findings combined with the compelling need for teacher action creates conditions for wide variability in teacher behavior. Thus, intriguing questions can be posed: (a) How prevalent are various instructional and organizational strategies to accommodate diversity in highly heterogeneous classes? and (b) What are their consequences, if any, on student learning?

The purpose of this paper is to investigate these questions by identifying strategies of organization and instruction used in

heterogeneous second- and third-grade classrooms, and by determining the degree to which the strategies are related to student achievement in reading and mathematics.

Procedures

The sample of classes used in this study was a subset of second- and third-grade classes obtained from two earlier naturalistic studies of classroom management. The Classroom Organization Study (Evertson, Anderson, Emmer, & Clements, 1980) involved mainly third-grade classes. The Classroom Management Improvement Study (Emmer, Sanford, Evertson, Clements, & Martin, 1981) included first through sixth grades; however, only its second and third grades were included in this study. Eligible classes were those with adequate available student achievement data and relatively heterogeneous student populations. Heterogeneity was defined in terms of reading achievement scores on the Iowa Test of Basic Skills (in the Classroom Management Improvement Study) or on the California Achievement Test (in the Classroom Organization Study). These tests were administered as part of a district-wide testing program each spring. To identify heterogeneous classes, student scores from the preceding spring were grouped into five categories: 1st through 7th percentile; 8th through 31st percentile; 32nd through 69th percentile; 70th through 93rd percentile; 94th through 99th percentile. To assure that the classes retained in the sample were truly heterogeneous, a class was selected only if it had students scoring in either four out of the five categories or five out of the five categories of scores. The final sample consisted of 32 out of 42 original classes: Five classes

had students in all five categories (Most Heterogeneous); 14 classes had no students in the lowest category but had students in the other four categories (Heterogeneous--High); 13 classes had no students in the highest category but had students in the four lower categories (Heterogeneous--Low). Nine of the classes were second grade and 23 classes were third grade.

In order to identify the relative achievement levels of the sample of classes, the reading scores were converted to grade equivalent scores, from which the expected grade equivalent for each class was substracted. For the five Most Heterogeneous (MH) classes, the median was .2 grade equivalents above expectation. For the Heterogeneous--High (HH) classes, the median was +1.1 grade equivalents above expectation. For the Heterogeneous--Low (HL) classes the median was .4 grade equivalents below expectation. The range of initial achievement within classes was also computed, using the difference between the highest and lowest achieving student in each class. For the MH group, the median grade equivalent range was 4.4; for the HH group it was 5.6, and for the HL classes, it was 4.3. The average gain in the total reading achievement from one year to the next was 1.05 GE. The average gain in total mathematics achievement was .96 GE.

Teachers of the 32 selected classes had a range of teaching experience from 0 to 30 years, with a median of 6 years. Classes were from 12 schools in a large Southwest urban school district. The populations served by the schools were varied, including schools of predominantly one racial/ethnic background, those with mixed

racial/ethnic composition due to neighborhood integration, and schools with mixed racial/ethnic composition due to court-ordered busing.

Data sources for teaching practices related to heterogeneity were of two types: classroom observations and teacher interviews. In each of the two original studies, approximately 15 to 17 classroom observations of 2 to 2 1/2 hours were made during the year, with about half of the observations made during the first 3 to 4 weeks of classes. About two thirds of the observations were conducted in the morning. During the observations, observers took extensive notes describing teacher and student activities, instructional practices, and behavior. In one study, two interviews were conducted with the teachers--one in October and the second in April or May. In the other study, one interview was conducted in March or April at the end of the observation period. Teachers were asked about their instructional practices in reading and mathematics, the basis for grouping, and a variety of other questions related to management of instruction and student behavior. In order to identify the ways in which heterogeneity was dealt with by the sample teachers, a coding procedure was devised to abstract information from the narrative observation data and from the interview(s). This procedure resulted in a Heterogeneity Questionnaire, which listed a series of items pertaining to the teacher's instructional grouping practices, whole-class instruction procedures, supplemental instruction programs, pullout programs, teaming, and so forth. The questionnaire items for coding the narratives and interviews is shown in Appendix A. Individual coders read the set of narratives and the interviews for a

given teacher, noting relevant information for each question. Data appearing in this paper were derived from these questionnaire responses and from a re-examination of the original narratives and interviews.

The variables resulting from narrative and interview analysis were of several types:

1. Organizational practices. These variables were assesssments of whether (or the degree to which) small groups, resource room, pullout programs, team teaching, individualized instruction, and peer or adult assistance were used in reading and mathematics instruction. Resource room and pullout reading programs were scored according to the number of students involved. Peer and adult assistance were coded on a 4-point scale, according to their frequency of use. Individualized instruction was defined as provision for student progress independent of other students. It could include the total reading or math program or be limited to a portion of the program. Its two most common forms were (a) the use of individual contracts specifying the work students were expected to do during a given time period, usually a day or a week; and (b) a sequential set of skill exercises that students progressed through at their own rates. In some classes using individualized instruction, only one or a few students participated; in other classes, all students did so. The variable, extent of individualized instruction, was assessed on a 4-point scale, from little or no use to use with half or more of the class for a major portion of the activities in the subject. Mid points on the scale reflected less frequent use and/or fewer students involved. Team teaching as observed in this study's classes

was limited to the re-assignment of students from one class to another class for reading or mathematics instruction. For example, two or three students who were identified in one class as very low (or high) in reading skills might be assigned for reading instruction to another class where they would be grouped with similar students. The variable was coded on a 3-point scale, with the highest point for classes with four or more students moved for instruction, the mid-point for classes with two or three students moved, and the lowest point for classes with one or no students moved. It should be noted that the nature of training observed in this study did not include co-teaching, specialization of function, or other facets of this approach.

2. Modifications of whole-class instruction. Several types of modifications were noted if they were a regular feature of instruction. These were (a) extensive individual assistance, (b) supplemental instruction for lower achieving students, (c) modified seating arrangements to place lower achieving students closer to the teacher, (d) differentiated whole-class assignments, and (e) extensive directions and explanations. These variables were scored on a dichotomous (1,0) scale.

3. Other characteristics. These included three other variables that previous research had indicated might be positively related to achievement: level of student success, emphasis on grades and accountability; feedback on performance; and one variable expected to be negatively related to achievement: extent of free time. These variables were scored using a 4-point scale.

Two coders used the questionnaire, interview, and narrative records to assess these variables. Training was provided until coder agreement of 80% or higher was achieved on each variable.

Results

Prevalence of Organizational Patterns

Tables 1 through 4 show the frequency of use of various instructional and grouping strategies. Almost all teachers grouped students for reading and related instruction. The lone teacher who never worked with groups had an extensive individualized program. The use of three groups was by far the most typical case, but a few classes used two or four groups. In mathematics, nearly two thirds of the classes had small group instruction, commonly in two groups. In most cases, all math instruction was done in small groups; in a few classes some whole class teaching occurred in addition to small group instruction. Grouping was used by 12 teachers in other subjects, usually for spelling instruction, although occasionally in other areas.

Pullout programs included Title I Reading and other reading instruction conducted by special teachers; these programs were used with an average of eight students in 14 classes. Resource room placement was used for an average of two students in 24 classes, usually for reading and related instruction and/or mathematics instruction. The other pullout program was special speech instruction, limited to one or two students in six classes.

Team teaching in reading was used extensively by seven teachers, and moderately by five teachers. In mathematics, seven teachers used it moderately or extensively.

Individualized instruction in reading was used extensively by 11 teachers and moderately by 3 teachers. Two teachers used it for one or two students only. In mathematics, individual instruction was used extensively by four teachers, moderately by one, and slightly by four other teachers, who used it occasionally for remedial instruction for a few students.

Combinations of strategies. In reading, combined strategies were common. Only six teachers used small group instruction within a self-contained classroom as the sole organizational tactic for heterogeneity, and resource room placement was used for students in five of these teachers' classes. Special reading instruction outside the room was used in nine classes. Extensive use of individualized instruction was observed in combination with small group instruction in three classes, and seven classes used a combination of the preceding tactics in addition to group instruction. Five classes fit other patterns: For example, one class had only individualized instruction supplemented with special instruction outside of class for eight students; two cl.. ses used individualized instruction and teaming to a moderate extent along with a pullout program.

In mathematics, a more restricted pattern of instructional arrangements was observed. Of the 21 teachers who grouped students for

instruction, 7 participated in instructional teams and 4 made extensive use of individualized instruction.

Supplemental approaches. Individual differences in student achievement levels might be accommodated without resorting to grouping, individualization, or pullout instruction. For example, whole-class instruction can be modified or peers and other adults might assist with instruction. Table 3 shows the number of classes in which particular forms of modified whole-class instruction occurred. The most commonly occurring modification was extensive monitoring of and assistance for individual students during the seatwork phases of whole-class activities. Supplemental instruction for lower achieving students was observed in seven classes, generally following a whole-class presentation. Four teachers seated several students who frequently needed extra assistance together or near the teacher, and four teachers were noted as giving students different seatwork assignments at least occasionally after a whole-class lesson.

In 12 classrooms peers were used to assist other students on a regular basis, typically during reading group instruction: If an out-of-group student had a question or needed assistance, then he or she was instructed to ask one or more other students rather than or before interrupting the teacher. The other major form of peer assistance was the formation of student pairs in order to drill on spelling words or to read aloud to each other. No forms of cooperative learning groups were observed in any of the classes.

A few teachers made moderate use of aides to assist individual students or to lead an instructional group. Student teachers were observed in similar roles in 10 classes. Other adults, usually pre-student-teaching education students, were also used moderately or occasionally in nine classes.

Relationships with Achievement

Class mean gains on the total reading and mathematics grade equivalent scores were calculated and correlated with each organizational and instructional variable. Variables which were dichotomous were dummy coded before the analyses. In order to determine whether particular instructional or organizational variables were differentially effective for subgroups of students, each class was divided into groups according to entering achievement: High (80-99th percentile), Middle (20-79th percentile), and Low (1-19th percentile). In a few classes, no students with complete data were found in either the High or the Low group. Thus, the numbers of classes in High group analyses were 25 and 28 for reading and math, respectively, and 25 and 29 for the Low group analyses. Correlations were calculated separately for each group for the same variables as had been used in the analyses of the total class achievement gains. Results for reading achievement are presented in Table 5, and for mathematics achievement in Table 6. Correlations, if different from zero, were expected to be positive, with the exception of Free Time, which was expected to be negatively related to achievement gain. Consequently, probability values noted are for one-tailed significance tests.

For reading, significant correlations were obtained between achievement gain for the whole class and the degree of use of individualized instruction, team teaching, the number of students in a Resource program, the use of other adults, the extent of directions and explanations, degree of student success, and (negatively) the extent of free time.

Some of the variables exhibited correlations of approximately the same level across the three subgroups. These were the extent of directions and explanations, team teaching, and the use of other adults. The other variables usually exhibited only a significant correlation for the Middle group.

For mathematics, fewer significant relationships were obtained. None of the organizational or whole-class instructional variables was correlated with mathematics achievement gain. The variables, student success, emphasis on grades, and performance feedback, were correlated with achievement gain. Except for the absence of a correlation between gain and success rating for the High subgroups, the pattern of correlations was similar across the subgroups and the total class data.

In order to examine the relative independence of the predictors of reading achievement, part correlations were calculated between each of the seven significant predictors, removing the effect of each of the remaining six predictors, and reading achievement gain for the whole class. These results are presented in Table 7. The correlation of teaming with reading achievement gain increased to .47, compared to the zero order correlation, when individualized instruction was partialled

out. Similarly, the correlation of individualization with achievement increased to .44, with teaming partialled out. The part correlations increased because teaming and individualization were negatively correlated ($\underline{r}$ = -.34), which produced a suppressor effect. Most of the other predictors' part correlations with achievement were at or a little below their zero order levels.

Discussion

One noteworthy finding in the study was the complexity of the observed organizational patterns. In reading, 26 out of the 32 classes used one or more strategies such as individualization, teaming, or supplemental reading instruction in addition to the traditional small group approach. In math, 21 out of 32 teachers deviated from exclusive reliance on a whole-class format, using small groups, teaming, or individualized instruction. Of course, such diverse patterns of organization are a function of more than the individual teacher's planning and decision making. For example, resource room placement is partly determined by factors other than an individual teacher's preference, and the availability of Chapter I/Title I or other supplemental out-of-class programs is not normally under the teacher's direct control. The use of team teaching and individualization are more a matter of choice, but their use depends to a degree upon institutional support and/or the participation of other teachers.

Modifying the small group organizational pattern in reading or moving from a whole-class format to a more complex structure in math requires teacher commitment and dedication, because of the added time,

energy, and management skills required at least initially by more complex formats. The effort appears to pay off in reading, but it may not do so in mathematics.

In mathematics, there were no organizational variables that predicted achievement gains. The only significant predictors were the ratings of student success, the degree of emphasis on grades, and the extent of feedback to students about their performance. The latter two variables may be facets of a more complex dimension, that is, accountability. The absence of results for the organizational variables are consistent with a portion of the Good, Grouws, and Ebemier (1983) data from their fourth-grade classes that showed no mean difference between math classes using only whole group instruction and classes using a small group format. In contrast, however, Good et al. (1983) did find numerous significant relationships between whole-class teacher behavior variables and student achievement gain, while the present study did not find such relationships. However, the lack of relationships in this study could easily have been the result of weak measurement and the limited number of the whole-class variables investigated; thus, these results should not be regarded as contradicting the Good et al. findings on whole-class instruction.

The absence of results for organizational variables in mathematics may indicate that the use of grouping or individualized instruction generally is not effective for this age/grade level. It is also plausible, however, that the quality of such instruction is the key factor, especially in the area of content development, as Good et al.

(1983) indicated. Thus, effective content development in a whole-class setting may override the limitations of this organizational pattern for providing adaptive instruction and assignments. Conversely, individualized instruction or small groups may limit the amount of developmental time the teacher provides to students particularly when the time allocated to instruction is relatively restricted, as is usually the case in elementary mathematics. Thus, the quality and amount of developmental time in small group or individualized instruction arrangements is a key concern.

In contrast to the results for mathematics, reading achievement gains had statistically significant correlations with several organizational variables, including the use of individualized instruction, team teaching, the number of students receiving resource room instruction, and the extent to which other adults were used instructionally. In addition, the extensiveness of teacher directions and explanations, the rated level of student success, and the extent of free time also predicted achievement gains. Except for free time, the relationships were positive. Although the correlations were not large, they are in a range considered by classroom researchers to be important (Gage, 1978). No support was found for pullout instruction or peer tutoring. These results do not necessarily mean that the latter two approaches are ineffective; however, within the range of application observed in this study, their use is not supported. Other predictors of reading achievement were the level of student success, extensive directions and explanations, and free time (negative). These results

are consistent with other classroom research. For example, student success was a predictor of achievement in the BTES (Denham & Lieberman, 1980) and time spent in nonacademic tasks has consistently been a negative correlate of student achievement (e.g., Rosenshine, 1976).

The four organizational variables identified as significant are common responses to heterogeneous pupil populations, and the data indicate, if a causal interpretation is reasonable, that their use enhances student reading achievement. Furthermore, an examination of the correlations across the High, Middle, and Low subgroups in the classes indicates that with the exception of team teaching the relationships usually were as strong or stronger for the Middle group as for the High and Low groups. In fact, the extent of individualized instruction and the number of resource students had correlations near zero for the High and Low subgroups although these were significant correlations for the Middle group and the total class data. The lack of relationship for the extreme groups may have occurred in part because in some classes only one or a few students were in the High and Low subgroups. Gain scores based on small n are unstable, so the resulting correlations might have been affected. Nonetheless, the significant correlations for the Middle group suggest that strategies for dealing with heterogeneity can have a positive impact on students other than those in the extreme groups. An implication is that the organizational strategies may also be useful in less heterogeneous classes.

The two variables having the strongest relationships with reading achievement gain in the part correlation analysis were the extent of

teaming (r = .47) and individualized instruction (r = .44). These two approaches are distinct, although they can be used together in different degrees. This research suggests that either one is useful in heterogeneous classes. An optimal strategy may be a combination of approaches: team teaching to accommodate more extreme levels of entering achievement and individualization for some aspects of instruction or for some students, with resource room assignment when appropriate.

No implication is intended that <u>any</u> form of teaming or individualization will enhance reading achievement. The quality of the application will limit its effectiveness, and the commitment and ability of the teacher no doubt mediate the effects of any strategy. Moreover, the specific processes through which effects occurred in these classes are not revealed by the analyses in this report. What is indicated are those variables that are more likely to be important, compared to others that had nonsignificant relationships with the criterion. Thus, the results point to variables to be studied more extensively, perhaps using mediating process or ecological paradigms (Doyle, 1977) in order to clarify how teaming and individualization affect learning in heterogeneous classes.

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Table 1

Use of Heterogeneity Strategies in 31 Classes

I. Instructional Grouping

	Yes	No
Reading	31	1
Mathematics	21	11
Other subjects	12	20

II. Pullout Programs

Title I or Reading Lab	14	18
Resource Room Placement	24	8
Other	6	26

III. Team Teaching

	Extensive	Moderate	Little or No Use
Reading	8	5	19
Mathematics	7	1	22

IV. Individualized Instruction

	Extensive	Moderate	Slight	None
Reading	11	3	2	16
Mathematics	4	1	4	23

Table 2

Individual and Combined Strategies

in Reading and Mathematics (n = 31)

	Whole Class Only	Grouping Only	Grouping & Title I/ Reading Lab (A)	Grouping & Teaming (B)	Grouping & Indiv. Instr. (C)	Grouping & 2 of A,B,C,	Other
Reading	0	6	5	6	3	7	5
Mathematics	11	10	NA	7	4	0	0

Table 3

Frequency of Modified Whole Class

Instruction Tactics (n = 31)

	Yes	No
Extensive directions and explanations	14	18
Supplemental instruction for lows	7	24
Low achieving students seated near the teacher	4	27
Differentiated assignments	4	27
Extensive monitoring and assistance for individual students	20	11

Table 4

Peer or Adult Assistance

	Frequent	Moderate	Occasional	Seldom or Never
Peers	1	11	5	14
Aides	0	3	6	22
Student teachers	0	10	1	20
Other adults	0	5	4	22

Table 5

Correlations of Heterogenity Strategies with Reading Achievement Gain of High, Middle, and Low Achieving Students

Variable	Student Entering Achievement			
	High	Middle	Low	All Ss
Organizational Variations				
Individual instruction	.11	.39**	-.01	.28*
Team teaching	.32*	.22	.35**	.32**
Pullout reading instruction	-.47	-.01	-.06	-.16
Number of Ss to Resource	.16	.36**	.04	.29*
Other adults	.23	.30**	.31*	.33**
Peer tutoring	-.07	-.18	-.16	-.22
Whole Class Variations				
Directions/explanations	.30*	.26*	.27*	.34**
Supplements for Lows	-.06	-.23	-.24	-.21
Seating	-.10	.04	-.16	-.02
Different assignments	.00	.05	-.16	.04
Extensive monitoring, help	-.25	-.06	-.33	-.16
Other Characteristics				
Student success	.17	.32**	-.01	.30**
Free time	-.16	-.52**	-.03	-.36**
Emphasis on grades	-.21	.09	-.05	.02
Feedback on performance	.04	.21	.13	.19

*$p < .10$

**$p < .05$

Table 6

Correlations of Heterogenity Strategies with Mathematics Achievement Gains of High, Middle, and Low Achieving Students

Variable	Student Entering Achievement			
	High	Middle	Low	All Ss
Organizational Variations				
Individual instruction	-.11	.18	.11	.07
Team teaching	.24	.02	.18	.11
Number of Ss to Resource	.14	-.15	-.29	-.09
Other adults	-.07	-.03	-.06	-.12
Peer tutoring	-.06	-.02	-.17	-.02
Small group instructon	.21	.07	.03	.11
Whole Class Variations				
Directions/explanations	.02	.03	-.05	.00
Supplements for Lows	-.14	-.19	-.09	-.14
Seating	-.11	-.05	.07	-.07
Different assignments	-.11	.10	.07	.03
Extensive monitoring, help	-.03	-.04	-.34	-.01
Other Characteristics				
Student success	.07	.34**	.30*	.31**
Free time	-.16	-.01	.06	-.11
Emphasis on grades	.23	.21	.29*	.32**
Feedback on performance	.33**	.34**	.21	.41**

*$p < .10$

**$p < .05$

Table 7

Correlations and First Order Part Correlations

Between Heterogeneity Variables and Whole-Class Achievement Gain

	Indiv. instr.	Team-ing	Resource	Other adults	Dir/ expl.	Student success	Free time
Correlation (zero order):	.28	.32	.29	.33	.34	.30	-.36
Variable Held Constant:							
Indiv. instr.	--	.47	.19	.23	.33	.25	-.27
Teaming	.44	--	.34	.40	.39	.28	-.34
Resource Ss	.17	.37	--	.27	.30	.35	-.30
Other adults	.16	.39	.23	--	.30	.23	-.29
Extensive dir/expl.	.27	.38	.24	.29	--	.32	-.34
Student success	.23	.30	.34	.27	.35	--	-.31
Free time	.16	.31	.23	.25	.32	.24	--

APPENDIX A

Heterogeneity Paper Questionnaire for Summarizing Narrative and Interview Data

Heterogeneity Questionnaire
for Summarizing Narrative and Interview Data
Study _____
Teacher No. _____

Data Sources

Narratives: Total Number _____; From _____ To _____

A.M. observations _____ P.M. observations _____

Interviews: fall _____ spring _____ other _____

Note: In answering questions below, identify an answer derived from interviews by preceding it with (Int).

Narrative summaries:

CMIS reader rating form _____

Capsule

In two or three sentences, describe the strategies that this teacher used to organize instruction in this heterogeneous class.

Grouping

1) For each subject (reading, language arts, spelling, etc.) in which the teacher used grouping, describe grouping criteria, and number and size of groups.

2) What were typical activity structures and assignments for the groups (e.g., worksheets, silent reading, teacher-led recitations, etc.)? Also comment on textbooks and other materials commonly used in these groups. Please specify for each subject in which grouping occurred.

3) Did the teacher consistently spend more time or use different procedures/strategies with one group than another? If so, describe:

4) Describe any problems you noticed that might have been caused by the grouping procedures this teacher used. Describe any problems the teacher mentioned concerning grouping.

Whole Class Activities

5) How often and for what subjects did the teacher use whole class activities (everyone working on the same task)?

6) Describe anything the teacher did that might have helped both low and high ability students be successful on the same assignments (e.g., did the teacher question lower ability students on the assignment before turning the class loose; did the teacher check lower ability students work more frequently; did the teacher give additional explanations to lower ability students at their desks, etc.).

7) Describe any way in which the teacher differentiated his/her expectations for high and low ability students' performance (e.g., expected higher ability students to work faster, to be neater, to finish more problems, etc.). How were these expectations communicated to students?

8) How successful were the whole class activities in terms of meeting the needs of all students in class? Describe problems.

Individualized Instruction/differentiated Assignments

9) How often, for how many students, and for what subjects did the teacher use individualized instruction/differentiated assignments?

10) If not for the whole class, describe the target students and purpose of the individualization (e.g., to provide enrichment for high ability students, remedial activities for low ability students, etc.).

11) How did the teacher handle individualization (e.g., how did students get assignments, how did they get help from the teacher, how did they get their work checked, get feedback, etc.)?

12) Describe any problems that appeared to be related to the teacher's use of individualized instruction/differentiated assignments.

Grading, Academic Reward Structure, Accountability System

13) Describe anything you can about the teacher's general approach to grading and class reward structure (e.g., competitive, mastery-based, cooperative, public/private, degree of emphasis on grades).

14) Describe manner and frequency in which students got feedback on their academic performance.

Pull Outs

15) If any students went to another teacher's class or a resource room for instruction, describe number of students involved, subject area(s), and ability level of students.

16) Describe the procedure that was used when these students left the class and when they returned. How were they reincorporated into class? What class activities did they miss?

17) Describe any problems you noticed that appeared to be related to pull outs in this class. Describe any problems the teacher noted concerning pull outs.

Drop Ins

18) If students from other classes entered this teacher's class for instruction describe number of students, ability level, and subjects.

19) Describe procedures the teacher used for drop ins.

20) Describe any problems that appeared to be related to drop ins.

General

21) What provisions were made for students who finished work early? Under what circumstances did this usually happen? How often? What was the ability level of the students who frequently finished early?

22) Note and describe instances of sanctioned peer tutoring.

23) What other strategies did this teacher use concerning coping with heterogeneity that have not been mentioned here?

24) If not described previously, please describe any management problems you noted or that the teacher commented on that might be attributed to the wide diversity in student ability and to how the teacher coped with this diversity.

25) List adult helpers, the task(s) they performed, and note how often they were used.

26) To what extent does the teacher seem aware of heterogeneity in her class? How important does it seem to have been for planning?

27) Does the teacher view individual differences/heterogeneity mainly in terms of ability or are other factors considered? Which ones (e.g., behavior, interests)? Does the teacher describe ability unidimensionally or as consisting of different aspects (e.g., reading, math)?

28) Comment on the teacher's effectiveness in maintaining order and getting tasks accomplished.

(10/8/82)