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Bassett, W. Philip, Ph.D.

Andrews University, 1991

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Andrews University

School of Education

**CLASSROOM IMPLEMENTATION OF COOPERATIVE LEARNING: QUALITATIVE
CASE STUDIES OF THREE EARLY ELEMENTARY TEACHERS**

A Dissertation

Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

W. Philip Bassett

August 1991

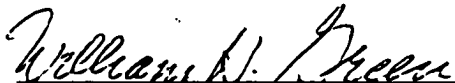
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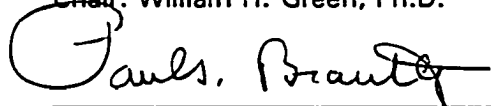
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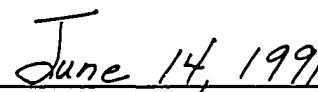

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ABSTRACT

**CLASSROOM IMPLEMENTATION OF COOPERATIVE LEARNING: QUALITATIVE
CASE STUDIES OF THREE EARLY ELEMENTARY TEACHERS**

by

W. Philip Bassett

Chair: William Green

ABSTRACT OF GRADUATE STUDENT RESEARCH

Dissertation

Andrews University

School of Education

Title: CLASSROOM IMPLEMENTATION OF COOPERATIVE LEARNING: QUALITATIVE CASE STUDIES OF THREE EARLY ELEMENTARY TEACHERS

Name of researcher: W. Philip Bassett

Name and degree of faculty chair: William Green, Ph.D.

Date completed: August, 1991

This study uses qualitative methodology to look at the implementation of cooperative learning in three early elementary classrooms. The questions of interest were "What, from a teacher's point of view, happens when cooperative learning methods are implemented?" and "What happens to a cooperative learning model when it is implemented by trained teachers?"

A review of the literature related to cooperative learning identifies three genres of cooperative learning and proposes a theoretical framework. A review of the literature related to qualitative research defines qualitative research in terms of philosophy, perspectives, applications to educational research, and data gathering

and analysis techniques. A review of the very limited literature specifically related to the implementation of cooperative learning summarizes the findings of six studies.

Based partly on the differing levels of support anticipated for them as they implemented, three early elementary teachers were selected for study from a group of 35 educators taking four days of training in cooperative learning. Case studies of these three teachers were based on data gathered over eight months through participant observation and ethnographic interviews.

The case studies begin with a description of the teacher and a narrative description of a cooperative lesson conducted by the teacher. The remainder of each case study is organized around four major categories seen in the data: (1) configuration, (2) problems, (3) implementation, and (4) teacher thinking.

A cross-case analysis follows the case studies and includes summaries, conclusions, and recommendations related to teacher training, implementation, and further research.

Among the findings:

1. Classroom configuration and the training model differed in social skill instruction, group processing, and the use of group contingencies.
2. A four-step model is suggested for teachers learning to use cooperative groups.
3. Problems specifically related to the use of cooperative groups were seen as less important than other problems.
4. The resolution of grouping issues is an important part of implementation.

5. Further research on teacher thinking during various stages of the implementation process may be valuable.

6. None of the three teachers received support as they sought to implement cooperative learning. Neither the principal nor collegial support groups provided any formal or informal support to the teachers even though this sort of support was anticipated at two of the schools.

DEDICATION

To my parents, Wendell and Barbara, who first provided encouragement and then support in my pursuit of a doctoral degree.

To my children, Dana, Sarah, Carrie, Amanda, Rachel, Reuben, and Matthew. They have been and are the joy of my life, and they teach me more than others ever will.

And most of all to Susan, more than a spouse and a friend, who has done more than was reasonable to make the completion of a Ph.D. possible for me. The achievement is as much hers as it is mine.

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CHAPTER I

COOPERATIVE LEARNING

Cooperative learning is one of the most popular and important educational innovations of recent years. Educational magazines and journals have carried numerous articles on cooperative learning by theorists, trainers, and teachers. The organization of international, national, and regional entities devoted to the study and promotion of cooperative learning also indicates the widespread interest in this subject. Top trainers are in demand, and hundreds of local trainers across the country have worked with thousands of teachers to disseminate the knowledge, skills, and materials necessary for the implementation of cooperative learning. With the growing interest in cooperative learning, researchers have carried out hundreds of studies about different aspects of cooperative learning. The findings support the efficacy and desirability of cooperative learning methods.

Regardless of how good research shows an innovation to be, it can improve education only to the extent that it is implemented in classrooms. Experience teaches us that many good innovations are never properly implemented in classrooms. Understanding what happens during the implementation of cooperative learning methods could assist trainers as they help teachers implement cooperative learning in their classrooms. I undertook this study to discover

what happened as three early elementary teachers sought to implement cooperative learning in their classrooms. I hoped to learn what happened to the models of cooperative learning as they were implemented, and also what the implementation process was like for the teachers.

To provide background for the study, Chapter 1 defines cooperative learning and looks at the theory, research, and history leading up to the widespread popularity of cooperative learning today. Chapter 2 reviews the literature specifically related to the implementation of cooperative learning. Chapter 3 then reviews some of the literature related to the use of qualitative methods to study education. Qualitative research is defined in terms of philosophy, data, and use. Methods of data collection and analysis are examined as well as issues related to validity and reliability.

Chapter 4 gives an overview of the research design I used for this study. It includes a description of the processes used for selection of the cases, and the gathering and analysis of data. The model in which teachers were trained is also described in this chapter as are the different situations in which teachers would be implementing cooperative learning.

Chapters 5 through 7 are the case studies of the three teachers involved in the research. They begin by describing the teachers, a lesson they taught, and an interview using quotations from my fieldnotes. To complete each case study, data from all the observations and interviews of each teacher are summarized according to four coding categories.

Chapter 8 summarizes and analyzes data across the cases and includes conclusions and recommendations which I have inferred from the data.

What Is Cooperative Learning?

Definition

Cooperative learning refers to literally dozens of structures for organizing classroom instruction so that students work and learn in small groups of two to five students. Cooperative learning groups differ from the small-group work seen in many classrooms in two essential ways: (1) they are structured to provide positive interdependence and (2) they provide for both individual and group accountability. Positive interdependence means that in a cooperative group students work together to achieve a group goal and they fail or succeed not only as individuals but also as a group; that is, the students all have an interest and a stake in one another's success. They need the group to be successful. Individual and group accountability means that students are held accountable both individually and as a group. That is to say, each student is responsible for producing or participating as part of the group, and the group as a whole is held accountable for the task assigned.

Positive interdependence and individual and group accountability imply a third essential difference between cooperative groups and the small groups sometimes seen in classrooms, that is a reward system that reinforces students on both an individual and a group basis.

In addition to being defined by critical attributes, cooperative learning is also distinctive in the way the cooperative classroom is structured in comparison with other classrooms.

Three Types of Classroom Goal Structure

The goal structure of a cooperative learning lesson can be contrasted with two other more commonly used goal structures, individualistic and competitive. According to Goodlad (1984), when teachers are concerned about managing activities, the latter structures are used from about 85% to 95% of the time in American classrooms. Similarly, Johnson and Johnson (1983) estimate that cooperative goal structures are used only between 7% to 20% of the time in most schools.

Cooperative Goal Structures

Cooperative goal structures are those in which each student's achievement of a goal is positively linked to other students' achievement of a goal. The more successful a student's partners or groupmates are, the more successful he or she is. Even more importantly, students need their partners or groupmates to achieve the goal. To a student this means: "I want you to be successful so that I can be successful, and the more successful you are the more successful I am."

Competitive Goal Structures

Competitive goal structures are the opposite of cooperative ones. An example of competitive goal structuring is one in which students are graded on the curve, or top grades are awarded only to a certain percentage of students. In the earlier grades, competitive structures may be more subtle; for example, special recognition may be given the "best" papers or the students who excel over their classmates.

In a competitive goal structure, a student's opportunity for success is negatively linked to the success of the student's classmates. When students are

successful in achieving their goals, other students have less chance of achieving theirs. To a student this means: "If you are successful, I have less chance of being successful."

Individualistic Goal Structures

Individualistic goal structures are those in which a student's success is not directly linked to the success of his or her classmates. Standards for success, such as grades, are criterion referenced rather than norm referenced, and students have no stake in the success or failure of their classmates. In a classroom using this goal structure, students are admonished to mind their own business and to do their own work. To a student this means: "Your success or failure has nothing to do with my success."

Models of Cooperative Learning

At first glance, cooperative learning seems simple; students work together in small groups within a goal structure that makes one student's successful achievement of a goal at least partially dependent on the success of other students. However, the strategies for structuring those goals and organizing students to work together are many and varied, and more are being developed as the popularity of cooperative learning grows. There are also several models of cooperative learning that are distinctively different. These different models can be classified into three different genres.

Three Genres of Cooperative Learning

Spencer Kagan, in an interview with Ron Brandt (1989/1990), suggested three approaches to cooperative learning distinguished mainly by how teachers

are taught cooperative learning and how they are expected to implement it. The various models can be grouped into three different genres of cooperative learning, developed from Kagan's distinctions.

The three genres of cooperative learning are: (1) the generic approach, (2) the highly structured approach, and (3) the structural approach. They are described in greater detail below.

Generic Approach

The generic genre includes models similar to the model of cooperative learning conceived by Johnson and Johnson (1983) at the University of Minnesota. The Johnsons' goal was (and is) to train teachers in a few cooperative learning structures ranging from simple to moderately complex and, more importantly, to give them a good understanding of what cooperative learning is and how it works. If teachers understand the essential attributes of cooperative learning they should be able to structure cooperative lessons over a variety of grade levels and subject matter.

The Johnsons (1986) emphasize five critical attributes of cooperative learning in their training: (1) positive interdependence, (2) individual accountability, (3) group accountability, (4) shared leadership, and (5) face-to-face interaction.

Highly Structured Approach

Most of the models in this genre were conceived of and disseminated by Robert Slavin (1983a; 1988) and his associates at Johns Hopkins University. Slavin (1981a) carefully structures his training programs and provides curriculum materials for the teacher to use in order to allow for wider dissemination. He

maintains that many schools will not support training unless it is affordable (which means one day or less of training), and teachers are more likely to try an alternative teaching method if the necessary materials are provided.

Slavin (1989/1990) emphasizes positive interdependence and individual accountability as critical attributes for cooperative learning, as do the Johnsons. However, he does not consider the other critical attributes the Johnsons list as essential, at least not for producing learning gains as measured by standardized test scores. Unlike the Johnsons, Slavin uses competition between groups to help motivate students.

The cooperative learning strategies Slavin has developed are called Student Team Learning and include Team-Games-Tournament, Student Teams-Achievement-Division, and Jigsaw II.

Structural Approach

The approach to cooperative learning characterizing the structural genre of models was conceptualized by Spencer Kagan (1985), formerly of the University of California at Riverside and now a full-time cooperative-learning trainer.

Although Kagan's models are not curriculum specific, they are highly structured as far as student groupings and social interactions are concerned. The strength of this approach is that teachers who have been trained in the structural approach can use these structures to teach whatever content they choose and are not dependent on the specific worksheets and other student activities that are for one time use as is the case in the highly structured approach (Kagan, 1989/1990). The critical attributes of cooperative learning

that Kagan recognizes, that is positive interdependence and individual accountability, are built into the structures. Consequently, teachers do not have to figure out how to build them into each lesson they teach, as is the case with the generic approach.

Background to the Current Cooperative Learning Movement

In the early 1970s several researchers began looking into cooperative learning instructional methods and independently developing specific structures (Slavin, 1981b). But cooperative learning, or at least the concept of students working collaboratively, was not new. During their times Plato, Comenius, and Rousseau, among others, contributed to philosophical discussions of the societal implications of learning situations where students worked cooperatively. By the late 1800s Colonel Francis Parker was using methods that could be classified as cooperative learning (Johnson & Johnson, 1983) and thousands came to observe his schools in Quincy, Massachusetts. In 1918 James Kilpatrick wrote "The Project Method" which embodied much of Dewey's philosophy of education and was essentially a form of collaborative group learning. Dewey (1939) directly supported cooperative learning methods, particularly in his book Experience and Education.

Research into cooperative learning dates back to the turn of this century (Slavin, 1977). By 1920 research was focusing on personality, learning, and the instructional theories of social and behavioral psychologists (Talmage, Pascarella, & Ford, 1984). During this period, Kurt Lewin developed the cognitive field theory of learning and one of his students, Morton Deutsch (1949, 1962), went

on to develop learning theory related to group processes and interaction. It is upon Deutsch's theory identifying competitive, cooperative, and individualistic classroom goal structures that most of today's cooperative learning is based.

By the 1970s the Johnsons and their associates at the University of Minnesota, Robert Slavin and his associates at Johns Hopkins, Spencer Kagan at the University of California at Riverside, as well as several others such as Ted and Nancy Graves, Elliot Aranson, and Shlomo and Yael Sharan had begun their work in cooperative learning. The focus then, as now, was mainly on the practical application of principles of cooperation to the classroom.

As the 1990s begin, cooperative learning has become a widespread movement involving hundreds of trainers, researchers, and writers as well as hundreds of thousands of teachers around the world. Research today seems to focus on determining which models of cooperative learning are most effective for varying academic and socialization outcomes and how to best train teachers and then assist them during the implementation process.

Research on the effectiveness of cooperative learning in the classroom has centered around six dependent variables. This research is reviewed in the next section.

The Research Base for Cooperative Learning

A review of research related to cooperative learning shows that several outcomes, or dependent variables, have been studied. These variables are: (1) interracial friendships and interactions, (2) cross-handicap friendships and interactions, (3) general peer relationships and interpersonal attachments, (4) various affective measures such as self-esteem, altruism, mutual concern, and

liking of school, (5) various psychological issues, and (6) cognitive or academic outcomes.

These dependent variables have been studied using different approaches. The Johnsons (1984) designed their studies around three independent variables, competitive, cooperative, and individualistic classroom goal structures. Robert Slavin (1980) designed studies to compare cooperative learning, group-reward structures (using intergroup competition) to individual reward structures like those found in most classrooms. Slavin also compared variations of cooperative learning structures.

To study his Group Investigation method of cooperative learning, Sharan (1980) compared classrooms simply on the basis of the use of small group or whole class methods. Aronson and his associates (Aronson, Blaney, Sikes, Stephan, & Snapp, 1975) studied their Jigsaw cooperative learning method by comparing Jigsaw classrooms to traditional classrooms on several independent variables.

Since the purpose of my research is not to look at the efficacy of cooperative learning in the classroom, I will only briefly summarize the research for each dependent variable mentioned above.

Cooperative Learning and Inter-Racial Relations (Desegregation)

Cooperative learning is based in part on Contact Theory (discussed in detail later), which theorizes that if students from different racial or ethnic groups work on common tasks on an equal-status basis, prejudice is reduced. Researchers have found that cooperative learning groups can help reduce prejudice (Sharan, 1980; Weigel, Wiser, & Cook, 1975). Slavin (1985)

summarizes the results of cooperative learning research involving intergroup relations by saying, "All methods have had some positive effects on intergroup relations The practical implications . . . are unambiguous. There is a strong positive effect of cooperative learning on inter-group relations" (p. 60).

Cooperative Learning and Cross-Handicap Relations (Mainstreaming)

Cooperative learning research involving the cross-handicap relationships which are a part of mainstreaming is based on theory similar to that which supports interracial relations. When introducing cooperation between educable mentally retarded students and normal progress students, Ballard and his associates found an increase in friendship between the two groups (Ballard, Corman, Gottlieb, & Kaufman, 1977). Armstrong and his associates found similar results with learning disabled students (Armstrong, Balow, & Johnson, 1977) as did Cooper and his associates (Cooper, D. Johnson, R. Johnson, & Wilderson, 1975) and the Johnsons (1981).

Johnson and Johnson (1986) summarizing the research on cooperative learning and mainstreaming said, "With the amount of research evidence available, it is surprising that classroom practice is so oriented toward individualistic and competitive learning" (p. 557).

Peer Relationships and Interpersonal Attachments

One of the strengths of cooperative learning is to help students become socialized through increased positive peer interactions and the improved sense of power, belonging, and trust these positive interactions entail (Johnson & Johnson, 1983; Gough, 1987; Brandt, 1988).

The research supporting the assertion that cooperative learning experiences result in increased positive peer interactions and interrelations is similar to that conducted in inter-ethnic and cross-handicap interactions. Several studies found that, compared to individualistic and competitive learning experiences, cooperative experiences promote more interpersonal attraction among students and more positive attitudes toward peers (Tjosvold & Johnson, 1978; Johnson & Johnson, 1983; Johnson, Johnson, & Scott, 1978).

In an early review of cooperative learning research Slavin (1980) said, "The effects of the [cooperative learning] techniques on the group cohesiveness variables such as mutual concern . . . are unquestionably positive" (p. 333). More recently Slavin (1989/1990) said "In areas of achievement there is even broader consensus about the effects of cooperative learning. One of the most consistent of these is the effect on intergroup relations" (p. 53).

Other Affective Measures

Slavin (1978) found that the group-reward structures used with cooperative learning were superior to individual-reward structures on measures of motivation, liking others, peer support, and perceived probability of success.

Johnson and Johnson (1983) found that cooperative learning was linked to higher levels of self-esteem and positive attitudes toward school and teachers.

Slavin (1981b) reports several studies that also found students taught by the use of cooperative methods were more altruistic. Other researchers obtained similar results (Johnson, Johnson, Johnson, & Anderson, 1976; Lazarowitz, Sharan, & Steinberg, 1980).

Cognitive and Academic Measures

Perhaps the most extensive research on the use of cooperative learning methods has been in the area of academic gains. Sharan (1980) reviewed the research on cooperative learning and summarized his review by saying:

Results reported on the effects of all team learning methods on academic achievement reflect superior performance of pupils in the small group as compared to those in the traditional classroom. However these gains are not consistent for all groups or on all measures. (p. 255)

Slavin (1981b) reported a review of 27 studies which investigated the effects of cooperative learning methods on academic achievement. He reported significant positive effects in 19 of the studies, no effects in six of them, and a significant negative effect in only one.

At about the same time the Johnsons reported a meta-analysis of studies conducted to determine the effects of cooperative learning methods, or social interdependence, on achievement (Johnson, Maruyama, Johnson, Nelson, & Skon, 1981). They reviewed 122 studies that yielded 286 findings. The analysis showed that cooperative learning promoted higher achievement and that the average person in a cooperative situation achieved at the 80th percentile compared to students working in traditional competitive or individualistic situations.

In reviewing the consensus and controversy existing relative to the effects of cooperative learning on achievements, Slavin (1989/1990) points out:

1. A wide consensus exists among reviewers that research indicates cooperative learning usually has a positive effect on student achievement.
2. Some reviewers question the effects of cooperative learning at the senior high and college level (Newmann & Thompson, 1987).

3. Disagreement appears about the specific conditions necessary for positive effects to be found, although the broad set of conditions, group goals and individual accountability are agreed upon.

Slavin summarizes by saying, ". . . cooperative methods that incorporate group goals and individual accountability accelerate student learning considerably What we know already is more than enough to justify expanded use of cooperative learning as a routine and central feature of instruction" (Slavin, 1989/1990, p. 54).

The theory upon which the cooperative learning models that Slavin and others have reviewed are based is related in the next section.

Cooperative Learning Theory

Cooperative learning is based on theory related to (1) motivation, (2) development, (3) intergroup contact, and (4) meeting basic human needs. How four aspects of cooperative learning theory are derived from these four areas is explained in the following sections.

Developmental Theory

The developmental theory associated with cooperative learning has its base in work done by Piaget (1926) and Vygotsky (1978). Others such as Bell (Bell, Grossen, & Perret-Clermont, 1985), Ames and Murray (1982), and Kuhn (1972), as well as the Johnsons (Smith, Johnson, & Johnson, 1981) have also done work in this area.

Simply put, developmental theory holds that children learn through collaborative activity with peers for two main reasons. First, by working with

other students of similar developmental level (proximal zones), students are able to model more advanced behaviors than they could perform individually.

Second, language, values, social rules, and symbol systems are learned only through personal interaction, according to Piaget (1926). In smaller groups, these interactions are more frequent and assist learning.

Motivational Theory

Motivational theory is based on the work by eminent field theory psychologist Kurt Lewin (1935) in the area of motivation. Motivational theory holds that group-based reward structures create interpersonal reward structures where students give or withhold social reinforcers based on their groupmates' contributions to the group goal. Simply put, working in cooperative groups motivates students because they want to please, or at least avoid displeasing, their peers.

Cooperative goal structures in the classroom are based on task structures and reward structures (Slavin, 1987a). Task structures deal with the product of the group's work. In a cooperative task structure, students are assigned to specific interrelated subtasks within the group or work together to produce a single group product. Cooperative reward structures give students rewards (such as grades, recognition, praise, or bonus points) on the basis of the group's achievement of its goals or, in some cases, on the basis of the sum of individual achievements within the group.

Contact Theory

Contact theory is based on the work Gordon Allport (1954) did in studying desegregation in non-school settings. Simply put, his theory holds that when people of minority and majority groups work toward common goals on an

equal status basis, prejudice is reduced. That is to say, putting students of different races together in school is not what decreases prejudice, but rather having them work together as peers toward a common goal, as would be the case in cooperative groups. Lessening of prejudice is enhanced by institutional support of this sort of contact and by a perception of common interests. This theory of equal status contact has been expanded to include handicapped and non-handicapped students as well as ethnic and racial minorities.

Control Theory

In 1985 William Glasser described Control Theory, and a year later he expanded its implications to the classroom (Glasser, 1985; 1986). In addition to humans' physical needs related to survival, Glasser posits five basic psychological needs as part of Control Theory. He believes that love, belonging, power, freedom, and fun are needs that people have in common. The needs for belonging and power, according to Glasser, are not usually met in the classroom setting (Brandt, 1988). Glasser describes the need for power as a need for people to feel that they are important, that someone listens to what they have to say (Gough, 1987).

By putting students in small groups where everyone's achievement is important to the group and interaction is required for the group to function, cooperative learning helps to meet students' needs for power and belonging. Because they can meet their psychological needs in cooperative learning experiences, school becomes a more important place for students.

A Theoretical Framework

It is possible to integrate the four aspects of theory related to cooperative learning to produce a theoretical framework. The theoretical propositions are related below.

1. A cooperative structure is when a small group of two to five students work together:

- a. With a group goal.**
- b. In such a way that each member's success is dependent on the success of the group.**
- c. In such a way that the group's success is dependent on the success of all the members of the group.**

2. A cooperative structure enhances the motivation of all members of the group:

- a. If reward structures are based on the work of the total group.**
- b. Because group members give or withhold social reinforcement to other members based on their contribution to the group goal.**

3. In addition to motivating students, a cooperative group structure enhances learning:

- a. In the area of language, values communication, and symbol systems by increasing interaction between students.**
- b. Of new concepts as students work with other students in their proximal zones and thus learn through increased opportunities for modeling, rehearsal, and reflection.**

4. As students work on an equal status toward common goals, a cooperative group enhances intergroup relations:

a. Inter-racial or inter-ethnic prejudice toward members of the group is decreased and inter-racial and inter-ethnic friendships are enhanced.

b. Cross-handicap prejudice toward members of the group is decreased and cross-handicap friendships are enhanced.

5. Working in cooperative groups enhances students' ability to meet their basic needs for power and belonging:

a. Students begin to see school as an important place in their lives.

b. Students like school better and are motivated to do quality work.

Statement of the Problem

Though cooperative learning is based on sound theory, and research has shown it to be effective in promoting academic and interpersonal gains in the classroom, some aspects of the implementation process are not well studied. We do not know what, from a teacher's point of view, happens as classroom teachers who have been trained in cooperative learning seek to implement cooperative group methods in their classrooms. Neither has research been done on what happens to cooperative learning models as teachers seek to implement them. These are important questions because thousands of teachers are being trained in cooperative learning methods but little research has been done relative to these questions. Knowing what happens during the implementation process is important because in the past some educational innovations, though shown to be sound and effective, were never implemented on a wide scale. Other innovations were changed substantially as teachers implemented them.

Knowing more about what happens during the implementation process can help trainers and others involved in the process to improve that process. By

following three teachers through cooperative learning training and implementation over a six-month period, the present study seeks to add to the knowledge base regarding the classroom level implementation of cooperative learning.

Summary

Cooperative learning is one of the most widely researched educational innovations to come on the educational scene in recent years. Reviewers (Johnson, D., Maruyama, R. Johnson, Nelson, & Skon, 1981; Slavin, 1981b, 1989/-1990) have identified hundreds of studies representing nearly 1,000 findings related to cooperative learning. These studies indicate that cooperative learning promotes academic achievement, builds positive intergroup relations (both cross-ethnic and cross-handicap), and is related to improvements in affective measures such as self-esteem, altruism, and liking of school.

Cooperative learning is based on well-established educational theory which can be traced back to the work of Piaget in the 1920s and Kurt Lewin in the 1930s, as well as more recent work by Gordon Allport in the 1950s, Vygotsky in the 1970s, and William Glasser in the 1980s. Such theory is based on developmental and motivational perspectives of learning theory, on Contact Theory of intergroup relations, and on Control Theory of how humans meet basic psychological needs. Theory related to cooperative learning has been robust in responding to research findings, being adaptable to practical classroom application, and heuristic in stimulating additional theorizing and research.

The development of cooperative learning models continues today, and two major types of cooperative learning and three genres of models can be identified. Application of cooperative learning models to all levels and areas of

education continues. More and more practical resources are being developed for teachers to use, which bodes well for the continuing popularity of cooperative learning.

As with all educational innovations, successful and continuing classroom and school-level implementation of cooperative learning methods is a challenge. This challenge has been considered and addressed by cooperative learning advocates and trainers. The present study seeks to add to the knowledge base regarding the classroom-level implementation of cooperative learning by following three early grade elementary teachers who were trained in cooperative learning methods. The specific purpose is to learn, from a teacher's point of view, what happens as they implement cooperative learning and what happens to the model of cooperative learning as it is implemented. Knowing what happens to teachers as they implement cooperative learning and how they adapt models to their classroom can help trainers, principals, and teachers themselves make implementation of cooperative learning more effective.

CHAPTER II

REVIEW OF COOPERATIVE LEARNING

IMPLEMENTATION LITERATURE

Chapter 1 reviewed a portion of the literature dealing with several aspects of cooperative learning. Chapter 2 reviews studies of cooperative learning which address what happens to teachers and/or cooperative learning models during the implementation process. This literature is sparse.

I identified the literature I wanted to review through the Dissertation Abstracts On-disc (DAO) and Educational Resources Information Catalog (ERIC) computer databases. Using the search capabilities of these databases, I identified all items that included the terms "cooperative learning" and "implementation or adoption" anywhere in the citation or abstract. I intended to identify any articles or dissertations that might be even remotely concerned with cooperative learning implementation. I searched the entire ERIC and DAO databases in this fashion.

I also used the computer to find items that included "cooperative learning" and "qualitative, naturalistic or case study" in the citation or abstract. This process was used to identify all qualitative studies of cooperative learning, whether or not they were directly related to implementation issues. Again I searched the entire ERIC and DAO databases in this manner.

I then reviewed abstracts of the items identified by the two searches to determine which might have some application to the interests of this study. Items considered useful were obtained for in-depth review.

Jefferies

In one of only a few qualitative studies done on cooperative learning, Jefferies (1987) studied the implementation of Jigsaw (a cooperative learning strategy) in four high-school-level classes. In his research, Jefferies described the implementation process and also recorded what happened to the cooperative learning method he studied during that process.

Jefferies found that teachers were frustrated with things like student absences, off-task behavior, the extra time needed for planning, and the additional creativity required for presenting their material in a cooperative learning format. Teachers also saw the use of Jigsaw cooperative learning methods as taking time away from the existing curriculum and they felt some loyalty to that curriculum.

Jefferies also found that teachers modified the Jigsaw method to fit their situation. These modifications were a response to unforeseen issues that required changes to allow for better management. The changes included adapting the two-day-per-lesson format to a one-day-per-lesson format, changing the cooperative group size so that fewer students were in each group, and changing to a lesser amount the work required by the Jigsaw assignment.

Jefferies noted that teachers felt some loyalty to the research project which influenced their use of the Jigsaw method. Of the four teachers, one discontinued use of Jigsaw methods at the completion of the research project because "she felt it was not successful with her students because they were too

dependent on the teacher for their learning and some were just lazy" (Jefferies, 1987, p. 134). The other three teachers continued to use cooperative learning, one every two weeks, another every three weeks, and the third every four weeks. Jefferies comments that "an increased use of Jigsaw would have strengthened patterns of achievement and social relationship experienced by participants" (p. 208).

Jefferies' findings can be summarized thus: (1) implementation of Jigsaw faced a wide range of challenges, many of them unanticipated, (2) teachers did not use the Jigsaw method more often than once every two weeks, and (3) the paradigm of what classroom teaching should be did not foster the implementation of cooperative learning.

Jefferies' findings, however, are somewhat limited by the atypical situation in which data were gathered. The teachers involved were volunteer teachers who taught high-school students from 6:00-6:50 a.m. in a church setting. The teachers had received only slightly more than an hour's training in using the Jigsaw method, although three of the four teachers had been students in a class in which the Jigsaw method had been used exclusively for ten weeks.

St. Maurice

St. Maurice (1990) used rhetorical analysis to study a group of teachers who had previously been involved in a city-wide cooperative learning implementation project related to mainstreaming. The federally funded project had ended eight years previous to the start of his study. The goal of the project had been to train a "critical mass" of teachers in the use of cooperative learning strategies to facilitate mainstreaming. It was thought that this would then encourage a

system-wide interest in and adoption of cooperative learning methods. St. Maurice surveyed the teachers he had chosen to study with semi-structured questionnaires and interviewed several of them in small groups. St. Maurice's study focused on the ways trainers and teachers used rhetorical devices to justify and explain cooperative learning. However, his research also dealt some with what happened to teachers during implementation and to a lesser extent with the cooperative learning model and how it changed in the process.

St. Maurice reported that most teachers surveyed had a very high regard for the training they received and for cooperative learning as a method of facilitating mainstreaming. These positive regards were still strongly held eight years after the implementation effort began.

The 12 teachers in the study were affected by a perceived lack of administrator support and met with some resistance from students and parents as they sought to implement cooperative learning for mainstreaming. In fact, St. Maurice (1990) said, "Individual teachers . . . meet continuous resistance and struggles" related to their implementation efforts (p. 16).

He also found that cooperative learning implementation was basically a lonely experience for the teachers involved in the study. This made the implementation process even more difficult. St. Maurice observed: "Many teachers were, ironically, alone in using cooperative learning for mainstreaming, amplifying the problems of innovation and change" (p. 16).

The cooperative learning model which was originally presented to teachers made a strong distinction between competitive, cooperative, and individualistic learning. Yet St. Maurice reported that rather than maintaining this distinctive, the teacher often viewed cooperative learning as a way to individualize instruction

or as a means of modifying competitive structures. This indicates that teachers may have developed a view of cooperative learning that was fundamentally different from the views of the trainers.

Talmage, Pascarella, and Ford

According to the literature search conducted, Talmage, Pascarella, and Ford (1984) were the only researchers to conduct a study of cooperative learning which covered a time period of more than a year. They followed a school district in the Midwest implementing cooperative learning over a three-year period. The study noted student-oriented outcomes rather than the implementation process.

Using data gathered from a survey administered to teachers, the researchers addressed the question, "Do attitudes toward cooperative learning and classroom instructional practices differ between participating and non-participating teachers, and do they differ among teachers with different amounts of experience in the project?" (Talmage et al., 1984, p. 168). Relative to this question the researchers found that teachers participating in the cooperative learning training for periods of one, two, and three years were more positive in their attitudes toward cooperative learning than those teachers who were not participating in the training. They also found that teachers could indeed learn effective cooperative goal-structuring strategies through long-term inservice programs. This latter finding is based on differences in student perceptions of the cooperation levels in their classrooms and independent observations of classrooms. The classes of teachers who had been in the program for three years were perceived by students to be significantly more cooperative and the observed levels of cooperative

activities in the classrooms of teachers participating in the study for one, two, or three years were significantly higher than control groups.

Logan

In an interesting ethnographic study of one fourth-grade class and one fifth-grade class, Logan (1986) watched two teachers implement a cooperative learning strategy over a period of several weeks. Although the study focused on the students and their groups, teacher behavior was also reported.

Some observations can be made from the study related to the implementation process for teachers and what happens to them during that process; for example: (1) Some problems faced by teachers were related to how students worked in groups and the difficulty they had working together; (2) some of these problems were related to the fact that, like their teachers, students perceived each other to be "smart" or "slow," based on their ability to read and write; and (3) the "slow" students were not given the opportunities to participate in group assignments that the group gave to "smart" students.

Logan reported that teachers emphasized a narrow range of verbal skills, that is, reading and writing. This is related to the problems seen in the groups and highlights the fact that cooperative learning is implemented in a context of the current beliefs and practices of teachers and students which do not always support cooperative learning. Logan (1986) cautions that cooperative learning "requires patience and perseverance" (p. 126) to show long-term benefits.

Kalkowski

During an ongoing project, Kalkowski (1989) reported studying a schoolwide effort to implement cooperative learning methods. Using unobtrusive

observation and interviews, Kalkowski set out to discover how teachers and trainers adapt theoretical models of cooperative learning as they implement them in the classroom.

Although the study was still under way, Kalkowski reported some preliminary findings. She found that teachers did not always share the views of their trainers when it came to practical aspects of cooperative learning. For example, trainers had found the assigning of roles in small groups a problem, while none of the teachers interviewed mentioned it as a problem.

Not surprisingly, teachers cited excessive planning time as one of the major obstacles to using cooperative learning. Kalkowski (1989) suggests that "perhaps books of cooperative learning lessons are in order from which teachers can teach directly without extra planning time" (p. 28).

Interestingly, Kalkowski found that teachers developed their own conceptualization of cooperative learning as they implemented it. Teachers who were high-level users of cooperative learning strategies saw it as more than a classroom method. They referred to it as a way of working with colleagues and students, almost a philosophy of teaching. As does Logan's (1986) work, Kalkowski's data support the premise that cooperative learning is not just a method to be incorporated into a classroom but involves a change in thinking about teaching and schooling.

Davis

Davis (1984) conducted a statistical analysis of changes in cross-ethnic friendships, student self-esteem, classroom perception, and academic achievement after eight weeks of cooperative learning implementation in several San

Diego schools. Some teacher interviews and observations were also conducted, but these were to support statistical findings. Results were at best inconclusive. Davis, nonetheless draws several conclusions which seem to be based in great part on his experience with the implementation effort rather than the statistical analysis conducted.

Davis recommends that cooperative learning be implemented in a "rigorous" fashion over a period much longer than eight weeks and that teachers receive in-class support in the form of demonstrations and resources. He also notes varying levels of interest and implementation among the teachers involved in the study.

By implication one sees that learning to use cooperative learning is a long-term process for teachers, and one that does not appeal equally to all teachers.

Summary of Cooperative Learning Implementation Research

My purpose in undertaking this study is to consider what happens to teachers as they seek to implement cooperative learning in their classrooms and what happens to the cooperative learning model they were taught as they implement it. The foregoing research is summarized according to what it contributes to each of these topics.

What Happens to Teachers

Teachers who have been trained in cooperative learning methods have a high regard for the cooperative learning training they have had and for cooperative learning as a teaching method (St. Maurice, 1990; Talmage et al., 1984). This could very well be due, at least partially, to the fact that the teachers

studied took cooperative learning training voluntarily and thus were predisposed to like it.

The implementation period is likely to be lengthy and challenging for teachers implementing cooperative learning (St. Maurice, 1990; Talmage et al., 1984; Logan, 1986). Some of the challenges teachers face are (1) resistance from parents and students (St. Maurice, 1990), (2) excessive demands on time for planning (Kalkowski, 1989), (3) difficulty with students who are not used to working in cooperative groups (Logan, 1986), (4) scarcity of curriculum materials designed for cooperative lessons (Kalkowski, 1989), and (5) a lack of support resulting in teachers working alone to implement cooperative learning (St. Maurice, 1990).

What Happens to Models of Cooperative Learning

Teachers who become deeply involved in implementing cooperative learning see it as a way of operating as a teacher, not just as a method to be used (Kalkowski, 1989).

Teachers as well as trainers are willing to change, combine, and drop aspects of cooperative learning models to facilitate their use (Jefferies, 1987; Kalkowski, 1989). Cooperative learning models can and do change as they are implemented.

Teachers' perceptions of cooperative learning do not always match the concepts of those who trained them (Kalkowski, 1989; St. Maurice, 1990). Teachers may view cooperative structures as a way to individualize instruction and to modify competition (St. Maurice, 1990), or they may emphasize such a

narrow range of verbal skills in their classroom that cooperation among students is not facilitated (Logan, 1986).

In the traditional quantitative sense, these findings are not generalizable to a wide range of teachers nor implementation situations because each study is done with a few teachers in a specific situation. However, the knowledge gained from these studies is very helpful because it adds to a growing body of knowledge about what happens when cooperative learning is implemented. Inasmuch as new situations are similar to those studied, results of implementation efforts may also be similar, or at least face similar challenges during implementation. This means that the findings of these studies may have a good deal of reader generalizability (described in Chapter 3).

My study seeks to add to the knowledge base relative to the implementation of cooperative learning by using three qualitative case studies of teachers learning to use cooperative learning methods to investigate what happens to a model of cooperative learning as it is implemented and what happens to teachers as they seek to implement cooperative learning in their classrooms. In Chapter 3, I review a portion of the literature regarding qualitative research, as background for the description of the research design presented in Chapter 4.

CHAPTER III

QUALITATIVE RESEARCH IN EDUCATION

Introduction

In Chapter 1 I reviewed selected literature related to research, theory, history, practice, and trends associated with cooperative learning. The literature related specifically to research into the implementation of cooperative learning, the topic of this study, was reviewed in Chapter 2. My purpose in Chapter 3 is to review that portion of the literature related to qualitative research in order to describe it from both philosophical and practical perspectives, as well as to examine issues related to the use of qualitative methodology in education.

The use of qualitative methodology to study education has grown rapidly in popularity during the past 15 years, but can be traced back at least as far as the inception of the Journal of Educational Sociology in 1926 (Bogdan & Biklen, 1982). In reviewing the literature on the use of qualitative methods to study education, I have not attempted an exhaustive review of the literature since 1927. This representative review is limited to five purposes: (1) to broadly define qualitative research from both practical and philosophical perspectives, (2) to identify the kinds of educational studies for which qualitative methods are used, (3) to identify acceptable types of data used in qualitative research, (4) to examine some specific data gathering and analysis techniques, and (5) to address the issues of validity and reliability in qualitative research.

What Is Qualitative Research?

Defining Qualitative Research

Bogdan and Biklen (1982) identify five features of qualitative research: (1) The natural setting is the direct source of data and the researcher is the key instrument; (2) qualitative research is descriptive and in the form of words or pictures rather than numbers; (3) processes, as well as outcomes, are considered; (4) data tends to be analyzed inductively, rather than deductively; and (5) "meanings," or participant perspectives, are of essential concern.

Berg (1989) says simply, "Qualitative research thus refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of things" (p. 2). He contrasts this with quantitative methods which measure and count things.

Erickson (1986) prefers the term "interpretive research" to the term qualitative research because it emphasizes the key resemblance among the methods generally referred to as qualitative. According to Erickson, the feature that methods like ethnography, participant observation, case studies, symbolic interaction, phenomenology, and constructive research have in common is a "central research interest in human meaning in social life, and in its elucidation and exposition by the researcher" (p. 119).

In her book on case study in education, Merriam (1988) defines case-study research from a qualitative, naturalistic perspective. She defines the qualitative perspective succinctly as being "focused on discovery, insight, and understanding from the perspectives of those being studied" (p. 3). Peshkin (1988) says simply that qualitative research involves "commitment to understanding the complexity

of the phenomenon of interest" (p. 416). However, he also adds that it is a "form of investigation that, by considering the extraordinary variability of things, is replete with—and does not shrink from exploring—ambiguity" (p. 418).

Fisher (1986) notes that qualitative research uses direct observations and verbal descriptions as data and draws out themes and order inherent in this data. She goes on further to say that the results are findings that are written as narrative accounts.

Qualitative research, then, can be defined in terms of: (1) the focus of the research, (2) the research setting, (3) data collection, (4) data analysis, and (5) reporting of findings. Synthesizing the ideas of the foregoing writers, qualitative research is thus defined in these terms:

1. Qualitative research focuses on discovery and seeks to gain insight into the complexity of phenomena by understanding their meaning from the perspective of those being studied.
2. Qualitative research is conducted in the natural setting of the events or people being studied.
3. Qualitative research uses the researcher as the primary instrument to collect data in the form of field notes based on observations and interviews that consider processes as well as outcomes.
4. Qualitative research analyzes data inductively with the goal of defining and interpreting events from the perspectives of those being studied. Analysis seeks to draw out themes and classifications that are inherent in the data of the research situation.

5. Qualitative research is reported in narrative form, frequently using extended quotations from field notes. It includes the complexity and ambiguity found in the situation under study.

The Philosophical Base for Qualitative Research

The answer to the question, "What is reality?" distinguishes the qualitative research perspective. This distinctive and its implications for research are discussed below (1) by contrasting the qualitative and quantitative research perspectives, (2) by describing symbolic interaction and phenomenology, and (3) by summarizing qualitative research perspectives.

Qualitative and Quantitative Research Perspectives

The philosophical forerunners of today's quantitative scientific researchers are the logical positivists of the early 20th century (Poplin, 1987) who trace their philosophical foundations back to the work of positivists like Comte in the 19th century (Erickson, 1986; Smith, 1983). Comte and his student Durkheim believed that the causal relationships of social interactions were analogous to the physical relationships of the natural sciences and that only the behaviors of individuals, rather than their meaning-perspectives were of central interest (Erickson, 1986). The scientific method, based on logical positivism, also holds that whatever happens has a cause followed by a specific effect, which can be predicted. It further holds that only verifiable facts have cognitive meaning and that scientific knowledge is the only source of truth about reality. The scientific method assumes that value-free objectivity is not only possible but desirable

(Poplin, 1987) and that reality exists independent of people and is synonymous with truth (Smith, 1983).

The qualitative research tradition is based on an idealist view, although many practitioners would not be considered "hard core" idealists (Bogdan & Biklen, 1982; Smith, 1983). Idealists do not see reality apart from the shaping and creating efforts of the mind of the one perceiving reality. Consequently, what is considered true is a matter of agreement among those perceiving the truth in a certain context.

Since reality is affected by individual interpretation and meaning, then cause and effect situations seen in social interactions can only be considered in terms of the meanings events have to the participants (Erickson, 1986). Concern with the meanings that events have for those that participate in them is the focus of phenomenology. Thus, phenomenology is the specific theoretical perspective which qualitative researchers share. The phenomenological approach to research along with symbolic interaction, which is a particular phenomenological approach, are discussed below.

Phenomenology and Symbolic Interaction

Basic to the phenomenological approach is the idea that there are many ways that humans can interpret their experiences and that it is the meaning we associate with these experiences that constitutes reality. Consequently, researchers have as their goal the study of the subjective aspects of peoples' behavior in order to understand the meaning these people give to the social events and interactions in their lives (Bogdan & Biklen, 1982).

Symbolic interaction is a particular phenomenological approach that is of importance to qualitative research. The theory behind symbolic interaction can be outlined thus: (1) Humans do and say what they do based on interpretations of their social world, (2) human behavior is based on learning rather than biological instinct, (3) what is learned is communicated through symbols, (4) the meanings given to a thing or event are a product of the social interactions of the people involved (Berg, 1989). Thus, the goal of the researcher would be to discover the meanings and the processes by which the meanings are constructed (Bogdan & Biklen, 1982).

Summary of Philosophical Perspectives

The logical positivism that quantitative-behaviorist research is based on sees reality as separate from the knower. It sees truth as a function of a reality that can be verified objectively through the use of scientific methods.

Qualitative research is based on a phenomenological approach to reality which has its foundation in idealism. Reality is seen as a function of the knower's interpretation of social events and interactions and the meanings associated with them. Truth is a function of shared meaning within a specific context.

Symbolic interaction is a particular phenomenological perspective that looks at the meanings humans attach to objects and events. Interaction between people using symbols (usually language) is the process by which meaning, including shared meanings, are constructed.

The following section examines the application of the qualitative perspective and philosophy to educational research.

Applications of Qualitative Research in Education

Qualitative research in education studies "the educational experiences of people of all ages, in schools as well as out" (Bogdan & Biklen, 1982, p. 2). The range of qualitative research already done in education supports this idea that qualitative research can be applied to almost any aspect of education.

Qualitative research is especially applicable to complex areas or issues related to education, and many issues related to education are very complex. Peshkin (1988) says that qualitative researchers have as their goal "understanding the complexity of the phenomenon of interest to them" (p. 146). The application of qualitative research to education can be seen, in one sense, as an effort to understand its complexity.

Merriam (1988) says that qualitative studies in education can be differentiated according to their purpose. She describes three major purposes. Bogdan and Biklen (1982) say that qualitative research can be theoretical or applied, and that applied research is of three types. Combining the above categorization schemes, five distinct types of qualitative research can be identified: (1) descriptive, (2) interpretive, (3) evaluative, (4) pedagogical, and (5) action research. These five types of qualitative research are briefly described below and some examples of each type are given.

Descriptive Qualitative Research

Descriptive studies, as their name implies, involve detailed descriptions of the case or cases under study and provide basic information about areas where little research has been done. These types of studies do not seek to evaluate or

interpret a situation and are not guided by theory; rather they provide a basis for future theory and evaluation or comparison (Merriam, 1988).

Lightfoot's (1981) "Portraits of Exemplary Secondary Schools" is an example of descriptive qualitative research. Her study reported three case studies of distinguished high schools, each of which included descriptions of the school, its staff, its curriculum, everyday life, and some critical events in the operation of the school. The idea was that the first step in understanding what makes an exemplary school and how to develop one is to describe some exemplary schools.

Another descriptive study is Moore's (1986) "Learning at Work: Case Studies in Non-School Education." He studied high-school students working as interns in furniture shops, hospitals, food co-ops, museums, and other widely different settings. The purpose of the study was to describe how newcomers learn to work in various organizations. This descriptive study was later the basis of a conceptual framework of how learning occurs outside school settings.

Interpretive Qualitative Research

Interpretive qualitative research has as its central interest "Human meaning in social life and its elucidation and exposition by the researcher" (Erickson, 1986, p. 119). In education this means, in part, studying "the meaning-perspectives of teacher and learner as intrinsic to the educational process" (p. 120). Like descriptive studies, interpretive studies include rich description but go beyond this to develop concepts or to address theoretical considerations. A well-known example of interpretive qualitative research that is also very descriptive is Wolcott's (1973) ethnography of Ed Bell, an elementary school principal.

Interpretive research is often called analytical because it goes beyond the description of events to an analysis of them. One kind of analysis is event analysis, which is illustrated by Kemp's (1984) "Event Analysis of a School Carnival." In her study she looked at how the three distinct neighborhoods of an integrated school participated in a yearly school carnival which was used to raise money for the school. The study analyzed societal patterns and social processes as they influenced this small slice of the life of the school.

Another analytical case study, "Implementing Organizational Innovations" (Gross, Giacquinta, & Bernstein, 1971), looked at how innovations were implemented in a single school. The study focused on implementation processes and found that these processes, rather than pre-existing "barriers to innovation" were the key to determining whether or not an innovation would be implemented. Previous to this study, barriers to innovation had been the focus of most studies on implementation (Yin, 1984).

Evaluation Research

Qualitative evaluation research uses qualitative methods to evaluate an educational program or innovation. The case study approach is a particularly good one for evaluation studies (Merriam, 1988). According to Yin (1984), evaluative case studies explain, describe, and explore educational interventions. In a sense, though they involve both, they go beyond description and analysis to provide judgments. According to Guba and Lincoln (1981), "Judging is the final and ultimate act of evaluation" (p. 375).

One study, an ethnographic evaluation reported by Dobbert (1984), is a case study of an inner-city school. This study evaluated racial integration and

teacher retraining efforts undertaken at a junior high school in response to mandated desegregation. The researcher followed teachers, students, and administrators through their school day several times over a two-year period and uncovered socio-cultural patterns which had not previously been considered. He found that these patterns, rather than efforts by the school system, were what shaped the school.

In another example of evaluative qualitative research, Anderson and Barr (1989) studied a school district that attempted to change grouping practices related to tracking students in high schools. Although the report involves a great deal of description and analysis, it concludes with evaluation of past practice and possible future actions.

Pedagogical and Action Research

These approaches to qualitative research are suggested by Bogdan and Biklen (1982) as forms of applied research which are outside the mainstream of what some would consider scholarly research. They are mentioned here briefly as an example of possible uses of qualitative research related to education. Growing interest in both applied research and qualitative methods may lead to a growing use of these approaches, since qualitative methods seem well suited to applied research.

In pedagogical research, teachers try to examine what they do as a qualitative researcher might, trying to step back from the situation they are in as they seek to examine it. Bogdan and Biklen (1982) suggest four steps for one who does this: (1) decide on a problem on which to focus, (2) keep notes on

events as much as possible, including some dialogue and observations, (3) look through the accumulated notes for patterns that may emerge, and (4) use the data to inform decisions (pp. 209, 210).

According to Bogdan and Bikien, "Action research is the systematic collection of information that is designed to bring about social change" (p. 215). Data are collected with the specific purpose of proving a point in order to bring about change. It is different from most research because the values of the researcher are clearly involved and expected to be reflected in the results.

The next several sections discuss issues related to qualitative data itself including data collection and analysis.

Issues Related to Qualitative Data

The kinds of evidence or data acceptable to qualitative researchers and the methods for collecting these data are inextricably linked. So are data collection and analysis. However, in order to examine issues related to qualitative data in a logical fashion, this section first discusses what constitutes acceptable qualitative data. Then three common methods of data collection and one method of data analysis are examined.

Types of Acceptable Qualitative Data

Different kinds of evidence or data are accepted in qualitative research. Several writers approach the discussion of the kinds of data used in qualitative research in different ways and from different points of view. Patton (1990) refers to qualitative data simply as "detailed descriptions . . . ; direct quotations from people . . . ; and excerpts or entire passages from documents" (p. 22).

In his book on qualitative research, Berg (1989) mentions several kinds of qualitative data but seems to give the greatest importance to interviews, ethnographic data, and unobtrusive data which he discusses in detail.

Bogdan and Biklen (1982) mention fieldnotes from observations, transcripts from interviews, personal documents, and photographs as significant kinds of qualitative data. Unlike other writers, they mention the personal reflections of the researcher (what they call observer comments) as an important part of the data included in fieldnotes.

Goetz and LeCompte (1984) divide qualitative data into two main types, those obtained using interactive methods and those obtained using noninteractive methods.

Yin (1984) lists six "sources of evidence" (p. 79). Dobbert (1984) discusses in detail seven kinds of data, similar to Yin's list, but describes at least seven "other techniques," and refers to even more.

Using Patton's broad general terms, three types of data commonly used in qualitative research can be identified: (1) descriptions, (2) quotations, and (3) documents. Two less common categories of data, photographs (including videotapes) and physical artifacts, subsume the remaining types of data. The types of qualitative data mentioned by the above authors can be broadly classified, then, as (1) descriptions, (2) quotations, (3) documents, (4) photographs, or (5) artifacts.

Acceptable Quantities and Combinations of Qualitative Data

Of at least equal importance to the kinds of data which are acceptable are the amount of data collected and the combinations of different kinds of evidence.

In listing major types of problems with qualitative evidence, Erickson (1986) names "inadequate amounts of evidence" and "inadequate variety in kinds of evidence" as two major problems (p. 140). For data to be acceptable for qualitative research it must be (1) drawn from a large enough pool of similar data and (2) reported in conjunction with data from other sources. In other words, if a statement a teacher makes during a class is to be reported as data, it should be drawn from a sizeable corpus of fieldnotes that include similar teacher statements and be supported by other forms of data from written documents, interviews, or other observations.

Yin (1984) lists three major principles of data collection that can be used as guidelines: (1) Researchers should be "using multiple, not just single sources of evidence" (which is similar to Erickson's call for a variety of evidence); (2) "creating a case study data base," and (3) "maintaining a chain of evidence" (p. 79). The latter two principles are similar to Erickson's concern for amounts of evidence.

In relation to using multiple sources of evidence Berg (1989) says "By combining several lines of sight, researchers obtain a better, more substantive picture of reality" (p. 4). Likewise, Dobbert (1984) says that "generalizations may be supported . . . by perhaps three or more examples from the data" (p. 277). Neither Berg nor Dobbert directly speaks to the issue of the amount of evidence. However, both assume the need for considerable amounts of data with many references to the large number of pages of fieldnotes and the time needed to review or code data.

The next section describes some data-collection techniques associated with descriptions and quotations.

Data Gathering Techniques

Expanded Field Notes

Bogdan and Biklen (1982) call fieldnotes "the mainstay of qualitative research" and describe them as "the written account of what the researcher hears, sees, experiences, and thinks in the course of collecting and reflecting on the data" (p. 74). They consider all data from participant observation studies, including interviews, documents, and notes, to be fieldnotes. Fieldnotes generally begin with notations indicating date, time, subject, setting, and purpose (Berg, 1989; Dobbert, 1984; Merriam, 1988). They are descriptive in nature and may include portraits of the subjects of the study, descriptions of the physical setting, events and activities, and reconstruction of dialogue (Bogdan & Biklen, 1982). Although tape recorders and video recorders may be used in conjunction with fieldnotes, the expense of transcription and obtrusiveness of their presence often preclude their use for participant observation studies. In such cases, efforts are made to make note reproductions as close to verbatim as possible (Berg, 1989).

During observations and interviews, the researcher takes notes as thoroughly as possible. During participant observation notes may be sparse and cryptic or even non-existent at times as the researcher works to take in as much as possible; during one-on-one interviews notes may approach verbatim transcription if the researcher has developed a quick "shorthand" method of note taking. In either case, these in situ notes are "expanded" by the researcher as close to the actual observation or interview as possible.

Expansion can be done in one of at least two ways. Some researchers leave a large margin of about one-third of a page in which they add notes about the setting, clarify quotations, or add their own comments about a situation. Other researchers rewrite a complete set of notes using their in situ notes and memory to produce a far more thorough set of notes.

Bogdan and Biklen (1982) recommend that a researcher type or write his or her own expanded fieldnotes to get to know the data better. Goetz and LeCompte (1984) favor handwritten verbatim notes taken in "shorthand" in situ with comments added to wide margins. These types of notes are efficient time-wise and are ready for analysis if taken properly.

Included in either of these types of notes are what Goetz and LeCompte (1984) call "low inference descriptors" which are "verbatim accounts of what people say as well as narrative of behavior and activity." These descriptors are "phrased as concretely and precisely as possible" (p. 160). In addition to these low inference descriptors are interpretive comments that Bogdan and Biklen call "observer comments." They may include ideas for future observations as well as explanations or interpretations of situations being reported in the fieldnotes.

Because expanded fieldnotes contain and actually generate the interpretations and ideas of the researcher which are recorded nearly concurrently with observations and interviews, the process of expanding the notes is in essence a data-gathering technique.

Thus, fieldnotes are part of an essential technique not only for recording but organizing and adding to the data from observations and interviews. Thus, the interpretations and ideas of the researcher become an important part of the database along with low inference descriptions and transcriptions.

Participant Observation

Goetz and LeCompte (1984) describe participant observation by telling what researchers engaged in it do. "They watch what people do, listen to what they say and interact with participants such that they become learners to be socialized into the group under investigation." Participant observers then record "phenomena salient to major aspects of the topic [under study]" (p. 112).

Participant observation conducted during qualitative research falls somewhere along a participant/observer continuum (Bogdan & Biklen, 1982). At one end would be the "pure" observer who watches through a one-way mirror or remains as distant and uninvolved as possible from the situation being observed. At the other end of the continuum is a researcher who is so completely involved with the situation under study as to be practically indiscernible from the subjects of the study. In reality, participant observation falls somewhere along that continuum and varies from study to study and also during the course of a study.

Dobbert (1984) says that participant observation is distinguished from "pure" observation by the fact that the researcher "becomes at least partly socialized to the situation" (p. 103). She says the participant observer (1) organizes information around a framework, (2) records details that participants take for granted, (3) periodically steps back from the situation, and (4) watches for personal bias (pp. 102, 103).

Merriam (1988) summarizes the strengths of participant observation as a data-gathering technique by saying: "Participant observation maximizes the advantages of the human being as instrument--The human instrument is capable of understanding the complexity of human interaction encountered in even the shortest of observations" (p. 103).

Ethnographic Interviews

Spradley (1979) says that "It is best to think of ethnographic interviews as a series of friendly conversations into which the researcher slowly introduces new elements to assist informants to respond as informants" (pp. 58, 59).

Bogdan and Biklen (1982) say, even more simply, that "an interview is a purposeful conversation, usually between two people--that is directed by one in order to get information" (p. 135).

Like participant observation, ethnographic interviewing can be seen to fall along a continuum. At one end is the standardized or highly structured interview during which all interviewees are asked precisely the same questions in the same ways. At the other end of the continuum is the non-standardized or unstructured interview. In this sort of interview, questions are not laid out ahead of time. The answers and statements provided by the interviewee during the interview are the main factors in determining the direction of the interview. They can be used to supplement participant observation (Berg, 1989).

The semi-structured interview is "located somewhere between the extremes of completely standardized and completely unstandardized interviewing" (Berg, 1989, p. 17) and is "guided by a list of questions or issues to be explored but neither the exact wording nor the order of the questions, is determined ahead of time" (Merriam, 1988, p. 74). Yin (1984) says that in qualitative case studies interviews are "most commonly--of an open ended nature" but that over a short period, focused interviews can also be used, in which case "the interviews may still remain open-ended and assume a conversational manner, but the interviewer is more likely to be following a certain set of questions derived from the case study protocol" (p. 83).

According to Merriam (1988) all three types of interviews--structured, semi-structured, and unstructured--can usually be combined in a study.

The next section describes a widely used technique for analyzing qualitative data.

Data Analysis Technique: Content Analysis

Holsti defines content analysis as "any technique for making inferences by systematic and objective identifying [sic] special characteristics of messages" (in Berg, 1988, p. 106). In this case, he is referring to the more common application of content analysis to written or spoken communications. Goetz and LeCompte (1984) envision a broader use of content analysis to include "such dimensions as the spatial, physical, temporal, philosophical, grammatical, or social" (p. 170). Taking these perspectives into account, one sees that content analysis involves making inferences about data involving human communication and interaction.

This analysis is undertaken generally in two stages that overlap considerably. The first is coding and categorizing, the second is analyzing or drawing inferences. Coding and categorizing is also a form of data reduction as data that is not relevant to the narrowing focus of the study is set aside. Analysis, the drawing of inferences from the data, is the final step of content analysis, but it begins during the coding and categorizing of the data. As categories and coding schemes are refined, inferences must be made. During the final stage of analysis (drawing inferences), it would not be unusual to return to the categories and to examine them further. Thus, the two distinct stages of content analysis can be seen to overlap. Each stage is considered and explained briefly below.

Coding and Categorization of Data

Merriam (1988) uses a metaphor to explain coding of data. She suggests that categorizing raw data is similar to "the task of sorting two hundred food items found in a grocery store. By comparing one item with another, you could classify the two hundred items into any number of categories" (p. 132). She emphasizes that schemes for categorizing emerge logically from the data.

Although it is true that categories emerge from the data, they do not do so magically. The process of coding and categorizing data can be seen as taking place in several steps. Some of these steps might be combined and they may be carried out in a somewhat different order than they are listed here.

1. Review the research proposal. Although the research may not have progressed exactly as proposed, it is important to reconsider the original questions. The questions and concerns expressed in the proposal usually generate categories (Goetz & LeCompte, 1984; p. 190; Bogdan & Biklen, 1982, p. 156).

2. Organize the data into a case record or data base. This is usually done by organizing notes chronologically, topically, by subject, or by site (Merriam, 1988; p. 131; Yin, 1984, p. 91).

3. Read through the data base several times. During this review of notes the researcher should decide on a unit of analysis, such as sentences, paragraphs, or phrases. He or she should also watch for patterns that occur in the data and take note of them (Goetz & LeCompte, 1984; Bogdan & Biklen, 1982).

4. Code the data base. Based on the categories that emerge from the review of the proposal and reading of the data base, the entire data base is coded. Thus each unit is assigned to a category.

The two critical aspects of this process are the formulation of categories and the assignment of units of analysis to these categories. According to Berg (1989), categories can be ". . . determined inductively, deductively or by some combination of both." A combination of inductive and deductive approaches to formulating categories considers the theoretical perspectives of the proposal, as well as strictly data-based considerations. Thus both perspectives influence the formulation of categories.

In addition to the formulation of categories, the assigning of units of data to categories is of critical importance in the first stage of qualitative data analysis (coding & categorizing). According to Berg (1989), "The criterion of selection used in any given content analysis must be sufficiently exhaustive to account for each variation of message content and must be rigidly and consistently applied" (p. 106). The range of categories must be sufficiently broad to encompass all of the data and each must be defined clearly enough to allow for consistent selection of data into categories.

Final Analysis or Drawing Inferences

The basic goal of final analysis is quite simple even though the process itself can be lengthy and intimidating. According to Merriam (1988), "All the tactics [for analysis] are designed to reduce the data gathered in a qualitative case study to a manageable size so that a sense of their meaning can be conveyed to the reader" (p. 153). Like the goal of interpretation (or final analysis), the basic process is also quite simple, "discovering what is important and what is to be learned and deciding what you will tell others" (Bogdan & Biklen, 1982, p. 145). This process sounds simple but is generally considered to be the most

intimidating and difficult aspect of the research process, because it involves the analysis ("discovering what is important") and composition ("deciding what you will tell others") aspects of the research project.

According to Merriam (1988), "The amount of interpretation one strives for depends on the purpose of the study as well as the end product one desires" (pp. 130, 131). A study can have one or more of three basic purposes;

(1) "a . . . general analytic strategy is to develop a descriptive framework" (Yin, 1984; p. 101), (2) to test or refine existing theory, or use that theory to interpret findings (Dobbert, 1982), and (3) to develop new theory (Merriam, 1988).

Final analysis, or drawing inferences, may play a minor part in research whose goal is to be descriptive, but it will play an important role in research that seeks to test or refine existing theory and an even more important role in research that seeks to develop new theory. Three major modes of analysis--pattern matching, explanation building, and time-series analysis--can be used singly or in combination along with other methods of analysis to discover what is important in a study.

The author then decides what can be learned from the important findings and what he or she will report to others. In reporting to others, the researcher must be concerned with the issues of reliability and validity. The next section compares the reliability and validity concerns of qualitative research with the more traditional quantitative reliability and validity and explains how they are handled in qualitative research.

Validity and Reliability in Qualitative Research

Validity

Definition

Kerlinger (1986) says, "The commonest definition of validity is epitomized by the question 'Are we measuring what we think we are measuring?'" (p. 417). According to Yin (1984) there are three types of validity related to case study design which address that question: (1) construct validity, which is related to the characteristics of the concept (or construct) being studied; (2) internal validity, which is related to establishing a causal relationship between conditions studied (not applicable to many qualitative studies); and (3) external validity, which is related to the generalizability of a study's findings (p. 36).

In general, dealing with issues related to validity has been much less of a problem to qualitative researchers than issues related to reliability (Merriam, 1988). Using as the definition of validity the question, "Are we measuring what we think we are measuring?" (Kerlinger, 1986, p. 417), the qualitative researcher can usually answer, "Yes." This is because researchers are among their subjects of study over long periods and on several occasions and often have their subjects help refine their concepts (Goetz & LeCompte, 1984). Extended contact with the subjects in a naturalistic setting helps ensure that the researcher actually is studying the concepts and "constructs" he says he is.

External validity, or generalizability of the findings of a study, is an issue that is problematic for qualitative researchers. Since qualitative research situations are seldom chosen at random, are unique in many ways, and often have

only a few subjects, their results are not generalizable in a quantitative, statistical sense.

Ways qualitative researchers can ensure internal and construct validity, as well as deal with external validity, are detailed briefly below.

Construct Validity in Qualitative Research

Do the concepts or "constructs" that the qualitative researcher is ostensibly studying account for the thinking and behavior of the subjects of the study? To ensure that this is so, in other words, to ensure construct validity, qualitative researchers can do several things, which are listed and explained briefly below:

1. They should use multiple sources of evidence, or "triangulation."

Participant observation, informative interviews, and documentary data are the usual sources of data. Data from different informants, multiple cases, or multiple sites also ensure construct validity. Another type of triangulation, possible in larger projects, involves using the combined judgment of multiple investigators (Goetz & LeCompte, 1984; Merriam, 1988; Yin, 1984).

2. Qualitative researchers should spend extended periods of time at the research site over a long period of time. This is perhaps the single most important way, and is a critical attribute of qualitative research (Merriam, 1988).

3. Qualitative researchers can develop a broad-based understanding of the situation being studied and develop or "construct" reasonable explanations for the phenomena observed. This is similar to triangulation, since understanding comes from exposure to multiple sources of information but is less technological in nature relying on the expertise and reasoning power of the researcher (Mathison, 1988; Merriam, 1988).

4. Qualitative researchers can perform "member checks" by asking research participants to review data and interpretations to learn if these findings make sense to them. This helps ensure that the "constructs" or concepts proposed by the researcher are congruent with those with which the participants are operating (Guba & Lincoln, 1981; Yin 1984).

5. Qualitative researchers can have their colleagues participate in a "peer review" as they analyze their data and develop findings. Having "experts" in the field of qualitative research or in the phenomena under study review findings helps to establish construct validity (Goetz & LeCompte, 1984; Merriam, 1988).

6. Qualitative researchers can ensure construct validity by using low inference descriptors in fieldnotes. By doing so, researchers avoid assuming "constructs" exist in a situation. Thus constructs are developed, or emerge later and are based on a wider spectrum of data (Goetz & LeCompte, 1984).

7. Qualitative researchers can help ensure construct validity by revealing and clarifying researcher bias. By making their background and possible biases explicit, readers can better evaluate constructs developed by the researcher.

This study uses triangulation, extended periods of time at the research sites, a broadbased understanding of the phenomena involved (cooperative learning), low inference descriptors, and revelation of researcher bias to help ensure construct validity.

Internal Validity in Qualitative Research

According to Yin (1984), internal validity is an issue only in studies where a causal relationship is established to show that certain conditions lead to other conditions. This fits with the definition established previously: "Is the

phenomenon being observed the condition that influences this other phenomenon?" But in another sense, internal validity is an issue with all qualitative research. In this sense one would be concerned that the findings of the research match the participants' construction of reality (Merriam, 1988). "Does the condition observed (behavior and thinking of the participants) really result from the participants' construct of reality reported by the researcher?" In other words, whenever a researcher makes an inference, internal validity (does B logically result from A?) is an issue. Thus, Goetz and LeCompte (1984) and Merriam (1988) consider internal validity an important issue for all qualitative research.

The questions then are: "Do the findings capture what is really there? Are investigators observing or measuring what they think they are measuring?" (Merriam, 1988, p. 166). These questions are similar to Kerlinger's (1986) question originally proposed as a definition of validity: "Are we measuring what we think we are measuring?" (p. 417). But in qualitative research, the issue is closely related to the issue of construct validity. Thus, the seven measures enumerated above for ensuring construct validity also are effective for ensuring internal validity in a qualitative study.

External Validity in Qualitative Research

As explained previously, the question of external validity relates to the generalizability of findings: "To what other situations can the findings be generalized?" For qualitative researchers, this question can be difficult to answer.

At least three different approaches can be seen in the way qualitative researchers deal with external validity: (1) that it is not a necessary concern for qualitative researchers, (2) that the reader of the research report makes the

decision about what can be generalized to the situation(s) in which the reader is interested, and (3) that researchers can take steps to ensure and define some sort of generalizability in the traditional sense of external validity. These three approaches are considered below.

Generalizability a Moot Question

Merriam (1988) points out that "one selects a case study approach because one wishes to understand the particular in depth not because one wishes to know what is generally true of the many" (p. 173). Thus, generalizability is not important.

This view is also taken by Erickson (1986). To him the goal of qualitative research is not generalizability but rather the search for "concrete universals." He says, "The search is not for *abstract universals* arrived at by statistical generalizations from a sample to a population, but for *concrete universals* arrived at by studying a specific case in great detail and then comparing it with other cases studied in equally great detail" (p. 130). This view is similar to Eisner's (1981) view that the general resides in the particular and that what people do in everyday life is apply knowledge learned from particular situations to the new situations they face. People naturally transfer particular knowledge to new situations.

Stake (1978) has a similar idea of "naturalistic generalization" in which knowledge gained from the particular allows one to use past experiences to guide in new situations, rather than to predict outcomes in new situations (the goal of quantitative generalizability).

Cronbach (1975) agrees that generalizability should not be the aim of qualitative research since even in the physical sciences most generalizations are

changed over time. Instead, he says local, uncontrolled conditions should be taken into account in research and that "working hypotheses" be developed with which to approach new situations. "When we give proper weight to local conditions, any generalization is a working hypothesis, not a conclusion" (Cronbach, 1975, pp. 124, 125).

If the goal of qualitative research is to discover "concrete universals" (Erickson, 1986), "naturalistic generalizations" (Stake, 1978), or "working hypotheses" (Cronbach, 1975), then traditional concepts of generalizability are not worrisome for qualitative researchers.

User or Reader Generalizability

Similar to the views outlined above is the view that the reader, not the researcher, should be the one concerned with generalizability. According to Walker (1980), it is not the researcher who determines what is generalizable but "the reader who has to ask, what is it in this study that I can apply to my own situation, and what clearly does not apply?" (p. 34). Indeed, as Merriam (1988) points out, "This is a common practice in law and medicine, where the applicability of one case to another is determined by the practitioner" (p. 177).

To help readers make the kind of judgments necessary to apply qualitative research findings to their particular situations, researchers must provide a description that specifies "everything a reader needs to know in order to understand the findings . . . so that anyone else interested in transferability has a base of information appropriate to the judgment" (Lincoln & Guba, 1985, pp. 124, 125). This would include careful description of the research situation, the participants,

the conditions under which data were gathered, and important factors such as researcher bias and background.

Ensuring Generalizability

This approach to external validity differs from the previous two in that generalizability is recognized as a valid concern for the qualitative researcher. Goetz and LeCompte (1984), among others, recognize generalizability as an important consideration for qualitative researchers. However, they recognize that "the strictures required for statistical generalization may be difficult to apply" (p. 228). But they also maintain that the comparability and translatability of a study, that is comparison of similar studies and translation of theoretical frames and definitions, are important concerns for qualitative researchers. Consequently, they propose four factors that affect comparability and translatability. They are (1) selection effects, (2) setting effects, (3) history effects, and (4) construct effects.

Having recognized these four areas that affect external validity, Goetz and LeCompte (1984) make the following recommendations regarding the strengthening of external validity in qualitative research.

Select research situations carefully. The researcher needs to be sure that there is a fit between the categories selected for study and the research subjects and settings chosen. If more than one group or setting is studied, they must be similar enough to enable cross-group comparison.

Describe groups and subjects carefully and in detail. In addition to using subjectively described qualities to describe a setting or individual, quantitative

attributes are also important. For example, describing the racial mix and socio-economic status of a school as well atmosphere would be important.

Gather data from more than one perspective. If a participant observer in a study was a teacher in the classroom being studied, there is a good possibility of setting-observer interaction which would change the researcher's perspective. Data in that classroom should also be collected using non-participant observation and perhaps interviews.

Avoid heavily researched settings. Schools, classrooms, and teachers who regularly cooperate in research are affected by this practice. They may have learned to "give the researcher what he wants" and thus data are not comparable to settings where this is not true.

Consider historical background to situations. Where development of the current situation being researched is important, research should be done into the events leading up to the present conditions.

Describe constructs carefully. The meaning given to social phenomena, abstract terms, and generalization should be explored and described carefully.

Report discrepancies and contradictions. When researchers discover discrepancies between different groups or contradictions between different groups or different sources of data, these must be reported. These discrepancies and contradictions are helpful to other researchers who may be comparing studies or can be aware of possible areas of discrepancy in their own research.

Seek mutual understanding of constructs and research instruments. When dealing with a concept, all observers and research subjects should have a common understanding of the concept. Researchers should be careful to ensure that the meaning they construe from observed phenomena is the same as the

meaning drawn by the participants in that setting. When multiple researchers work on a project, it is important that they have a common understanding of the concepts involved in observation guides and interview protocols.

This study relies in large part on reader generalizability for application to situations beyond those being studied. However, several steps that ensure generalizability in a qualitative sense have been taken; (1) the research situation was selected carefully, (2) groups and subjects were described carefully, (3) data were gathered from more than one perspective, (4) the research situation was not over-researched, and (5) discrepancies and contradictions are reported.

Reliability

Applying the Concept to Qualitative Research

As one would expect, there is a difference between the application of the concept of reliability to qualitative research and quantitative research, though the concepts in both types of research are similar. A question that embodies the concept might be, "How well are we measuring what we are measuring?" or, "How accurate is our data?"

Bogdan and Biklen (1982) frame "the reliability question" as, "Will two researchers independently studying the same setting or subjects come up with the same findings?" (p. 44). They go on to say that for qualitative researchers, reliability is "a fit between what they record as data and what actually occurs in the setting under study, rather than a literal consistency across different observations" (p. 44).

They also point out that because those who study education are from different theoretical, practical, and research orientation backgrounds, that two

researchers studying the same setting could come up with different data and findings. They contend that "One would only question the reliability of one or both studies if they yielded contradictory or incompatible results" (p. 44).

Merriam (1988) points out that because no situation is static and because of the complicated nature of human interaction that a social phenomenon could never be measured again since the new situation would be a new phenomenon. Thus, to her, the concern with reliability is not whether other researchers could study similar situations with the same result but that "one wishes outsiders to concur that, given the data collected the results make sense--they are consistent and dependable" (p. 172).

Methods of Ensuring Reliability

Regardless of one's view of reliability, whether that of the more traditional view stemming from the quantitative research definition or the less traditional view, several research practices can improve reliability (Goetz & LeCompte, 1984; Guba & Lincoln, 1981; Merriam, 1988):

1. Make the position and decisions of the researcher explicit. The assumptions and theories upon which the study is based should be explained. Why does the researcher want to study this particular phenomenon? The position of the researcher relative to the group under study should be explained. A principal studying a classroom has a completely different perspective than a university professor or graduate student.

2. Make the procedure and basis for selecting informants clear. Informants should be described carefully and the social context of the situation under study should be included in the description.

3. Triangulate findings. Multiple sources of data, multiple methods of gathering and analyzing the data, and multiple sites all help improve reliability.

4. Maintain an audit trail. If others are to authenticate the findings of a study by verifying findings or replicating the study, they must be able to follow the decision-making, data-gathering, and data-analysis processes of a researcher. Site selection, informant selection, data gathering, and data analysis must be described carefully. Goetz and LeCompte (1984) say that the detail should be sufficient for "other researchers [to] use the original report as an operating manual by which to replicate the study" (p. 216).

All four of the steps listed above have been undertaken during this study to help ensure reliability.

Summary: Validity and Reliability

The previous sections have defined and discussed issues of validity and reliability related to qualitative research. In looking at validity, internal, external, and construct validity were considered. Some issues related to external validity also affect construct validity and reliability.

Several measures were suggested to help ensure validity and reliability in qualitative research studies. Some of these measures were suggested relative to more than one validity or reliability issue. These measures are listed in Table 1 which indicates the validity and reliability issues each technique addresses.

The Use of Qualitative Research For the Present Study

As explained earlier, qualitative research can be descriptive, descriptive and analytic, or descriptive, analytic, and evaluative in nature. Qualitative

Table 1

Improving Validity and Reliability in Qualitative Research

| Using this technique helps improve: | Construct Validity | Internal Validity | External Validity; Reliability |
|--|--------------------|-------------------|--------------------------------|
| Technique | | | |
| 1. Triangulation | ★ | ★ | ★ |
| 2. Spending extended time at the site | ★ | ★ | |
| 3. Developing a broad based understanding of the situation | ★ | ★ | |
| 4. Member checks | ★ | ★ | |
| 5. Peer Review | ★ | ★ | |
| 6. Gather data using low inference researcher descriptors | ★ | ★ | |
| 7. Make background, biases, and position of researcher explicit. | ★ | ★ | ★ |
| 8. Select sites carefully | | | ★ |
| 9. Describe participants in careful detail | | | ★ |
| 10. Consider historical background to settings | | | ★ |
| 11. Describe constructs carefully | | | ★ |
| 12. Seek mutual understanding of carefully used constructs | | | ★ |
| 13. Report discrepancies | | | ★ |
| 14. Report informant selection process | | | ★ |
| 15. Maintain audit trail | | | ★ |

research is appropriate for studying complex issues when it is desirable to give full play to the complexity of the issue and not reduce the variables of interest nor attempt to reduce relationships to correlations.

Qualitative research is also appropriate when the understanding of issues from the meaning-perspective of the subjects of the study is a goal. It is especially appropriate for the study of areas that have not yet been well studied. In such areas, not all the variables of interest are known and neither are the interactions that may occur between some of the variables. By looking at a phenomenon in the context in which it happens, qualitative research is more likely to find important variables and interactions between them.

My study attempts to find out how three teachers implement cooperative learning methods in their classrooms and to see what happens to the cooperative learning model they were taught as it is implemented. Since the goal is to describe and analyze the implementation of cooperative learning into the classrooms of these teachers, qualitative methods are seen as appropriate for three reasons: (1) classroom implementation of an innovation is a complex phenomenon, (2) implementation of cooperative learning methods and how implementation affects the configuration of cooperative learning models as they are implemented are both topics that have received very little study, and (3) qualitative methods have been successfully used to study other implementation efforts of various types.

Summary

Chapter 3 reviewed only a portion of the literature on qualitative research because the literature is so extensive. Qualitative research was defined in terms

of philosophical and practical perspectives as well as in terms of acceptable types of data and data collection.

A description of the different applications of qualitative research to the field of education was followed by a review of the literature relative to qualitative data itself. Issues related to the acceptable kinds and combinations of qualitative data were discussed as well as issues related to specific techniques for qualitative data collection and data analysis. The issues of validity and reliability were discussed extensively and a list of practices that help ensure reliability and validity was developed. A brief rationale for the use of qualitative research for the present study concluded the chapter.

CHAPTER IV

RESEARCH DESIGN AND METHODOLOGY

The purpose of this chapter is to describe the research design employed in the study and to relate the decision-making process that led to the final design of the study. In addition, the chapter explains the data-gathering and data-analysis techniques used in the study. Pseudonyms are used for the people and schools directly involved in the study and identifying details have been changed in order to preserve anonymity for the participants in the study.

Research Design and the Decision-Making Process

The Topic and Focus of the Study

As described in Chapter 1, the use of cooperative learning as an instructional method is growing in popularity. Cooperative learning has a strong theory base and is well researched. Consequently I wanted to know more about it.

Having been trained in and then having used cooperative learning methods, I have come to believe that cooperative group techniques have great promise for making education more active, meaningful, and effective for students in the schools. They are a way of teaching thinking skills, social skills, and values, and they are a way for schools to meet the psychological needs of students. I also think that learning to use most cooperative learning techniques

not only involves acquiring expertise in managing the technical aspects of the lesson (grouping, monitoring, developing appropriate lessons, classroom management, etc.) but also reconsiders the roles of teacher and student, classroom structuring, and what schooling is all about. Though the promise of cooperative learning may be great, the challenges for teachers learning to use cooperative learning are also great. Because of my interest in cooperative learning and the challenges it presents to teachers learning to use cooperative learning techniques, I wanted to study what happened to teachers who had been trained to use cooperative learning as they sought to implement it in their classrooms.

Selecting the Research Setting

Because of preliminary research I had conducted and the contacts I had from cooperative learning training I had attended, I was aware of a good situation in which to study teachers seeking to implement cooperative learning in their classrooms. An experienced trainer was scheduled to conduct a four-day series of cooperative learning workshops with over 30 teachers, most of whom taught within a 30-mile radius of the university where I was studying. I had interviewed the trainer, Ms. Carter, in person on two occasions and knew she had been trained by Roger and David Johnson of the University of Minnesota, and had worked with them in the past. Ms. Carter, who had published a nationally known book on cooperative learning, was now conducting cooperative learning workshops in several areas of the country. She was well respected and in such demand that she was very busy throughout the year. Having attended one of Ms. Carter's cooperative learning workshops previous to beginning the study, I found her a very capable teacher trainer. Her workshops were fast paced and

carefully planned with appropriate handouts and activities. She taught with the pragmatic slant of the practitioner having been a classroom teacher herself for several years. Schools reported high levels of satisfaction with her training.

Ms. Carter always conducted cooperative learning training over a period of three to four months. Her pattern was (and is) (1) two days of initial training to provide teachers with the basics needed to use cooperative learning in their classrooms, (2) a follow-up day of training after about six to eight weeks, and (3) a final day six to eight weeks after the third day. The final two days build upon the initial training as well as the new experience teachers gain in their classrooms.

The school district sponsoring the training was doing so for the third consecutive year. Most of the elementary teachers, many middle-school teachers, and several high-school teachers in the district had been trained in cooperative learning methods. This was part of an effort by the district to provide cooperative learning training for as many of their teachers as possible. The training was open to teachers from other districts who made up about 60% of the 35 participants.

Selecting the Methodology

A qualitative case-study design was selected for the present study for reasons related to the nature of the topic and for personal reasons. The topic--characterized by the two questions; "What happens to teachers as they implement cooperative learning?" and "What happens to cooperative learning as teachers implement it?"--is a complex one that has been little studied and is suited for a descriptive, rather than quantitative, approach. As explained above,

qualitative research is particularly useful for studying complex issues (Peshkin, 1988). Qualitative research is useful and best recognized for exploratory studies where no hypotheses need be confirmed as a result of the research (Yin, 1984). I was aware that literally hundreds of thousands of teachers had been trained in cooperative learning, and I was curious to know what teachers go through as cooperative learning is implemented in their classroom, and how they adapt it to their classroom. I wanted to describe and analyze the implementation process, and qualitative research is well recognized for its usefulness in providing descriptive data.

In addition to reasons related to the topic itself, I had several personal reasons for choosing a qualitative research method to study cooperative learning. Like Merriam (1988), I think that "research focused on discovery, insight, and understanding from the perspectives of those being studied offers the greatest promise of making significant contributions to the knowledge base and practice of education" (p. 3). Because I wanted to make some practical contribution that might assist trainers and teachers to better understand how cooperative learning is implemented, I chose to use qualitative methodology. Another important consideration for me was the chance to spend many hours observing in several different schools and classrooms and talking to many teachers. Although I was somewhat familiar with the overwhelming nature of qualitative data and the long hours spent in reducing and analyzing it, I preferred that direct interaction with "real" data to manipulating numbers and statistical formulas. These personal considerations were the most important, but two others also came into play.

My major adviser, whom I also hoped to have serve as dissertation committee chair, was most knowledgeable about and favorable toward qualitative

methodology which reinforced (and probably originally influenced) my own inclinations to do qualitative research. Finally, qualitative methodology had not been used for dissertations in the School of Education at the university I attended. This meant I could have a part in something new and perhaps lay some groundwork for others who would later do qualitative dissertations. This appealed to me.

Overview of the Design

The current study uses a multiple case-study-imbedded approach (Yin 1984). Multiple cases (three) are involved in the study as well as multiple units of analysis (two). The cases are three first- or second-grade teachers seeking to implement cooperative learning in their classrooms; the analysis is based on what happens to these teachers during the implementation process and what happens to the model of cooperative learning they implement.

Qualitative data were collected over a period of eight months as I followed the teachers through the training process and the initial six months of implementation. Data from observations and interviews were collected in the form of field notes and then analyzed using content analysis.

The data are reported in three descriptive case studies and a cross-case analysis of the three cases. The next section describes the data-gathering techniques used in the study and is followed by a detailed description of the seven phases of the study.

Data Gathering Techniques

The data-gathering techniques chosen for use in this study include participant observation, semi-structured and unstructured ethnographic interviewing,

and expanded fieldnotes (which include observer comments). These techniques were detailed previously in Chapter 3. Their application in this study is described briefly below.

Field Notes

I was nearly always able to take cryptic notes during participant observations. In rare situations, my participation or the structure of the classroom situation, did not allow for in situ note taking so notes were taken after the observation. Handwritten notes were also used to record interviews. By pacing the interview, I was able to take verbatim notes of all that I desired to record.

After completing an observation and/or interview, I completely rewrote and expanded my field notes by adding details from memory as well as comments and interpretations as warranted. This was often done the same day, or at least within 24 hours of the observation. In rare instances, notes were expanded two or three days later, if several observations had been done in a one- or two-day period.

After the expanded notes were typed, I reviewed and corrected them, and finally filed two copies. Consequently, in addition to the original observation, the situations were replayed in my mind as I expanded my notes and again as I corrected them.

In general, one page of notes yielded three pages of expanded notes, and one hour of observation and interviewing led to three to five hours spent in expanding fieldnotes. In the expanded fieldnotes, I used italics to clearly distinguish interpretive comments, explanations of situations, and ideas for further consideration from quotations and descriptions.

Participant Observation

I relied heavily on participant observation for data collection. At some points, the participant observation used in the study was clearly near the participant end of the participant-observer continuum. At other times they were nearer the observer end of the continuum. During the cooperative learning training, I was a participant-observer on an essentially equal basis with the teachers, joining them in all the assignments and activities. During most classroom observations, the situation was much nearer the observation end of the continuum. After initial observations, students and teacher usually ignored my presence and I was able to observe without having much impact on the situation.

The Use of Interviews

The highly structured interview was not used in this study. Semi-structured and unstructured interviews of varying lengths were used. For example, during Phase II of the study, a semi-structured interview with a fairly high level of structure, the Teacher Growth States Interview, was given to all 11 of the teachers initially a part of the study. During subsequent phases, unstructured interviews followed or preceded nearly all observations. Sometimes these unstructured "interviews" were almost a part of the observation process. Semi-structured interviews were combined with these unstructured interviews twice during the study. In the semi-structured interviews certain topics, such as peer support, were brought up for teachers to comment on.

Before describing the design of the research in which these techniques were used, the model of cooperative learning presented during the training is described.

The Cooperative Learning Training Model

The following training model is taken from handouts and my own notes concerning the four-day cooperative learning training which Mrs. Fox, Mrs. Waite, Mrs. Stone, and I attended along with 30 other educators. It is also based, in part, on two interviews with the trainer which were held during an earlier four-day cooperative learning training I attended. The model was reviewed for accuracy by Ms. Carter, the trainer.

This model is meant to briefly summarize cooperative learning as it was presented at the training. It does not attempt to describe all of the cooperative strategies taught nor the ways in which the training was presented. The model is described by (1) defining cooperative learning, (2) outlining and explaining what happens in "three step" and "five step" cooperative learning lessons, (3) identifying the critical attributes of cooperative learning and how they are incorporated into a lesson, and (4) identifying other important aspects of cooperative learning that were emphasized during the training sessions.

Definition

Cooperative learning is a way of structuring classroom instruction so that students work in groups of two to five to complete a task or master a skill. Everyone in the group is involved in the task and shares in responsibility and leadership.

Three-Step Cooperative Learning

A "Three-Step" cooperative learning lesson consists of: (1) subject matter directions, (2) monitoring of group work by the teacher, and (3) processing of the

subject matter and/or the way the group worked together. Each of these steps is described below.

Subject Matter Directions

In step one, teachers give clear specific directions for the task. During the training, instructions were always displayed in written form, usually on the overhead projector. Ms. Carter would take one or two minutes to explain the directions and always reviewed them once before the group work began.

Monitoring Group Work

In step two the teacher circulates to observe and take notes while the students are working. The teacher can use a form provided for that purpose or take notes on a pad of paper. (During the training the instructor always used pre-designed forms.) As they circulate among groups, teachers are to monitor in order to evaluate student learning and to raise the level of concern of the students. Teachers were cautioned by Ms. Carter to resist answering questions from individuals and to answer only questions that the whole group had considered and was unable to answer. An important goal of group work is for the teacher to allow groups to do their own work.

Process Subject Matter

During the final part of the lesson, the teacher asks the groups to report their approach to the group task(s) and to report for discussion some of the results of their work. The purpose is for the students to consider the way they did their work and to talk about the thinking they did. Teachers also provide feedback from their notes, either to individual groups or to the whole class.

During the training, groups or randomly selected spokes-persons usually reported to the whole class how they went about their tasks. Sometimes groups were assigned to discuss specific things within their groups.

Five-Step Cooperative Learning

The steps to a "Five-Step" cooperative learning lesson are: (1) subject matter directions, (2) assignment of one social skill, (3) monitoring of group work by the teacher, (4) processing of the social skill, and (5) processing of the subject matter. These five steps include two steps that are not in the three-step model, one step that is modified, and two that are the same. Steps one and five are identical to steps one and three in the three-step model. The others are explained below.

Assignment of a Social Skill

Teachers choose a social skill for groups to work on and briefly to discuss with the class as to its importance one. Using a "T-Chart" teachers define the social skill in terms of what it would look like and sound like when used in the group. A T-Chart for the skill of "encouraging" might look like this:

| <u>Encouraging</u> | |
|--------------------|---------------------|
| Looks Like: | - |
| 1. Smiles | - |
| 2. Eye contact | - |
| 3. Clapping | - |
| | Sounds Like: |
| | 1. Good job |
| | 2. You can do it |
| | 3. Nice try |
| | 4. Way to go |
| | 5. All right! |

Teacher Monitors Group Work

In addition to monitoring the work on the subject matter, as in the three-step lesson, the teacher also watches for evidence of use of the assigned social

skill. During the training the trainer demonstrated this by taking note of what groups said and did relative to the behaviors listed on the T-Chart. She used pre-designed forms to record and give feedback.

Processing Social Skills

As part of step four, groups discuss their performance on the assigned social skill. During training sessions this was based on written feedback provided by the instructor from her observations and returned to the group for discussion and feedback. Sometimes the trainer read to the whole class some of what she had observed, or she put some of her notes on an overhead transparency. Sometimes groups reported on their use of the assigned social skill and their feelings associated with its use.

Critical Attributes of Cooperative Learning

The critical attributes of cooperative learning as presented in the training are: (1) shared leadership, (2) positive interdependence, (3) individual accountability, (4) interpersonal and group skills, and (5) face-to-face interaction. Each attribute is explained in greater detail below.

Shared Leadership

Shared leadership means that students participate on an equal-status basis. There is not one "leader" for the group, but students share in decision making and taking turns if special roles in the group work are necessary. In the training the instructor cautioned teachers to avoid "chauffeurs" and "hitchhikers." Chauffeurs are students who try to take over and run the group. Hitchhikers are students who try to avoid playing an active part in the group.

Positive Interdependence

Positive interdependence means that students in the group need each other to be successful, that the group task is not easier to complete successfully as individuals.

This attribute was stressed during training, and the instructor taught participants five ways to build positive interdependence into cooperative lessons: (1) by limiting materials so that one individual does not have a complete set of materials; (2) by assigning roles for students so that everyone has a part in the task; (3) by requiring only one product (such as a worksheet, drawing, or paper) from the group so that students cannot do their own but must work on the group product; (4) by structuring individual accountability so that all students are accountable for the knowledge or skills that are a part of the group task; and (5) by structuring rewards or reinforcement so that they are contingent on the performance of the whole group.

Individual Accountability

Individual accountability is accomplished by giving quizzes, randomly selecting students to report group answers and explain group work, or having students sign group work to indicate that they agree with answers and/or to show they participated in the work. Students may also be required to give individual demonstrations or submit individual reports.

Interpersonal and Group Skills

The importance of including interpersonal and group social skills was stressed by the instructor. During training demonstrations this was usually accomplished by using the five-step lesson format that includes a social skill as

part of the instruction. As part of a three-step lesson, emphasizing group processes as part of directions and processing is a way to raise students' awareness of interpersonal and group skills.

Face-to-Face Interaction

Face-to-face interaction is when students in groups are not separated by large desk tops, and are facing each other at the same level, either on the floor, at desks, or standing. During the training, the instructor demonstrated ways to arrange various types of furniture and suggested that teachers directly instruct students in how to arrange groups.

Other Important Aspects of Cooperative Learning

Clear Written Directions

The instructor always used written directions which were placed on the overhead and reviewed at least once before starting group activities.

Specific Time Constraints

During training, a definite "stop time" was given at the beginning of group work and enforced. The instructor suggested that teachers should not routinely allow extra time for group work but require students to plan their group work so that they would be finished on time. She suggested stopping group work even if some groups were not finished on time.

Answer Only Group Questions

The instructor stressed that teachers respond to individual questions by asking, "Is this a group question?" The teacher should answer only questions that the whole group had considered and could not answer.

Let Groups Do Their Own Work

The instructor said many times that teachers should not be "the sage on stage but the guide on the side;" they should "interact but not intervene." She said teachers should let groups work to succeed or fail on their own. Teachers should not take over and direct groups but provide guidance.

The next section describes the seven phases of the study in two sections which are also outlined in Table 2. The first three phases are part of selecting the cases to be studied. The last four are part of completing the case studies and analysis.

Selection of Cases

The selection of three teachers as subjects for the case studies happened about ten weeks after the study began. The choice was based on a combination of circumstance and planned activities which are explained below. In describing the selection of cases, the first three phases of the study are explained.

Phase I: The Training Workshop

As mentioned earlier, Ms. Carter conducts her cooperative learning training workshop over four six-hour days during a three-to-four-month period. The first two days of the training I studied were held several weeks before school started. The third day was held during the first month of school, and the final day on a Saturday between Thanksgiving and Christmas. Thirty-five teachers from different school districts faithfully attended all four days of the training. The training was not mandatory for any of the teachers, but about one-third took it for graduate credit or certification purposes.

Table 2

Research Design

| | |
|---|---|
| Selection of Teachers for Case Study | |
| Phase I | The Initial Training Workshop ●Identify teacher groups |
| Phase II | First Round of Data Gathering: ●School and classroom observations ●Growth states interviews |
| Phase III | First Wave of Data Analysis: ●Develop initial coding categories ●Selection of 3 cases for study |
| Completing the Three Case Studies | |
| Phase IV | Second Round of Data Gathering: ●Classroom observations ●Unstructured interviews |
| Phase V | Second Wave of Data Analysis: ●Develop new coding categories ●Narrow the focus of the study |
| Phase VI | Third Round of Data Gathering: ●Classroom observations ●Semi-structured interviews |
| Phase VII | Final Analysis of Data ●Content Analysis ●Writing the case studies |

The workshop was held in the large high-school library on three of the days of the workshop and in a smaller elementary-school library on the other day.

The Workshop Participants

On the second day of the workshop, participants were asked to fill out a brief survey to provide information about themselves, their schools, and their intentions concerning cooperative learning (see Appendix).

Most of the participants were elementary teachers, although the group included several high-school teachers, a school counselor, a librarian, and an adult-education teacher. About 40% of the teachers were from schools in the district which sponsored the training. The rest of the teachers represented ten different schools from five other more distant districts.

By using information from the survey, five situations of interest, represented by various groups of teachers were identified. Nearly all of the teachers were taking the cooperative learning training voluntarily. Their interest was keen at the end of two days of training, and some were quite excited about cooperative learning. All planned to begin implementing cooperative learning early in the school year. Only two teachers had fewer than three years of experience. Most of the teachers had between 7 and 15 years of teaching experience, two had over 16 years of teaching experience. The five groups of teachers are described below.

Group One

Teachers in Group 1 were (1) from the sponsoring district and (2) attending with at least one other teacher from their school. I reasoned that

these teachers would have formal support for implementing cooperative learning in that the district was sponsoring training for the third year and administrators and teachers in their district were familiar with the concept of cooperative learning. Because someone from their school was also attending the training they would have an opportunity to share with another teacher during the implementation process. The teachers in this group reported that only a small minority of others in their school had been trained in cooperative learning.

Group Two

Teachers in Group 2 were (1) from the sponsoring district and (2) the only teacher from their school attending. They were different from Group 1 in that they would not be able to share the implementation process with others from their schools. They reported that most of the teachers in their school already had been trained in cooperative learning and that many of those teachers used it regularly. Consequently, I assumed that a teacher using cooperative learning would not be considered unusual and that the use of cooperative learning might even be a norm at the school. Thus, a teacher implementing cooperative learning probably would not meet resistance from the principal or staff and might have support from the cultural system of the school.

Group Three

The three teachers in Group 3 were from the same grade level at a school where one teacher at their grade level had already received similar cooperative learning training and another had attended a shorter cooperative learning awareness session. The teachers reported that their principal was interested in cooperative learning being implemented at their grade level. Because these

teachers taught at the same grade level, it seemed likely they would share the implementation process. Because another teacher already trained in cooperative learning used cooperative groups and because the principal was promoting cooperative learning, the teachers would probably find support, rather than resistance, during the implementation process.

Group Four

The five teachers and one principal in Group 4 were from a single elementary school. None of the other 11 teachers at their school had ever received cooperative learning training. Although the teachers were attending the conference voluntarily, they had the support and encouragement of their principal. Since they represented nearly one-third of the staff it seemed there would be a good possibility they would support each other during the implementation process and that a significant impact on the norms of the school relative to the use of cooperative learning might result. Although the principal was involved in the cooperative learning training no formal school-wide or district-level initiative to encourage the implementation of cooperative learning existed.

Group Five

Group 5 was made up of teachers who (1) were the only ones from their school attending the training and (2) were not from the district sponsoring the training. Some were from schools where one or two staff members already had been trained in cooperative learning, but many were from schools where cooperative learning was not used nor were the teachers familiar with it. The teachers differed widely in the grade levels they taught and the size and types of schools they came from. Because these teachers were not a part of a school-wide nor

district-wide initiative and were not attending the training with anyone from their school, I reasoned they would probably have to implement cooperative learning entirely on their own without collegial or administrative support.

Selection of Teachers for Further Study

After identifying these five groups of teachers representing five distinct situations within which cooperative learning would be implemented, 12 teachers were asked to participate further in the study. These 12 teachers were selected from Groups 2-5 and not Group 1 for two reasons. First, the teachers in Group 1 were from a middle-school and high school and included an adult educator and librarian, whereas I wanted to focus on elementary teachers. Second, most of the middle school teachers in Group 1 would not be acceptable for study because their assignments, or personalities, made collaboration with their colleagues unlikely. The selection of 12 participants for Phase II of the study is briefly described below.

All of the teachers in Group 2, three teachers from three elementary schools in the sponsoring district, were asked to participate in the study. One teacher declined.

From Group 3, two classroom teachers who taught at the same grade level agreed to participate. The third teacher in the group, a part-time school counselor, was not asked to participate because of limited classroom teaching responsibilities.

From Group 4, four of the teachers who attended the training with their building principal agreed to participate in the study. The fifth teacher was not

asked because she would be serving as a central office math consultant during the coming year.

From Group 5, three teachers who were taking the training on their own agreed to participate in the study. Two teachers from this group were not asked to participate because they lived over 50 miles away.

These 11 teachers became a part of the second phase of the study. The activities and purposes of Phase II, the first round of data gathering, are described below.

Phase II: First Round of Data Gathering

The two main purposes of Phase II were for me (1) to get to know the participants well enough to select a smaller number for further study and (2) to gain practice in observation and interview skills while becoming immersed in the implementation of cooperative learning by newly trained teachers. This portion of the research project lasted for six weeks, from the third day of training during the first month of school until late fall.

Data gathering consisted of (1) one or two 30-to-50 minute observations in each teacher's classroom followed by a 15-to-30 minute unstructured interview, (2) a semi-structured interview, The Growth States Interview (Joyce & McKibbin, 1982), which took from 45 to 60 minutes, and (3) two whole-day general observations in each of the schools where two or more teachers were involved in the research and half-day observations in the three other schools involved in the study.

Phase III: First Wave of Data Analysis

Most qualitative researchers agree that analysis of data should be (1) recursive and (2) concurrent with data gathering (Dobbert, 1982; Erickson, 1986; Goetz & LeCompte, 1984; Spradley, 1980). That is, data analysis should begin during the data-gathering process and be repeated in cycles rather than as one single process. Bogdan and Biklen (1982) state that performing analysis during the data-gathering process so that the two tasks are completed almost simultaneously is an approach to analysis often developed by experienced researchers. They suggest that researchers with less experience should "borrow strategies from the analysis-in-the-field mode, but leave the more formal analysis until most of the data is in" (p. 146).

I followed the strategy suggested by Bogdan and Biklen so that three waves of analysis were planned. Two preliminary analyses were undertaken during the data-gathering process and the third and more formal analysis after data gathering was completed.

In the first wave of analysis, data gathered from the Growth States Interviews were analyzed and summarized for each individual. Data gathered from classroom observations and accompanying interviews were coded according to content and compared to cultural-pattern questions I had developed for my research proposal. Finally, the data gathered from school observations were examined and brief analytic memos (Miles & Huberman, 1984) were written concerning these observations.

From these three analytical activities, three decisions were made that affected the direction of the research project. The first decision involved the

selection of three teachers for further study. The Growth States Interviews, as well as the semi-structured interviews, provided information helpful in choosing the three teachers who became the final focus of the study.

The second decision involved the focus of the study. The coding of field notes and a comparison of these categories with the categories in the original proposal indicated that the categories emerging from the data addressed questions formulated for the research proposal. This indicated that the research was proceeding satisfactorily and that no changes in focus or practice were necessary yet. Certain areas did seem to be more productive, and others were becoming more interesting.

Finally, school-level observations, where a half day or more was spent observing in a single school, were discontinued after the first wave of analysis. Although interesting data were collected during these observations very little of it applied to the focus of the study. Because I was the only researcher, it seemed that the hours spent in the field should yield a maximum return. Because of the focus of the study, it made sense that time spent at the classroom level would be most productive. In order to free up time to spend in hallways, teachers' rooms, and school meetings, it would be necessary to focus the study on fewer teachers in only one school. However, I decided not to limit the study to one school but to follow three teachers from three different schools. The process for choosing these teachers is described below.

Final Selection of Three Teachers

Before the second round of data gathering could begin, a smaller group of teachers had to be selected. The decision-making process employed in selecting

these teachers is outlined in Table 3 and explained below. The 11 teachers participating in the first round of data gathering differed in personality, teaching style, grade level, and in the implementation situation (described earlier as teacher groups) in which they found themselves. They also differed in their cooperativeness as a participant and their value as an informant, based on whether or not they were candid, shared substantial thoughts in a concise manner, and were not overly zealous or reluctant to talk. The teachers were similar in their professionalism, dedication to education, and high professional development activity levels as indicated by the Growth States Interviews.

Table 3

Selection of Teachers for Case Study:
The Decision-Making Process

1. The number of case studies to be done is set at three.
2. Two of the eleven teachers being considered are eliminated as unsuitable informants.
3. At least one teacher from Group 2 (the sponsoring district) and one from Group 4 (the teachers that attend the training with their principal) will be selected for study.
4. The third teacher will be selected from Group 5 (teachers who are attending the training and will be implementing on their own) in order to provide for comparison with teachers in Groups 2 and 4.
5. Mrs. Stone from Group 2 is selected because her principal is a nationally recognized Principal of the Year.
6. Mrs. Waite is selected from Group 5 because all other things being equal, she teaches at a school closer to the researcher.
7. Mrs. Fox from Group 4 is selected because she teaches Grade One. Since Mrs. Stone and Mrs. Waite are early elementary teachers, this will allow for better cross-case analysis.

Travel time to various schools, the desired depth for each case, and the time allowed for data gathering, meant that a maximum of three teachers from the group of 11 could be selected for more in-depth study. Two teachers were eliminated from consideration because I did not think they would make suitable informants. This left nine eligible teachers in six schools. All four of the teacher groups described earlier were represented by these nine teachers.

I felt it was important to include at least one teacher from the district that sponsored the training. The district's interest in cooperative learning, the support shown for implementation, and the high percentage of elementary teachers who had already been trained should have an impact on the implementation. Since the principal of one of the teachers had been formally recognized as an outstanding principal, the teacher was selected for further study because she would likely have the support of her principal during implementation.

I also considered it important to study at least one of the teachers who attended the training with her principal. Not only had the principal shown support for cooperative learning by attending the training, but several other teachers also were taking the training at the same time. The apparent level of support for a teacher at this school was similar to that in the sponsoring district except there was no district level initiative. Thus, comparisons could be made. A specific teacher to study from this school was not selected until the third teacher was selected from the four remaining.

The remaining four teachers from which the selection could be made represented two of the original teacher groups. One of the two groups included two teachers who taught at the same grade level in a rural school. The other two teachers taught in schools where they would be the only teachers using

cooperative learning. All four teachers were good informants in interesting situations. To properly follow the two teachers who taught at the same grade level in the same school would mean that both would need to be studied. This would require that a total of four teachers be studied, which I considered impractical. The choice between the final two teachers was made by selecting the one whose school was 45 minutes closer to me.

This left the final task of selecting a specific teacher from Westmoreland school. Because the two teachers already selected to participate were a first-grade and a second-grade teacher I decided to select the first-grade teacher from Westmoreland school. This would make comparisons among teachers easier. The fact that little formal cooperative learning research had been done at the early elementary level also made a focus on grades one and two desirable.

All three teachers agreed to participate further in the study.

Completing the Three Case Studies

Some of the data gathered in the first three phases of the study pertained to the three teachers finally selected for the three case studies. The goal of the next phase was to gather more in-depth data to complete the case studies.

Phase IV: Second Round of Data Gathering

In the second round of data collection, I observed each of the three teachers two to four times over a four-week period. Each observation lasted from 30 to 60 minutes and was followed by (and sometimes also preceded by) an unstructured interview of from 15 to 30 minutes. Observations were always

scheduled in advance by asking teachers "When could I see you teach a cooperative lesson next week?"

Phase V: Second Wave of Analysis

After four weeks of data collection in Phase IV, data were again analyzed using content analysis. Typed field notes were scanned and initial coding categories from the previous analysis were reviewed. At this point initial coding categories were combined into four overarching categories which were tested to ensure the new categories were sufficient for coding the new data. The four new categories were: (1) the configuration of the cooperative learning model as implemented, (2) problems encountered during cooperative lessons, (3) the implementation process teachers go through, and (4) the teacher's thinking about cooperative learning.

Notes from Phase IV were coded to ensure sufficient data were available in each category and categories were sufficient to code most of the data. The use of these four categories to code the data was successful and the data were filed.

At this point, the original proposal and the existing data were reviewed and the focus of the study was narrowed to two questions: (1) "What, from a teachers point of view, happens during the implementation process?" and (2) "What happens to the model of cooperative learning as it is implemented?" More data relevant to these questions were gathered during Phase VI.

Phase VI: Third Round of Data Gathering

The third round of data collection involved more classroom observations of each teacher. The observations were 30 to 60 minutes long and were accompanied by interviews of 15 to 30 minutes.

By this time, each of the three teachers had developed a pattern of arranging observations of their use of cooperative learning in only one or two subject areas. During the third phase of data-collection, I tried to make arrangements to observe each teacher using cooperative learning in a situation in which they had not previously been observed.

A few new questions were added to the open-ended interviews to gather data for categories where data were sparse. In addition, a semi-structured interview of 30 to 45 minutes was held with each teacher (see Appendix).

Phase VI lasted eight weeks, ending when it seemed that data collection was becoming redundant and that the teachers' use of cooperative learning was becoming predictable. Although further data collection was possible, it seemed inadvisable since much of what was being learned was repetitive.

By this time I had developed a surprisingly strong attachment to the teachers involved in the study. Ending the data collection process was difficult. A letter of thanks, flowers, and a gift certificate were delivered to each teacher. This marked the end of the eight-month process of data collection.

Phase VII: Final Analysis of Data

After the end of Phase VI, about nine months elapsed before final analysis began. During this time literature reviews were conducted and writing on the initial chapters of the dissertation begun. A break between data collection and analysis is recommended by Bogdan and Biklen (1982) so that the researcher can (1) "Come back to [the analysis] fresh," (2) "distance [himself] from the details of fieldwork and get a chance to put relationships . . . in perspective,"

and (3) "get a new enthusiasm for the data" (p. 155). Although a break of only three months was originally planned, it was extended to nine months.

Preparation for final analysis began by coding and filing the data from Phase VI along with the data from Phase IV. Then the data on each teacher were scanned. Finally, the entire bulk of data from the beginning of the research project was scanned to identify data related to the three teachers involved in the final phase of the study. Other data useful for the final analysis were also identified. This material was then gathered together to form what Yin (1984) calls a case-study data base and Patton (1980) calls a case record. As recommended by Merriam (1988), this material was organized in a simple fashion. Data relative to each of the three teachers were organized separately for each teacher in chronological order. Material related to the schools where each teacher taught was included with this data. All of this data formed Volume I of the case study data base. Material related to the training sessions and Growth States Interviews formed Volume II of the data base.

Coding of data taken from fieldnotes of observations and interviews was then completed. Sometimes the unit of data coded was a sentence, sometimes it was a conversation of two or more sentences, and sometimes a unit of data was a social situation such as an interaction between a teacher and a group of students. Coding of the data in this way completed the lowest level of analysis.

The next level of analysis took place as the case studies were written. This involved deciding what to report, and how to summarize data in some of the categories and subcategories of data that had been established. Although some level of inference was required, my goal was to keep my inference to a minimum and to report data in a form that would allow the reader to draw inferences.

The final level of analysis took place in the cross-case analysis. The categories of data are compared across the three cases, and I draw conclusions and make recommendations based on my interpretation of the data.

The three case studies begin in the next chapter with the story of Mrs. Fox.

CHAPTER V

MRS. FOX

Introduction

Chapter 5, like each of the next two chapters, is about one teacher implementing cooperative learning. Each chapter begins by briefly describing the teacher and, as much as possible, using her own words as taken from interviews. The chapter continues with the description of a cooperative learning lesson based on a condensation of my fieldnotes from that lesson. This is followed by a condensation of the teacher interview which followed that lesson. The purpose of the lesson description and interview is to give the reader a feeling for what a cooperative lesson was like in each teacher's classroom as well as to show what and how the teacher thought about the lesson afterward.

The next section of each chapter is a summary of the observation and interview data obtained with that particular teacher. This summary is organized according to the four major coding categories used in analyzing the data: (1) configuration of cooperative learning lessons, (2) problems related to using cooperative learning, (3) the implementation process, and (4) the teacher's thoughts about cooperative learning.

The description of the configuration of the model, that is, what cooperative learning looked like in each of the teacher's classrooms, is important not only in itself but also in comparison to the training model described in Chapter 4.

In each case study three types of quotations are used; (1) direct quotations of what a teacher said during an interview, (2) direct quotations of what teachers and students said during a lesson, and (3) quotations of my own questions during interviews as well as comments and observations included as part of my field notes. All three types of quotations are taken directly from corrected field notes and referenced to a volume and page number (except in a few cases where the quotations are a very few words and meant to be illustrative). To easily differentiate the types of quotations, direct quotations of students and teachers are placed in quotation marks whereas quotations of my questions, observations, comments, and impressions are in italics without quotation marks. In some instances, references to supporting material in the field notes are made even when no direct quotations are involved. In a few cases the date of the observation or interview is included as part of the reference when it is an important part of the point that is being made

Mrs. Fox: The Woman and the Teacher

Teaching is a very important part of Mrs. Fox's life, and she makes it her responsibility to improve as a teacher. The summer and fall before I observed in her classroom she took 82 hours of formal staff development training in addition to the 24 hours of cooperative learning training we participated in together. She also spent two full weeks writing curriculum. The bulk of her staff development work was in reading and math instruction which had been her main interests. She was also involved in teaching a class on "Math Their Way" one evening a week. "Math Their Way" structures the use of manipulatives and practical applications of math to the child's level. All of the cooperative lessons I

observed in Mrs. Fox's room used "Math Their Way" materials and activities. Mrs. Fox learned about this program a couple of years ago and says, "I feel like I have sinned for the past 20 years the way I teach math" (Vol. II p. 131).

The early elementary grades are very important to Mrs. Fox. "If you are going to break the bars that keep them [students] from learning, you have to lay the groundwork in grades one and two" (Vol. II p. 131). To Mrs. Fox there was no great mystery to this. "If you teach them at their level they learn no matter what" (Vol. II p. 130). To accomplish that Mrs. Fox has learned to use more manipulatives, to restructure her program, and to restructure the way "I look at kids and learning, [to] let the child and where he is be the standard" (Vol. II p. 131).

In her search for the best way to teach first grade, which she has done at Westmoreland School for the past 13 of her 18 years of teaching, Mrs. Fox does not feel like she is influenced much by her colleagues. "There are not a lot of things [ideas and practices] from people here. They are very traditional. [They] take inservices together and reinforce each other" (Vol. II p. 132). The one exception to this is her friend Pam, a kindergarten teacher. "Pam and I talk a lot and learn from each other a lot" (Vol. II p. 131).

Mrs. Fox has never been bound by tradition. "When I first came here you had a book for everything and you were expected to use it. I took home my [first grade] language books and burned them" (Vol. II p. 133).

Mrs. Fox feels that her school environment is becoming more receptive to change now.

People are more receptive . . . they are in transition. It takes time for change to occur. Some change right away, some need time for change to occur. The principal does not do much himself but he gives you freedom to

teach and finds the money to get materials. He does what he can but doesn't come up with the idea. (Vol II pp. 133-134)

Mrs. Fox travels some with her husband, especially on weekends in his private plane. But teaching is still never far from her mind. On a trip to her parents during late summer, she took her cooperative learning materials and spent hours planning several lessons.

Likewise, most of her personal reading centers around her teaching or her hobbies of gardening, quilting, and cooking. "I read parts of books. I don't read fiction because I get too involved. [I look for] something [that has] to do with my life, not recreational books. I look for topics (whole language, etc.), generally school related" (Vol. II p. 134). In the past year Mrs. Fox had read 25-30 books.

The Cooperative Learning Training

Mrs. Fox liked the cooperative learning training she received, citing good information and clear procedures as strong points of the training. She feels she has to adapt the instructor's examples of cooperative learning to her own classroom since most of the materials Mrs. Fox uses are different from those other teachers use. She said the trainer was "very minute to minute. I wish she'd relax. We're in a hurry to get there. I'm apprehensive when I go to [something like] that" (Vol. II p. 135).

Mrs. Fox had taken the cooperative learning training (along with her principal and four colleagues from her school) because she had heard about it through some other training she had taken. She was interested because cooperative learning was organized and had specific outcomes. The idea of

cooperation in the classroom "intrigued" her. "I had been wanting to take it for two years" (Vol. II p. 240).

Although the first quarter of the year was over when I first watched Mrs. Fox teach a cooperative learning lesson, it was one of the first she had taught in her classroom. Six weeks into the school year Mrs. Fox had reported in a phone interview that she had done two lessons, one of which had been repeated three or four times and that the cooperative work was not the main part of the lesson (Vol. I p. 50).

Mrs. Fox remained optimistic about cooperative learning. "[I have] no negative feelings. I think it changes the whole way of doing group work. It makes learning happen" (Vol. I p.52).

A Cooperative Math Lesson

In the lesson I had come to watch, groups of three students use colored blocks and a mirror to build, copy, and record geometrical patterns. After calling students to sit on the floor in front of the chalkboard, Mrs. Fox begins. "This morning we will be working in groups like we have before. Remember, in your group everyone works together, everyone is a teacher" (Vol. I p. 133).

The directions, an important part of the lesson, take most of 15 minutes. As Mrs. Fox writes a word on the board, it is sounded out, spelled, and then read back by the students. This is an important aspect of the new reading program. She has the attention of at least 80% and often 100% of the children during the directions. Usually all but one or two are watching her and answering group questions at any given time.

Mrs. Fox takes time to demonstrate the task to be done, even though, as she told me later, the students worked individually on two similar lessons the previous week.

As the students get into their groups they begin to talk loudly with smiles on their faces, gesturing to each other excitedly. With quiet signals, a raised finger and a softly spoken "excuse me," Mrs. Fox silences the room almost immediately. She moves a group that needs more space and passes out materials.

A student pipes up, "Only one mirror?" Mrs. Fox replies in a voice loud enough for the class to hear that there is only one set of materials for each group. "That's how I told you this was different" (Vol. I p. 136).

Students are concerned about who will go after the various materials for their groups. Mrs. Fox says, "Choose one person to go to the sink to get the glue."

A student asks, "Everybody in our group has already gotten something, who should go now?"

Mrs. Fox replies, "You choose somebody. I'm not going to." *Somehow they do* (Vol. I p. 137).

Near the end of the lesson students talk about how they chose people to do jobs.

We went eeny-meeny miney moe.

Whoever wanted to went up.

We took turns, we just worked it out.

At first we argued and then we knew that was no good so we went by numbers (which had been given when students were originally assigned to groups). (Vol. I p. 142)

Mrs. Fox tells me that students cooperated so well in doing jobs partly because in similar cooperative learning lessons during the previous three weeks there were enough jobs for everyone.

Although Mrs. Fox is very direct and detailed in instructing students at the beginning of the lesson, she does allow students to make their own decisions during the activity. But that is not easy for her. As she circulates around the room. She comments to me, "I have such a hard time containing myself." *She means not interfering with the group work* (Vol. I p. 138).

It is especially hard for her when one of the groups is not properly following the directions for the activity. As the group activity comes to an end, another issue, for both the students and Mrs. Fox, comes up. Several times I overhear groups talking about whose name will go on the single paper they have produced. Finally one group approaches Mrs. Fox. "Hey, I know. We can put on it by David and by Larry and by Tommy."

"We'll talk about that later," Mrs. Fox replies (Vol. I p. 139). She tells two other groups concerned about the issue the same thing.

Later, Mrs. Fox settles the question. "I will come around to your group with a white crayon and you can sign your pictures, like an artist, with your group number" (Vol. I p. 140). She spends three minutes going around to groups making sure they do so.

After about 25 minutes of group activity, students begin to scurry around to return materials at Mrs. Fox's request. As she organizes the discussion of the activity, her uncanny control of the class is again evident. When she raises her hand or begins to speak, there is nearly immediate and complete silence. And students listen.

The groups' task during the lesson was to make a symmetrical design on paper that was a copy of the reflection that three blocks had made in a hinged and folded mirror. Symmetry and the use of exactly three blocks, were the most important criteria for evaluation. A bonus point was to be awarded to groups that met these criteria.

As Mrs. Fox shows the designs to the class, the students decide if the design is symmetrical, and she assigns bonus points. She comments on each design saying things like, "Look at that design. Isn't it lovely!" (Vol. I p. 141). The students "oohhh" and "aaahhh" in appreciation of the designs.

When the work of the group that did not follow directions is reviewed, she makes a point to compliment them on the "lovely" design and their hard work. But by then the boys know they have not followed directions:

One of the students says, "I told him at the beginning only three blocks."

Mrs. Fox replies, "But he didn't listen?" (She was very well aware of what had happened.)

"That's right, he didn't listen."

"Well, you'll have to find a way to work things like that out next time. (Vol. I p. 142)

After eight minutes of analyzing and discussing student work while awarding bonus points, Mrs. Fox calls the class together up front where they begin to "talk about how your group worked together." The students talk about how they took turns and how they decided what to do. Mrs. Fox makes a list on the board and, as before, students sound out, spell, and read everything that goes up on the board. Mrs. Fox asks probing questions to draw out specific details when students give answers like, "We just worked it out."

A little more than an hour after the lesson began, Mrs. Fox says, "I want to thank you all for a lovely time and such lovely work. We all did very well." / *think she really means it* (Vol. I p. 144-145).

Mrs. Fox's Thoughts on the Lesson

"I liked [the lesson]. I saw a lot that could be improved. I saw kids using bad manners not getting along. . . . They've worked individually so much" (Vol. I p. 145).

In reference to the discussion at the end of the lesson (called processing) about how students worked in their groups, Mrs. Fox said, "What I thought went well was the way they were able to share ideas, . . ." (Vol. I p. 146). She mentioned that this was the first time that she had "processed" a lesson.

I asked her how she had decided to process.

"I went through my notes [from the cooperative learning training] last night and remembered it" (Vol. I p. 146).

Another aspect of the lesson that pleased Mrs. Fox was the fact that students had remembered "their numbers" that each had been assigned in a cooperative activity "two or three weeks ago ." Some of the students used these numbers to help decide whose turn it was to get supplies or do part of the assignment.

Being concerned with details of this sort was not unusual for Mrs. Fox. At the end of our interview she said, "Do you want to know what I really think? I probably shouldn't mention this, but I really should have made a bigger tub of blocks for each group at the beginning. I didn't think right and I didn't plan for

enough for each group" (Vol. I p. 146). It seemed like she was letting me in on a very personal and important secret.

When she mentioned this, I remembered that she had gone around distributing more blocks after the group work had begun. I hadn't noted it at the time, and in my mind it had not affected the lesson. This technical detail was an important part of Mrs. Fox's evaluation of the lesson, and as I continued to visit Mrs. Fox over the next four months, I found that details like this were important to her.

In the next section, data from those four months of observation as well as interviews from previous months are organized according to major coding categories.

Summary of Data According to Coding Categories

Configuration of the Model

The model of cooperative learning presented during the training Mrs. Fox took is outlined and explained in Chapter 4. Cooperative learning, as implemented in Mrs. Fox's room, is described below and can be compared to the training model.

Mrs. Fox used cooperative learning most often in math. All of the lessons I observed were lessons using math manipulatives.

Lesson Structure

The lessons I observed in Mrs. Fox's classroom did not vary much in length. They ranged from 54 to 61 minutes in length. Mrs. Fox taught three-step cooperative learning lessons that did not include a specific social skill as part of

the lesson but did emphasize working together as a group. Mrs. Fox usually used cooperative learning in math with "Math Their Way" manipulative materials. All of the lessons I observed were of this sort. Patterns were easy to find in Mrs. Fox's lessons because the lessons she taught were so similar.

Directions

Mrs. Fox began her lessons with extensive directions which always included demonstrations and directions written on the board. This was true even though the lesson involved activity similar to work students had done individually on previous occasions. The directions took 13-14 minutes, partly because the first graders helped sound out and spell each word put on the board and then read the directions back. Rather than being tedious, this was fast paced and seldom were more than one or two students at a time not watching Mrs. Fox and responding to her requests to sound out and spell words. Typical directions (Vol. I pp. 133-135, 138, 193-194, 195, 197) were:

1. Choose a block
2. Build a design ("Now that means one at a time each person will add a block to the design.")
3. Build the design in the mirror with p.b. (pattern blocks).
4. Build the design on black paper with p.b. (pattern blocks).

Getting into Groups

Actually moving children into groups took one or two minutes. Because lessons involved math manipulatives, a few minutes would be spent distributing materials to the groups. Since students worked on the floor to do the lesson, having one student get small carpet sample "squares" for students in the group to sit on was a ritual associated with forming groups. Mrs. Fox would then move

one or two groups to make sure everyone had enough room and then quickly review the task a final time after materials were distributed. As indicated in Table 4 this whole process took only four or five minutes.

During this time groups would choose members to go after supplies or Mrs. Fox would call on individuals to pass out supplies to the groups (Vol. I pp. 136, 195, 221).

Table 4

Lesson Structure: Mrs. Fox

| Lesson Segments | Time (in min.) | | |
|-----------------------------|----------------|------|------|
| | 11/16 | 12/8 | 1/25 |
| Introduction and directions | 14 | 14 | 13 |
| Forming groups | 4 | 5 | 5 |
| Group work | 23 | 5 | 30 |
| Processing - Content | 20 | 23 | 6 |
| - Social skill | 0 | 0 | 0 |
| Total lesson time | 61 | 57 | 54 |

Group Work

During group work Mrs. Fox would circulate through the room observing groups, sometimes briefly, sometimes for two or three minutes at a time. She did not take notes nor use any specific observation form.

Mrs. Fox tried to let students in the groups do their own work, but that wasn't always easy for her. As she said to me, "I have such a hard time

containing myself" (Vol. I p. 138). On one occasion she watched a group that was not following directions because of a student who was very assertive and had not listened well to directions. Mrs. Fox did not correct the group nor point out their error until it was time to check the work, but she commented to me, "Doesn't it make your blood boil?" (Vol. I p. 223).

During the same lesson, Mrs. Fox spent two minutes helping a group of students who were having some difficulty. She commented to me, "You cannot go this long with first graders without answering their questions" (Vol. I p. 140).

Mrs. Fox would sometimes refer questions to the group, "You talk to your group and see what they think" (Vol. I p. 196). Sometimes she told students to, "Think about what I told you" (Vol. I p. 138), or "You look at your [design] and see what you think" (Vol. I p. 196).

Sometimes Mrs. Fox would remind the class as a whole about a certain instruction or the work time remaining.

Processing

Mrs. Fox divided processing into two distinct sections. During the first part she would evaluate the students' work and award bonus points to groups that had completed their work following directions. During one lesson that involved symmetry, a discussion of symmetry relative to some of the projects took several minutes.

During the second part of processing, Mrs. Fox talked about the group aspect of the work, "How did you [do all the work and] how did you decide who would do what?" (Vol. I p. 197). "Is there something we could do better next

time?" (Vol. I p. 198). During processing Mrs. Fox used praise and positive reinforcement frequently (two to four times per minute).

She also pressed students to be specific in their answers and allowed them time to think. She made sure they could share without being criticized by either herself or the students.

Critical Attributes

The critical attributes of cooperative learning are taken from the training model, included in Chapter 4.

Shared Leadership

Mrs. Fox did not usually appoint students to particular roles within groups during cooperative lessons. When she did assign roles on one occasion, students themselves selected the roles within groups.

When questions about procedure or whose turn it was to do something came up during a lesson, Mrs. Fox would ask students to work things out within their group.

Positive Interdependence

Mrs. Fox made sure that the group aspect of the lesson was important to individual students and that they were motivated to work together, the concept called positive interdependence, in three ways. First, necessary materials were limited to one set per group. Because the lessons involved math manipulatives, the materials were critical to the task assigned and students had to share materials to accomplish the task.

Second, Mrs. Fox built in positive interdependence by requiring only one product from the group. Since students could not make their own design, book, or whatever other product was required, they had to work together with the group to accomplish their task.

Finally, Mrs. Fox rewarded groups with bonus points if they accomplished the group task properly.

Individual and Group Accountability

Mrs. Fox did not hold individuals accountable in any formal way. She was, however, very keenly aware of who was doing what they were supposed to and who was not. As she observed groups, she noticed which students were more actively involved and which ones were less involved. Mrs. Fox would keep these things in mind when she restructured the groups. She seemed to have the good of individual students in mind when she restructured groups.

During processing time, Mrs. Fox called on individual students to answer questions or explain what their group did. There was no pattern for this, and though she may have called on particular students for a reason, this was not obvious.

Mrs. Fox did hold groups accountable for their work. During processing time, she awarded points to groups that had followed directions, including working together as a group and completing the task that was assigned.

Interpersonal and Group Skills

Mrs. Fox did not assign nor practice specific social skills as part of a five-step cooperative lesson (described in the training model). However, group skills

were important parts of her lessons. During directions, Mrs. Fox would emphasize working together:

"You are all going to work together, and everyone will help."

"Remember, everyone works together, everyone is a teacher."

After a lesson, Mrs. Fox would spend several minutes letting students talk about the group aspect of their work: "Now we are going to talk about how your group worked together."

"First of all I'd like [you] to think about the group. How did [you work] and how did you decide who would do what?" (Vol. I pp. 195, 133, 142, 197).

Face-to-Face Interaction

During group work, students sat on carpet squares and did their work on the floor. Students were instructed to sit "Indian style" in their groups (with legs crossed facing each other). This way students were working at the same "level," that is, all of them were on the floor and were close enough to each other for face-to-face interaction.

Other Aspects of Cooperative Learning

Giving careful directions. Mrs. Fox spent 12-14 minutes giving directions before a cooperative learning lesson. She went over written directions with the whole class and demonstrated what the groups were to do. After the children formed their groups, Mrs. Fox reviewed the directions again.

Imposing time constraints. At the beginning of group work, Mrs. Fox did not tell students how much time they would be allowed for working on a task. Toward the end of the lesson, Mrs. Fox would announce, "We have five more

minutes to finish up work" (Vol. I p. 140), or "You should be finished up with the first sheet, time is more than half gone" (Vol. I p. 224). Mrs. Fox reported once that she sometimes "stalled" to allow a group to finish their work in order to avoid embarrassing them during the processing time. Another time she told me that she would have to "stop and evaluate on just one paper and let them finish the other after lunch" (Vol. I p. 223).

Answering students' questions. Mrs. Fox sometimes answered questions from individuals by saying, "You'll have to work that out in your group" (Vol. I p. 222) or by saying, "Think about what I told you" (Vol. I p. 138). On other occasions Mrs. Fox would answer questions briefly. Once she spent two minutes with a group helping them by reminding them of the directions and explaining the task to them. She then commented to me, "You cannot go this long with first graders without answering their questions" (Vol. I p. 140).

Allowing groups to do their own work. In the instance mentioned above, Mrs. Fox gave considerable help to a group having difficulty. Other times she would only watch groups work. In one instance, she observed a group that was not following directions and yet she let them continue on so that they could learn later from their mistake (Vol. I p. 222-225).

Cooperative Learning Problems

This category includes problems that occur during a cooperative learning lesson and does not include problems encountered in planning lessons (those are included in the implementation category.) For the purpose of coding, "problem" was defined according to the dictionary. A "problem" was considered to be a situation that was unexpected or presented perplexity, difficulty, or challenge.

The problems that Mrs. Fox encountered during cooperative lessons could be divided into two main types, those that were related to the fact that students worked in groups and those that were not.

Problems Related to Group Work

Deciding Who Will Do What

When Mrs. Fox processed lessons, one topic was always how students decided who would do what (Vol. I pp. 197-198, 225). What Mrs. Fox and her students said during lessons also indicated that this was a concern (Vol. I pp. 133, 138, 223).

Now we are going to talk about how your group worked together. . . . How did you decide who would get the group's materials and supplies? (Vol. I p. 142-143).

Everybody in our group has already gotten something. Who should go now? [asks a student].

You choose somebody. I'm not going to, [replies Mrs. Fox]. (Vol. I p. 137)

Was there anything hard to decide on that we could talk about? [Mrs. Fox asks].

When me and Johnny wanted to both get the carpet squares.

It did seem like some of your jobs could have been done faster. (Vol. I p. 198)

Getting Into Groups

The first two times I observed Mrs. Fox's class, some students did not get into their groups properly after directions had been given (Vol. I pp. 135, 195).

On two occasions finding sufficient room for all of the groups to work was a problem (Vol I p. 136, 221).

Limited Materials and One Product

In cooperative learning lessons students usually work with materials that are limited to one set per group and produce one product per group. This

sometimes presented problems for students like the boy who wondered why the group only got one mirror for three students (Vol. I p. 136).

Sometimes there were not sufficient materials for the whole group and Mrs. Fox would have to distribute more (Vol. I p. 221, 146).

Whose name would go on the final group product was also a concern to both students and teacher (Vol. I pp. 139, 140, 194).

Problems Not Related to Group Work

Not Listening to Directions

Mrs. Fox's students sometimes did not listen carefully to her directions. When this happened (infrequently), Mrs. Fox would gently but firmly regain their attention very quickly (Vol. I pp. 136, 137, 193, 195, 220).

In one interview, Mrs. Fox agreed that some problems encountered during cooperative lessons (i.e., not listening to directions) are not related to the group work (Vol. I p. 226).

Not Following Directions

As one might expect, Mrs. Fox's first grade students occasionally did not follow directions (Vol. I pp. 135, 138, 142). Mrs. Fox always corrected them gently but firmly and, when she made a direct request, got an almost instantaneous response (Vol. I pp. 137-138, 195).

Other Problems

Two other problems occurred infrequently and are noted only because they occurred more often with the other teachers studied. One of these problems was interruptions from outside or inside the classroom. In one lesson, the

intercom, a parent with lunch money, and a hurt student all caused brief, but easily handled interruptions (Vol. I p. 223).

Time was also a concern for Mrs. Fox but did not become an obvious problem during lessons because of her approach to planning the lessons. "When we do [cooperative lessons] we do the whole thing." *By this I think Mrs. Fox means she schedules enough time so that she doesn't rush through . . .* (Vol. I p. 199). She allowed a full hour for each cooperative lesson I observed.

She also reported, "I find I do better if I just go with the flow" (Vol. I p. 147). As mentioned earlier, during one lesson Mrs. Fox had assigned two tasks to cooperative groups but decided during the lesson to ask them to complete only one (Vol. I p. 223). In another instance, Mrs. Fox extended the time she had planned for work time to allow students to avoid the embarrassment of not finishing (Vol. I p. 197).

After one lesson, Mrs. Fox talked to the class about working quickly during group time so that their work could be finished on time (Vol. I p. 225).

The Implementation Process

Mrs. Fox talked extensively about the implementation process during our last interview in mid-February, about two-thirds of the way through the year.

I can see now [that] the work I've done I'm beginning to internalize in my classes. I can be at the table cutting paper and get an idea that something can be done with cooperative learning. Before I had to use the book and go through all the steps using it as a guide. I can say [to myself] "We can do this in a group," and tell the kids to get in groups and they do it right away. I can use it as part of my regular teaching. It is so much easier now.

It took time to apply what I had learned. I went through what we had learned in class step by step. It's in my head now, it's not so cumbersome. At first I had to . . . go step by step. Now I can be driving home and do a lesson in my head. (Vol. I p. 242)

I asked Mrs. Fox when cooperative learning became easier and more natural for her and why and how that change occurred. "It changed," she said snapping her fingers, "Just like that. [It was when] I changed groups the first part of February, I think. I don't know why. I guess changing things, working with [the students] through problems" (Vol. I p. 242-243). By this time Mrs. Fox had been using cooperative learning over a period of three months and had done 10 - 20 cooperative learning lessons.

I asked Mrs. Fox if there were any low points for her as she learned to use cooperative learning.

"It was hard to get started." She explained that the new reading program was not "in place" yet and still required work. The program was in its second year and still took much of the classroom time (75% of the day according to Mrs. Fox). "I felt like the reading was more important [than doing the cooperative lessons I had planned]" (Vol. I p. 53).

Another implementation issue that Mrs. Fox had dealt with early on was also related to using cooperative learning with the new reading program. In October she reported to me that in her reading program students were

supposed to file a paper every day, so I shy away from "one product" [several students in a cooperative group working on one paper]. I have to work it out in my own mind, not having a paper to file for each lesson. I know it really doesn't matter but (Vol. I p. 51)

As reported in the description of the cooperative learning lesson, this idea of "only one product" was also an issue in math lessons. Mrs. Fox usually used cooperative learning lessons in math because that material was most familiar to her and her students (Vol. I p. 227).

As we continued to discuss implementation of cooperative learning, Mrs. Fox began talking about the next fall, indicating that she had a rather long-term view of the implementation of new methods into her classroom:

And I'll have the same problem [trying to work on two new things at once] this fall because I want to take that course in thematic teaching. That's why it was imperative that I do cooperative learning this year. (Vol. I p. 244)

On other occasions, Mrs. Fox had also indicated a long term view of the implementation process for cooperative learning in her classroom.

I don't plan on getting into the five step [lesson] until second semester. (Oct. 12, Vol. I p. 52)

It will take me three years to completely implement [cooperative learning]. (Oct. 12, Vol. I p. 53)

Mrs. Fox observed that it is important to establish a pattern so that there is not too much new in a lesson . . . That's why I've waited to use cooperative learning. (Nov. 16, Vol. I p. 146)

I want this [cooperative learning] to be an integral part of my classroom in two or three years. But I need to give myself some time. (Jan. 25, Vol. I p. 229)

I asked Mrs. Fox, during our last interview, what "hurdles, discouragements, obstacles, challenges or problems" she had faced during the implementation process.

Number one is time [to plan]. Number two is adding something new to what I was doing. I had questions in my mind. "Is this going to be as good as what I did before? Are they just playing?" Just convincing myself it was worthwhile.

Mrs. Fox mentioned the problem of finding time for planning in an earlier interview. "The only thing is to find time to sit down for planning. . . . I don't plan to change anything I teach but how I teach it" (Vol I p. 53).

I asked Mrs. Fox how cooperative learning training helped her plan for cooperative learning lessons. She replied, "[I had difficulty] internalizing the method, making it a part of me" (Vol. 1 p. 245).

Mrs. Fox had reported in an earlier interview that "When you go to cooperative learning training they say 'take a worksheet and' None of the examples are from the way [I] teach" (Vol. I p. 52).

Mrs. Fox continued during our final interview;

And processing [was difficult]. I still am not sure how to do it. At the beginning [of the year] I read the book, took notes and underlined and read another book that I had. When I was ready to add processing I read up on it. . . . I kept [the trainer's] notes close by. . . . When I planned lessons I used her packets.

So you followed her plan carefully?

"Absolutely. I went strictly by the recipe. You learn the recipe first and then you put in the variations." (Vol. I p. 245-246)

As we closed out the interview Mrs. Fox again used the recipe metaphor to describe the implementation process and to emphasize the importance of learning the basic recipe before introducing variations (Vol. I p. 247).

Teacher Thinking About Cooperative Learning

Some of the data in the other coding categories reveal Mrs. Fox's thinking about cooperative learning, and I suppose that with enough analysis most data could be shown to reflect teacher thinking. The data I have included in this category more directly reveal the teacher's view of cooperative learning.

Mrs. Fox liked cooperative learning from the start and continued to like it over the first several months of implementation. "I like to see how the kids relate or interact. I think every kid gets involved" (Oct. 12, Vol. I p. 52).

"For me it's more fun to do a cooperative lesson than [to do] a regular lesson. I see an important side of the kids" (Jan. 25, Vol. I p. 221).

However, she was not always sure that it was the most important part of what she taught. "I wrote out several lessons . . . but they didn't seem to feel right when it came time to teach them. I felt like the reading program was more

important" (Vol. I p. 53). One week when I asked her how many cooperative learning lessons she had done recently she replied, "It has been fewer. We've been doing a lot of evaluation and testing" (Vol. I p. 221). The implication was that after doing the more necessary things, little time was left for cooperative learning.

Mrs. Fox liked what cooperative learning "does for students' thinking [and] problem solving [and] not depending so much on the teacher, but on the group" (Vol. I p. 200). But she also said, "I do get the feeling that if I did cooperative learning the majority of the time it would cause [student and teacher] burnout" (Vol. I p. 200).

When I asked Mrs. Fox what she thought were cooperative learning's essential distinctives she said:

An understanding of cooperative learning [on the part of the student]. Everyone is a teacher and a learner . . . we do something that we can all be proud of. . . .

What is absolutely essential in first grade [is to] outline the activity, what you expect to be done and how it is to be done. It is essential that kids know what the task is and how you want it done. Before I was not saying, "Everybody will [do some of the] work." I thought they understood that. And I was not letting them do it by each person accepting responsibility. That's one of the great outcomes of cooperative learning. Everybody helps everybody.

I did group work before, but it was not cooperative learning . . . where everyone has a responsibility and there's a product that everyone helped to do. (Vol. I p. 241-242)

Summary

In this chapter I introduced Mrs. Fox, as a teacher and a person based mostly on the first interview I had with her. I then showed how she taught a cooperative learning lesson and how she talked about it afterwards by presenting a condensed version of my notes from a single lesson and post lesson interview.

I then summarized the data from my other observations and interviews in Mrs. Fox's classroom relative to the four main categories that I used to code the data. First, I attempted to show the configuration of cooperative learning in Mrs. Fox's classroom in a way that can be compared to the training model. Then, I summarized the two main kinds of problems she encountered when teaching a cooperative learning lesson.

Next, using my last interview with Mrs. Fox as a basis for organizing data from other interviews, I described the implementation process from Mrs. Fox's point of view (as corroborated by my observations). Finally, I summarized the data that showed some of Mrs. Fox's thinking about cooperative learning. The same format is followed for the next two case studies.

CHAPTER VI

MRS. WAITE

The Woman and the Teacher

Mrs. Waite had always wanted to be a teacher. She liked the teachers she had while growing up in rural Nebraska in the late 1940s. "[My] parents pushed education in an area where it wasn't popular. My mother was a teacher and my father believed in [education] " (Vol. II p. 83).

After earning a teaching certificate in two years during the 1950s Mrs. Waite taught grades K-3 for two years in a two-room country school. She then left teaching to be married and start a family. Twenty years and five children later she earned a Bachelor of Science, and then four years later a Master of Arts in teaching. During the past 15 years she has worked in elementary schools as a teacher's aide, a substitute, and a parochial as well as a public school teacher. She has been "pinked slipped" once. "I love [teaching]. I wouldn't want to do anything else but I tried to talk my daughter out of [becoming a teacher]. It's hard and it doesn't pay well. [You] need good health. There is lots of stress and [there are] lots of hours. It's hard on a marriage. As a profession I think we are looked down on" (Vol. II pp 83-84).

Mrs. Waite lives only three houses from her rural school. She usually stays late or comes back to school to work at least two evenings a week and is at school most Sunday afternoons. Her husband doesn't worry if he gets home

and she's not there. He just looks over to see if her light is on at school. He teases her about putting a bed in her classroom so she could stay overnight.

Mrs. Waite likes to garden and read in her spare time, but she usually saves fiction for summer reading. She gets up at 5:30 almost everyday to swim a mile at the YMCA before school.

Mrs. Waite and her husband usually take one extended trip in the U.S. each year and sometimes travel to Michigan's Upper Peninsula on weekends. They rent videos or go out to the movies every week or two, though she spends very little time watching T.V. programs.

Mrs. Waite reads three or four books a month, mostly non-fiction, during the school year. She subscribes to Readers Digest, Consumer Reports, National Geographic, and Reading Teacher.

"Sometimes I bring things [from travel, reading, and cultural experiences] into my class. But I sense a cultural difference with the kids that makes me more or less sustain an adult environment outside of teaching. You have to get away from teaching kids sometimes" (Vol. II p. 89).

Mrs. Waite thinks that working as a tutor in a program for dyslexic children during her first two years in college prepared her more than anything else for teaching. Working with her own five children and running a phonics program in their school also helped prepare her to be a better teacher. She is not sure how relevant her college courses were to teaching.

Mrs. Waite says she never observes other teachers teaching, nor do they observe her. She sometimes discusses ideas, plans, and problems students (or parents) with her colleagues. She goes out after school with her friend Nancy once a week, and they often talk about teaching. Mrs. Waite's daughter who is

also a teacher calls every Sunday and shares teaching ideas and asks for ideas related to classroom management. Mrs. Waite also talks to other teachers in her building about teaching, though infrequently, and over the course of my research reported two discussions she had with teachers she met at professional meetings.

Mrs. Waite is very involved with professional staff development activities. In the 15 months before I visited her classroom, she had spent 71 hours at formal staff-development training. In addition to cooperative learning training, she had taken a four-day workshop on "Instructional Theory into Practice" and one-day workshops related mostly to reading and science. Her comment about her staff development activities was, "[This past] year is the least I've done" (Vol. II p. 84).

The Cooperative Learning Training

Mrs. Waite liked the cooperative learning training she had received. "I thought I had learned something useful. I really felt positive about the training" (Vol. I p. 248). She thought it was useful and practical for her. "I use it more [than other things I've learned at workshops]. It has tied in more with what I am using [already in my classroom]" (Vol. II p. 89).

Mrs. Waite also thought that the training helped her to see some of the difficulties she had working within a group and helped her to understand a student's point of view.

It was hard for me to accept opinion and write [down] the opinions of others that I didn't agree with. As a teacher you get to make judgments and it was hard for me to accept other opinions. I guess I got to see what the kids go through. (Vol. I p. 210)

Mrs. Waite also got practical ideas from the cooperative learning training, from both the trainer and other participants.

I got a better feeling for the uses of cooperative learning from listening to the others. I was pretty much sticking with the academics, . . . but I realized you can use it for habits and thinking skills.

Oh, and I used [the trainer's idea] . . . I had the kids get together in small groups [after Christmas vacation] to tell one important thing that happened to them and to tell what their gifts were. . . I've also used [her idea about] the "Monday morning news" for the last two weeks.

A Cooperative Science Lesson

On a late fall day that is bright with sunshine but cooled by a strong breeze I arrive at Burbank Elementary to observe Mrs. Waite as she teaches a cooperative learning science lesson with her second-grade class. This is the third time I will have observed a cooperative lesson in Mrs. Waite's room.

She had started to use cooperative learning in math within the first month of school and had reported doing spelling in cooperative groups. When I had visited about two weeks previously, Mrs. Waite told me she was doing "several" cooperative learning lessons each week (Vol. I p. 156). I estimate that by late November she has taught about 15-25 cooperative learning lessons.

Although I am a few minutes early, I go in and Mrs. Waite is just beginning directions. "Oh good! You're here just in time" (Vol. I p. 167).

The lesson I will see is a science lesson made up of nine stations at which students spend one to three minutes estimating and sometimes measuring the length, temperature, volume, or weight of an object or objects. Five of the stations are quite simple but two involve fairly complex measurements.

Mrs. Waite has a clipboard and an attached pencil for each group (an idea she has come up with since I was last here and which she uses consistently now

in cooperative lessons). On the clipboard are directions for the nine stations and places to record measurements.

"We'll have five groups with nine stations."

Several students with puzzled looks say, "What?" And there is a stir in the room (Vol. I p. 167-168).

When Mrs. Waite announces a two-minute time limit for each station students are concerned and when she shows a heavy brick at the first station which "could break someone's foot," she has the full attention of the class as they "ohhh" and "ahhh".

Let's also remember our rules for groups. We want to be very cooperative, very polite, be sure we are all taking turns and be sure everyone is checking each answer. . . ."

Mrs. Waite is walking across the room as she continues to give directions.

The person writing will put down the answer only after you all agree. If you can't agree, compromise and put down the number . . .

Three minutes into the lesson Mrs. Waite now continues [by going] station by station around the room . . . as she goes over [the instructions] for each station quickly, students are watching her without talking and are apparently listening.

The two things you haven't had that are thrown into this lesson are grams over here . . . well I'm not going to say anymore. This will be like a discovery lesson.

[Mrs. Waite] then talks briefly about the rice at the station and how it is pinched and put into a cup [for weighing]. She then returns to another station that involves pouring of water.

And students when you pour . . . you'll have to figure out how you want to [take turns]. I'm not going to tell you. You're doing so well at taking turns I'm going to let you decide how to do it. In other words I trust you. (Vol. I p. 168-169)

The directions have taken six minutes and now Mrs. Waite begins to assign groups to stations and pass out clipboards. In my notes I remark that I feel like I am seeing a realistic lesson, Mrs. Waite started early without waiting for me and she is teaching a little "off the cuff," not for "show." I remark about the directions.

As she starts explaining the station she seems to remind herself to go over work group rules. When she starts explaining the new elements of the lesson she seems to remind herself to explain those two [stations] better.

As she explains stations she is moving equipment and finishing set up of the stations. (Vol. I p. 169)

After the directions students take a single minute to form their groups and quickly go to their assigned station.

"I'll be coming around to see how you are doing and to take some notes.

Okay, start" (Vol. I p. 170).

Mrs. Waite writes the current time of 12:50 on the board (it has been 8 minutes since the lesson started) and for the next 24 minutes the students rotate around to each station. Mrs. Waite observes groups and takes notes during this time.

Four of the five groups of four students each are working together well as students share responsibility, take turns writing on the clipboard, and doing the station work.

About four minutes after station work has begun . . . Mrs. Waite comes over and sees that Rose is sitting with her arms folded five or six feet from her group.

Why aren't you with your group, Rose? Get over there, knee to knee.

Rose does, but by the next station trouble starts between group two and three as they argue over who will sit where. This prompts Rose to quit . . . again.

By . . . the next station . . . [Rose's group] is still fighting. Mrs. Waite comes over and reprimands Rose then assigns roles to each group member to settle the fighting . . . and assigns someone [to read directions from the clipboard]. (Vol. I p. 171)

After students have completed their final stations, Mrs. Waite sends students to their seats to begin reading a science assignment. While she gathers papers from the groups and staples them, she has one group work on a station

they haven't finished. Ten minutes later, after putting the equipment away, Mrs. Waite is ready to discuss the lesson with the students.

She very quickly goes over the notes she has taken and talks to the groups about how they did.

Some of you read the directions first and some didn't read them and didn't know what to do. Those of you that read the directions first at each station did so consistently. Some of you didn't and ended up fighting. (Vol. I p. 172)

Mrs. Waite talks for a couple more minutes about the importance of reading and following directions. She then begins to discuss the estimates groups had made at various stations, first writing all the estimates on the board and then telling the class the actual measurement. When discussing the weight of the brick, Mrs. Waite asks for theories as to why estimates ranged from 10 pounds to 99 pounds when the brick actually weighs only five pounds.

The discussion of the stations and how the groups worked lasts 14 minutes. At 1:38, 56 minutes after the lesson had begun but before she has discussed half of the stations, the lesson ends as the music teacher comes for the students. She announces that the students will be getting their parts for the Christmas program today.

Mrs. Waite's Thoughts on the Lesson

As she comes over to talk with me Mrs. Waite says, This needs some work!

I think Mrs. Waite is referring to the fact that the "quart" jar [she used for one of the stations] was really [40 ounces], and the fact that she ran out of time.

She talks first about the problems Rose had and how some of the groups work (or don't work) together. (Vol. I p. 174)

Mrs. Waite goes on to name and characterize some of the students in a group that had done well, "He has trouble, he's real sharp, she is precious, she's bright," and so on. She continues down through most groups characterizing the

group or the student in the group saying things like, "I'm going to have to change that group around" (Vol. I pp.174-175).

After Mrs. Waite has gone down through the list of groups, I begin the interview asking how she had gotten the idea for the lesson.

Mrs. Waite explains that a parent who wants the school to do a science olympiad is planning activities and bringing in items with which students can practice estimating. "After [she] brought this [equipment etc.] in I decided to use it as a cooperative learning lesson. I took what she had and added a couple of things and a clue to each of the questions" (Vol. I p. 175).

Without being prompted Mrs. Waite asks herself, "What would I do differently? I think I need fewer (stations). The main problem was two of the stations took too much longer than the others." When I asked Mrs. Waite why she had decided to make this particular activity a cooperative one, she replied,

I like to see them thinking and talking and working together. Some of the bright kids need the practice of being able to say, "Why do I know this and how do I tell someone else." They are bright kids but they are too meek to speak up.

Mrs. Waite [goes] on to say that it [is] essential that each group have a "bright" kid. I think I'll have to make some changes, change things around. (Vol. I p. 176)

Mrs. Waite tells me of a cooperative math lesson that had gone really well that morning and agrees with my comment that the students are getting used to working in groups.

Until we conclude the interview, Mrs. Waite discusses Rose--her problems getting along with others and her difficult home situation.

Summary of Data According to Coding Categories

As in the other two case studies, the data summary is organized around the four main coding categories: (1) configuration of the model, (2) problems related to the use of cooperative learning, (3) the implementation process, and (4) teacher thinking about cooperative learning. The data, as in the other cases, are taken from field notes recorded during observations and interviews.

Configuration of the Model

The configuration of cooperative learning, that is, how it looked in Mrs. Waite's classroom, is described by looking at how she structured lessons and the presence of the critical attributes of cooperative learning. These can be compared to the description of the training model in Chapter 4.

Lesson Structure

I observed cooperative learning lessons in Mrs. Waite's class that varied in length from 19 minutes to 48 minutes. She usually included specific social skills as part of a five-step lesson but on two occasions did not. Mrs. Waite almost always used cooperative learning in science, but I did observe two cooperative learning math lessons. Consequently, some factors related to lesson structure vary widely and it is difficult to describe a typical lesson since variation seemed to be the norm. The structure of Mrs. Waite's lessons is summarized below and in Table 5.

Directions

Mrs. Waite began her cooperative learning lessons with directions that varied in length from one minute to 18 minutes. Mrs. Waite always went over

directions orally. During two of the lessons I watched, she also wrote something on the board.

November 20.

Let's say someone puts down the wrong answer. What do we do? What can we say?

"I don't think that's right," (*says a girl*).

"Try again," (*volunteers a boy*).

"Maybe that's right but...(*suggests another girl*).

Mrs. Waite . . . makes positive comments about each [suggestion] as she writes it on the board. (Vol. I p. 151)

January 30

Mrs. Waite explains the social skills to be used and writes them on the board. [They are] Sharing (of jobs), Checking for agreement, [and] Encouragement.

The whole thing about this is the thinking. I want to see some thinking. What does sharing sound like?

Mrs. Waite then asks about "checking" and "encouragement" and quickly gets one answer for each . . . but doesn't write [them on the board]. (Vol. I p. 24)

Table 5

Lesson Structure: Mrs. Waite

| Lesson Segments | Time (min.) | | | | | |
|---------------------------------------|-------------|-----------|-----------|-----------|-----------|-----------|
| | 10/4 | 11/20 | 11/30 | 12/5 | 1/16 | 1/30 |
| Introduction and Directions - Content | 11 | 4 | 6 | 3 | 8 | 7 |
| - Social Skill | 7 | 3 | 0 | 0 | 0 | 6 |
| Forming Groups | 0 | 1 | 1 | 1 | 4 | 1 |
| Group Work | 15 | 7 | 26 | 10 | 23 | 22 |
| Processing - Content | 5 | 2 | 12 | 8 | 6 | 12 |
| - Social Skill | 0 | 2 | 0 | 0 | 6 | 0 |
| Total Lesson Time | 38 | 19 | 45 | 22 | 47 | 48 |

In the six lessons that I saw Mrs. Waite teach, the directions took from 5% to 50% of the total time for the lesson, but usually 15% to 25% of the time. Subject matter directions took more than half of the time used for the directions and social skills directions took one-third to one-half. On one occasion Mrs. Waite took 18 minutes of a 38 minute lesson to give directions concerning subject matter and social skills. Another time the directions took one minute:

Mrs. Waite begins the directions and tells [the students] that they will work together, check each others' answers, and if an answer is wrong, make some helpful comments.

She asks for some examples of what a student could say if another group member has a wrong answer. Several students raise their hands quickly. . . . Mrs. Waite finishes the directions quickly since the children had done a very similar lesson last week. (Vol. I pp. 179-180)

During directions Mrs. Waite sometimes addressed issues related to group work:

"I think we know how to handle taking turns, we do pretty well at that"

(Vol. I p. 151).

"We want to be sure to do things without fussing and fighting, maybe that should be the first thing we discuss in groups" (Vol. I p. 202).

Getting Into Groups

Actually moving into groups and getting ready to work usually took Mrs. Waite's students a minute or less. In one lesson which was different from others I observed because students used math manipulatives, students took four minutes to get into groups, including the time needed to get materials.

During the time students were getting into groups Mrs. Waite would move students to balance groups in which students were absent. She would then

start the group work and write a "stop time" on the board by which group work was to be completed (Vol. I pp. 151, 169, 202, 214).

Group Work

During group work, Mrs. Waite would circulate through the room observing groups. She usually wrote down quotations of what she heard students say in their groups (Vol. I pp. 32, 152, 181). Mrs. Waite also would get involved with groups to help them with problems or to remind them of what they were to do:

Mrs. Waite moves [the group at the table] to the floor. "This group has to remember something. What is it? . . . Right, Sarah doesn't do all the work." (Vol. I p. 31)

She points out a wrong answer on their sheet and says, "Look at these two answers, one says four, one says six. Both can't be right. You people better get together here and check each other." (Vol. I p. 152)

Mrs. Waite goes to one group and tells them to set their folders up so that they are touching. This seems to make little difference to the lesson but she says, "Didn't we say last time that the folders should go this way?" (Vol. I p. 203)

By the time Rose's group gets to the next station . . . they are still fighting . . . Mrs. Waite comes over and reprimands Rose then assigns roles to each group member to settle the fight. She asks if anyone read the directions off the clipboard and assigns someone to do so. (Vol. I p. 171)

Time allowed for group work varied from lesson to lesson. Two lessons I observed involved ten or fewer minutes for group work, one involved 15 minutes. Mrs. Waite almost always put a "stop time" on the board by which group work should be completed. She stuck to the time except on one occasion when she allowed an extra eight minutes of group work because students were not finished. When she did tell them to stop, two of the seven groups still were not finished.

Processing

The first two times I observed Mrs. Waite she and her students spent four or five minutes talking about--processing--the lesson after it was completed. She spent 14, 8, 12, and 12 minutes, respectively, on the last four lessons I observed.

Mrs. Waite tried different procedures during processing and spent varying amounts of time talking about social skills, working as a group, and the content material related to the group task.

Mrs. Waite was concerned with processing and how she should accomplish it:

November 20

I know I need to do more with [processing] afterwards. . . . At this age the processing is difficult. . . . That's the thing I want to work on more. (Vol. I pp. 158-159)

February 15

I wonder, "Am I doing this right?" . . . This ending part, the wrap up (*I believe she is referring to processing*) takes so long. I wonder if I do it right. These kids can't sit for too long. (Vol. I p. 250)

During processing Mrs. Waite would almost always begin by going over the notes she had taken during group work:

October 4

Some things I heard [were] . . . in group three--well--lots of silliness. I heard, 'Lets go around clockwise', that was a good idea but you still need to get down to business and less silliness." (Vol. I p. 33)

November 20

While the student teacher passes out the drill sheet . . . Mrs. Waite reads from her observation list . . . commenting only briefly on each [group].

Group 3 has to pay better attention to what is going on in their group. When I looked they had several wrong. [I heard], "Have you got those fixed yet? OK we don't want any wrong."

Group 4 I heard someone say, "They both can't be right," and they fixed their mistake! They did very well. (Vol. I p. 153)

December 5

I think overall you did a real good job, *[Mrs. Waite] says and reads a few critiques about each group's work from her list of notes. Some are positive and some are negative. Mrs. Waite does most of the talking here. [She] then asked each group to tell briefly how they worked together.* (Vol. I p. 182)

January 16

She names a spokesman for each group as they come up [to the front of the room], and these students line up in front of the blackboard facing the rest of the group who are seated on the floor. Mrs. Waite then proceeds to ask each spokesman ..."Who gave the best directions in your group...and what did you like about their directions." ...After each student answers, Mrs. Waite comments on good or bad ways to give directions or things she liked or disliked about [the way] their group [worked]. . . Mrs. Waite spends about three minutes finishing up the processing by . . . "telling" about several things:

Here's what I don't like. Too many questions for the person giving the directions. Everybody says, "What? Huh?" Just like you do to me. . . .

When Mrs. Waite asks, "Who thinks they learned something?" all but one respond affirmatively. Mrs. Waite says, "I think you learned to listen and follow directions, didn't you?" (Vol. I pp. 205-206)

After the lesson of January 16, Mrs. Waite told me: "For follow through I like to use this method (*referring to today's lesson*), "I pick a spokesman from each group and ask them questions. . . . They don't know who I'm going to ask and so they have to pay attention. It goes a lot faster, too (Vol. I p. 212).

Critical Attributes

Shared Leadership

Mrs. Waite did not appoint students to particular roles in their groups, nor encourage particular students to take leadership within groups. "What we need to work on is when somebody gives an answer all the group members check it" (Vol. I p. 150).

Mrs. Waite did recognize the different ability levels of students:

I have one or two sharp kids in each group. I think you have to have them or the groups flounder.

Some of these bright kids need the practice of being able to say, "When do I know this and how do you tell someone else?" They are bright but they are too meek to speak up to the other kids in their groups. *Mrs. Waite went on to say that it was essential that each group have a "bright kid" and that if they would speak up more that would solve some of the problems.* I think I'll have to make some changes. (Vol. I pp. 159, 176)

Positive Interdependence

Mrs. Waite encouraged positive interdependence, the concept of the individual needing the group to succeed. She developed the routine of passing out one clipboard and pencil to each group during cooperative learning lessons. Each group then had one set of directions and/or one worksheet. Because there was only one set of materials to share and one pencil to work with, students had to work within the group to accomplish the task.

Sometimes the structure of a lesson was such that one student could have done most of the work by completing the worksheet on their own or by dominating the activities that were assigned. When this was the case, Mrs. Waite emphasized sharing and checking, making them important parts of the assignment.

When she monitored group work, Mrs. Waite watched specifically for taking turns and checking.

Individual and Group Accountability

Mrs. Waite did not hold groups nor individuals accountable to a clearly defined criteria for group work. She did expect groups to work together well and to complete tasks they were given. If they did, they were praised at the end of the lesson, if they did not, that was pointed out during the processing time.

Neither prizes nor grades were given for groups that completed their work as assigned (Vol. I pp. 153, 182, 204-205).

On one occasion Mrs. Waite built some individual accountability into a lesson. After working in groups on some math facts review, students were given a worksheet of addition facts to complete in one and one-half minutes. This was then graded. Mrs. Waite also reported that in spelling she gave individual quizzes after students studied in groups.

For her own benefit, Mrs. Waite did evaluate the work that students did in cooperative groups or individually after a cooperative learning lesson. While the children were at physical education, Mrs. Waite looked over the papers the students had done during the previous cooperative lesson and indicated to me her pleasure at how well they had done. In a similar fashion she evaluated another assignment during another lesson (Vol. I p. 155-157, 217).

Interpersonal and Group Skills

Interpersonal skills that helped groups function properly were important to Mrs. Waite. "I always try . . . to get in a social skill" (Vol. I p. 212). "I never leave out the social skills part" (Vol. I p. 250). Even during an "off the cuff" lesson only 22 minutes long, Mrs. Waite included a social skill and gave the students feedback on that skill after the group work.

In five out of the six lessons I observed in Mrs. Waite's class, she took time at the end of the lesson to talk with the students about an assigned social skill or how the group worked together.

Some of the interpersonal and group skills Mrs. Waite assigned during cooperative lessons were: (1) sharing and taking turns (Vol. I pp. 30 & 33),

(2) checking answers and sharing opinions (Vol. I p. 150), (3) following directions and checking answers (Vol. I p. 182), (4) working without fighting and fussing, and (5) deciding who goes first (Vol. I pp. 204 & 207).

Face-to-Face Interaction

Mrs. Waite was aware of how close students were during lessons and sometimes moved students to the floor or closer together in their groups. During group work students would usually sit on the floor to do their group work. Sometimes group work required that they stand together at a station in science or sit together at a table.

Students were usually instructed to sit "Indian style, knee to knee." Although they were not always that close, the groups were close enough to ensure face-to-face interaction. "One thing I've learned is they've got to be knee to knee on the floor. I used to let some sit at tables but no more" (Vol. I p. 157-158).

Other Aspects of Cooperative Learning

Giving careful directions. Mrs. Waite varied the amount of time she spent on directions. As indicated earlier, the time ranged from one minute to 18 minutes, and percentage of the lesson time used for directions ranged from about 5% to just under 50%. In about half of the lessons I saw, the directions took seven or eight minutes and 15-20% of the lesson time.

Mrs. Waite gave directions by explaining the reason and purpose for the lesson, telling about and sometimes demonstrating the activities students would be involved in, and explaining and describing the social skills used.

The directions for the activity were given to the students in abbreviated written form on their clipboards. The behaviors associated with the social skill were written on the board during one lesson but not the others. Considering the brief nature of the written directions, it seemed that directions could have been given in a shorter time during most lessons. In one case, directions for the activity and the social skill took only one minute and seemed sufficient.

During other lessons, students were restless by the end of the directions and introduction to the lesson. I noted on October 4 that *the lesson may have needed a little less explanation of the skill . . .*, and on January 16 *nine minutes [for directions] seemed too long to me.*

Imposing time constraints. Mrs. Waite always informed students of the time at which they should be finished with their group work. On all but one occasion, she enforced this quite strictly, and usually the groups had finished their work by the stated time. During one lesson Mrs. Waite announced that the groups would have more time since none were finished (Vol. I p. 215).

Answering students' questions. Students did not usually ask Mrs. Waite questions during the group-work time. This may have been partly because she circulated among the groups and sometimes assisted them. It also may have been because she was involved with taking notes and seeing all the groups during the work time. During one lesson a group asked a question and Mrs. Waite responded, "Have you talked about it?" (Vol. I p. 32). Another time a student told Mrs. Waite that their group was fighting, and she came to the group and made assignments to settle the disagreements.

Allowing groups to work on their own. As Mrs. Waite circulated among groups, she frequently made comments and gave the groups advice or even very direct instructions:

Mrs. Waite goes to one group and tells them to set their folders up so that they are touching. . . . I watch her with [another] group . . . she gives them a suggestion . . . (Vol. I p. 203)

During the group work, all groups have trouble with the first problem Mrs. Waite . . . spends most of [her] time going from group to group to assist [them]. (Vol. I p. 215)

Mrs. Waite . . . assigns roles to each group member to settle the fight. She asks if anyone read the directions [on] the clipboard and assigns someone to do so. (Vol. I p. 171)

Mrs. Waite reported during our last interview about a group that she made work through their own problem of one person taking over the group. She said she would leave the group together in the future to help them learn to work through their own problems. (Vol. I p. 250)

The problem of students taking over groups as well as other problems Mrs. Waite encountered during cooperative learning lessons are discussed further below.

Cooperative Learning Problems

This category includes only problems that occur during a cooperative learning lesson. Problems encountered in planning or preparing for lessons are included in the implementation category. For the purpose of coding the dictionary definition of "problem" is used. A problem is considered to be a situation that is unexpected or presents perplexity, difficulty, or challenge. The problems Mrs. Waite encountered are divided into two types: those specifically related to students working in groups and those that are not.

Problems Related to Group Work

Deciding Who Will Do What

When Mrs. Waite provided feedback to students after their group work, she almost always talked about how students did in sharing and taking turns (Vol. I p. 172, 180, 182, 204). Mrs. Waite also addressed this issue during the introduction to many lessons (Vol. I pp. 108, 169, 202, 214), which does not necessarily mean it was a problem but at least a concern. In fact, when Mrs. Waite mentioned sharing or taking turns, on two different occasions she praised the students (Vol. I pp. 150, 169).

Students did sometimes have trouble deciding who would do what in their groups, however, only a few instances of this were recorded (Vol. I pp. 170, 180, 182).

Group 3 continues to argue, probably over who will measure. One girl says "I quit. I'm going to tell the teacher. This prompts Rose to . . . pull out again." (Vol. I p. 171)

During one interview Mrs. Waite indicated that "taking turns went better than usual," implying that it was at times a problem (Vol. I p. 34-35).

Another time Mrs. Waite reported that a new student "had trouble sharing and getting along with others. . . though she is basically a very nice girl" (Vol. I p. 210).

Absent Students

Twice when I observed her class Mrs. Waite had students absent:

December 5

Mrs. Waite is . . . quickly surveying the groups, she says to herself, Mike's not here, (looking at the group with only three members), Okay that'll work. She then [gets] her note pad she uses for observing.

January 16

Let's get into groups. *After Mrs. Waite has transferred two students to a group from which two members are absent she calls up a student from each group.* (Vol. I p. 202)

Problems Not Related to Group Work

The problems Mrs. Waite encountered during cooperative learning were infrequent and seemed to be miscellaneous rather than problems of a regularly recurring nature. The problems are very broadly grouped into (1) student attentiveness, and (2) other problems.

Student Attentiveness

Mrs. Waite once told me that processing a cooperative learning lesson was difficult because, "They won't sit still for that length of time" (Vol. I p. 158). She also talked about some individual students saying, "The problem with Marty is that he is so verbal, and sometimes Alan [is too]" (Vol. I p. 34). Students also were sometimes "fidgety" while Mrs. Waite gave directions (Vol. I p. 202).

Other Problems

Mrs. Waite did not have a problem with interruptions from outside her classroom to the extent that another teacher studied did. In fact, no interruptions of this sort were recorded.

Another problem, time for completion of lessons, was of more importance. Mrs. Waite often did her cooperative learning lessons during math class after which her students left for music or physical education. This meant she had to finish by a certain time. She also used cooperative learning extensively in science which she taught for one period to her class and for another period to

the other second-grade class. These lessons too had to be completed within a certain time.

Although Mrs. Waite included all the steps in each cooperative learning lesson, the time allowed for the last step, processing, varied from 4 to 14 minutes, depending, in large part, on the available time.

Mrs. Waite often took her cooperative learning lessons up until the last minute before students had to leave. In fact, one day she put a look-out at the door so the class could continue group work until the music teacher came for the class (Vol. I p. 33, 153, 173, 181).

Mrs. Waite sometimes talked about lessons in a way that indicated that she was concerned about the time needed to finish. "For [processing] I like to . . . pick a spokesman from each group. . . . It goes a lot faster" (Vol. I p. 212).

"You know what? The main problem was that two of the stations took too much longer . . ." (Vol. I p. 176).

This section has focused on problems encountered during cooperative lessons. The next section presents the implementation process as Mrs. Waite viewed it and includes some of the problems she encountered as well as some of the successes she experienced.

The Implementation Process

During our last interview, Mrs. Waite talked at length about implementing cooperative learning in her classroom. Extended quotations from this interview as well as references to related material from earlier interviews follows:

Last year's class was so much in need of social skills I thought it would be better to teach that and skip reading and math! This [cooperative learning] was a way to do both and that appealed to me. The hard part is the getting ready for it. For example, the other day I needed an eye-dropper for

a science lesson, which is not a big deal--unless you can't find it." (Vol. I pp. 248, 249, 253)

Mrs. Waite told me what motivated her to work hard at cooperative learning:

You have to remember how nice it is when they are working together in the groups, and the teacher is not the center of attention. If you keep that in mind you'll do it.

So that's what keeps you going? Thinking of the kids working together and remembering how much you enjoy it?

Yes. With reading groups all morning I'm the center of attention and it's so nice in the afternoon to fall back on group work. (Vol. I p. 249)

In an earlier interview I had asked Mrs. Waite what kept her "trying" in her use of cooperative learning. She said, "I like it. I see the value and to be honest, it's more fun. I also feel [the students] get more out of it" (Vol. I p. 219).

Continuing our final interview, I asked Mrs. Waite what she considered high points in the implementation process.

I think the science lessons [a couple of weeks ago] went real well. [It's] a high point for me every time when they get into groups so smoothly. [Also] each time you see something that is an improvement that didn't go well last time. It's been a slow steady improvement. (Vol. I p. 250-251)

I agreed with Mrs. Waite's analysis here without saying so. Her children were able to get into their groups within a minute each time she did a lesson. They also were learning what to expect. On my second visit to the class, two students told me after I sat down that I could not sit where I was because a group met there. I noted at the time that groups were becoming more routine for the class (Vol. I p. 149).

The routineness of cooperative learning for Mrs. Waite's class was emphasized as she continued. "Another highlight is I finally had the nerve to leave a

Cooperative Learning lesson set up for the sub. . . . It worked fine (Vol. I p. 251).

I asked Mrs. Waite about low points for her in the process of implementing cooperative learning and she said, "When they can't do the math or the story problems. When nobody in the group argues but just goes along with doing it the wrong way." When I suggest that in the past she has expressed disappointment after a lesson when the students did not master some of the content, she agrees. She goes on to tell me that she thinks the disappointments are "different lesson by lesson" and says she is frustrated because "I can't get these kids to perform a 45-minute lesson" (Vol. I pp.251, 252).

As our final interview continued, I asked Mrs. Waite if she had any kind of strategy for implementing cooperative learning. She at first replied, "Well no." When I asked if she had started in a particular subject she said:

"At first I stuck with math. It took me a while to add the sociological part [social skills]. I guess I got a feel for one [subject area] and went on to another.

So you started with math and then went to science . . . ?

"Yes . . . When it came up in the curriculum I thought of how I could work around [to cooperative learning]. All of my science [for the past month or two] is done with AIMS [Activities Integrating Math and Science] and group work. (Vol. I p. 252-253)

Mrs. Waite had told me in earlier interviews, "I don't give new things in cooperative groups. I use it for review" (Vol. I p. 183). She also said, "We usually do a cooperative group lesson after we've learned several things" (Vol. I p. 175).

When I asked Mrs. Waite about planning a lesson she said:

I was just looking [at the material from the training] last night for inspiration. It didn't come. [At first] before I planned a lesson I [used to] flip through my notes and the packet [handouts] from the class . . . I went through all the steps, brainstormed--but now I don't plan in detail. I think in

the beginning you have to do more planning. That is why it's hard to get started.

I do think you need to think through [a lesson] . . . You better have it in your head when you start, as to your intro . . . Where the groups will get together--you know. (Vol. I pp. 252, 253, 255)

I asked Mrs. Waite what the hurdles, discouragements, obstacles, challenges, or problems she faced in implementation might be:

Materials . . . getting them organized and together.

Another hurdle has been leaving [cooperative learning lesson] for a sub and I cleared that hurdle this week.

Another hurdle *(with a laugh [which is] self-conscious because she really means it)* is just doing it. Just getting started. Don't you think? (Vol. I p. 253)

Mrs. Waite had talked in previous interviews about finding time to organize and "just do" cooperative lessons.

The cooperative learning is great now because I have my student teacher. I can go and run these [group directions and worksheets] off in the morning and plan [the lesson]. But she leaves next week and the big problem will be finding time to plan and prepare. (November 20; Vol. I p. 157)

"[In the past two weeks] I've used [cooperative learning] ten times--five different ways with two classes. That's about all the time I've had. Today is the first day I've done a non-science cooperative learning lesson. (January 30; Vol. I p. 219)

Mrs. Waite continued to name hurdles in addition to finding planning time and "just doing" cooperative learning.

Another thing is just doing that first week of school. Getting the kids to realize, "This is the way she teaches," and to accept that and expect it.

I guess another thing is the organization of the groups and knowing what you want. (Vol. I p. 254)

Mrs. Waite was concerned with the makeup of her groups and particularly that there be at least one "bright" or "academically acclimated" student in each group (Vol. I pp. 176, 183).

"[I] have kept pretty much to the same groups . . . I have one or two sharp kids in each group. I think you have to have them there or the groups flounder" (Vol. I p. 159).

As we concluded our final interview, I asked Mrs. Waite what she "heard" in her mind or remembered from the training sessions we attended. She at first answered, "No specific things." After a long pause, she mentioned three things, "I guess I remember her cracking the whip to keep us on track."

"And another thing I do that she always emphasized is getting around to each group to observe" (Vol. I p. 254).

Mrs. Waite ended her recollections with a statement that revealed some of her thinking about what cooperative learning "really" is. That statement begins the final section of this chapter.

Teacher Thinking About Cooperative Learning

Oh, I know [something I remember]; the participation. You can't just let [students] sit there. The whole group has to be interacting so you don't assign jobs, you keep the roles rotating. When a teacher tells me they assign roles, I think that gives it away that they are doing groups and not cooperative learning. (Vol. I p. 254)

Mrs. Waite indicated a similar view of cooperative learning in an earlier interview.

"I did meet a teacher . . . [who] told me she was doing a lot of group work, but I could tell it wasn't cooperative learning because she assigned everybody roles" (Vol. I p. 218).

Mrs. Waite saw the development of social skills among her students as one of the primary purposes of cooperative learning.

"I think the value at this level is in the socializing even more than the academics" (Vol. I p. 218).

Mrs. Waite sometimes evaluated a lesson by how the groups worked or did not work together, or just commented on the social skills aspect of cooperative learning (Vol. I pp. 156-157, 174, 185, 209, 218, 248).

Mrs. Waite enjoyed teaching a cooperative learning lesson and felt that her students enjoyed participating in one. In fact, this is what kept Mrs. Waite trying cooperative learning (Vol. II p. 89, Vol. I p. 185, 219, 249).

Mrs. Waite did not think that cooperative groups were the answer to everything. In one remarkably candid interview, she told me about a fourth-grade teacher who used cooperative learning quite frequently, and the reactions Mrs. Waite had gotten from Karen, her close friend who taught fifth grade.

You see the fourth-grade teacher has her whole classroom set up around cooperative learning and themes. And the kids love it and so the parents are happy because the kids like school. But then Karen gets the kids and they haven't covered everything they should have and Karen gets stuck with them. They didn't cover double digit multiplication at all in fourth grade . . . [The fourth grade teacher] doesn't really stick to the curriculum at all. I guess I don't do cooperative learning totally . . . You can overdo it with the groups. You need to do more teaching for some of the kids. (Vol. I p. 184)

Mrs. Waite may have indicated what she meant by "more teaching" when she said in another interview, "With reading groups all morning I'm the center of attention and it's so nice in the afternoon to fall back on group work" (Vol. I p. 249). The implication being that teacher-centered instruction is necessary for teaching reading. As already mentioned, Mrs. Waite felt that "The value [of cooperative learning] at this level is in the socializing even more than the academics" (Vol. I p. 218).

Although Mrs. Waite emphasized the importance of social skills as part of cooperative learning, she seemed to evaluate lessons on how students had performed academically. It was often one of the first things she would mention about a lesson (Vol. I pp. 34, 155, 156, 215, 217).

Immediately after one lesson Mrs. Waite told me

I don't know how successful I was teaching the 12's [family of number combinations].

As we talked she sorted the drill sheets and told me several minutes into the interview that 14 of 23 students have all the items correct, So I would say they did pretty well! (Vol. I pp. 155, 157)

Mrs. Waite also emphasized students' academic ability in relation to groups and grouping. As reported previously, she emphasized the importance of having a bright student in each group. She also evaluated her grouping of students from time to time based, at least partly, on academic ability (Vol. I pp. 34, 174, 176, 183, 209).

Mrs. Waite tells me they are a good group and then begins naming the students in the group and characterizing them, "He has trouble, he's real sharp, she is precious, she's bright . . ." and so on (Vol. I p. 174).

During our final interview I asked Mrs. Waite what important discoveries about cooperative learning she had made during the process of implementing it in her classroom.

"The really low kids can fit in and make a contribution to the group. (If you don't put them all into the same group)" (Vol. I p. 252).

Earlier in the year she had told me, "I think cooperative learning is better to get [the students] thinking and processing the information. I like to see them thinking, and talking, and working together.

Summary

This chapter introduced Mrs. Waite through excerpts from interviews. Then a condensation of my fieldnotes from a particular lesson described a cooperative lesson in Mrs. Waite's second-grade classroom. A condensation of the post-lesson interview showed how she evaluated and talked about that lesson.

Data from other observations and interviews were then summarized around the four major categories used to code the data. First, what cooperative learning looked like as implemented in Mrs. Waite's room was described. This was done by presenting data related to the critical attributes and lesson design she learned during cooperative learning training.

Next, data showing the problems Mrs. Waite and her students faced while implementing cooperative learning were presented. The implementation process itself was then examined by organizing data from earlier interviews around the framework of the final interview in which implementation was discussed at length. The chapter closed with excerpts from various interviews which revealed some of the ways Mrs. Waite viewed, or thought about, cooperative learning.

The same format is followed in presenting Mrs. Stone in the final case study in Chapter 7.

CHAPTER VII

MRS. STONE

The Woman and the Teacher

Mrs. Stone is in her third year of teaching since returning to the classroom after taking several years off to raise her family. Mrs. Stone thinks children and teachers are different now than when she first started teaching in a small town about 25 years ago. Before returning to the classroom full time, she spent some time substitute teaching and directing a child-care center.

Mrs. Stone likes the teaching profession because she has "always liked change [and] with children it's part of [their] development. I like the fact that you're always doing something different, [there's] no routine, you have to go with the flow. I get pleasure seeing [the children] grow and learn" (Vol. II p. 165). Mrs. Stone believes that with teaching "a lot has to come from within. It's something you have or you don't" (Vol. II p. 171).

Mrs. Stone's niece sometimes calls her to talk about teaching. "She's a teacher out of town. I'm a sounding board [for her]" (Vol. II p. 168). Mrs. Stone also talks to her husband about teaching and things that happen in the classroom.

Her life outside school keeps Mrs. Stone busy. Her youngest child is in the high-school band, so the family attends football games and band activities frequently. Her older two children are in college in a neighboring state and she

visits them on a regular basis. Mrs. Stone also sings in the church choir and prepares weekly for the Sunday School class she teaches.

In the limited time she has for herself, Mrs. Stone goes out to eat with her husband once a week. They don't go to movies because "I can't sit still that long" (Vol. II p. 170). Mrs. Stone exercises two afternoons a week. As a hobby she enjoys cross-stitching and reads some also. She is currently reading an historical fiction novel and likes romantic novels. She subscribes to Reader's Digest, Learning Magazine, a journal produced by the National Association for the Education of Young Children, and Mailbox, a magazine of teaching ideas.

Mrs. Stone's life during the school year pretty much revolves around school. She does schoolwork every evening during the week and says that in her free time, which is very limited, "[I] think school and check work."

Mrs. Stone brings her enjoyment of crafts, singing, and music to her classroom by doing craft projects, sing-along records, and playing music during Art class.

Mrs. Stone has worked hard to update herself as a teacher. During the year just past she had participated in a total of 79 hours of staff-development activity, including the cooperative learning training she was taking. Ten of those hours were sessions presented by her principal over the course of the previous school year and the rest were workshops she attended away from the school during the summer or school year. Although none of the training was "officially required" by her school, much of it, like the cooperative learning training, was strongly recommended. On the wall just outside her door, Mrs. Stone, like the other teachers at Shawnee Hills Elementary, displays certificates from several of the major staff development activities in which she had participated.

She said that the staff development training she had taken "for me was necessary and applicable . . . for an old-timer maybe not as necessary" (Vol. II p. 167). She did like to try to "keep on top of things," since her school district and principal focus on innovations each year and encourage teachers to try new things in their classroom.

Mrs. Stone is very proud of her principal who was recognized as "the best in the state" and thus had been to the White House for special ceremonies. The principal had done a couple of clinical supervision sessions with Mrs. Stone the previous year to help her with reading classes. He also allowed her to observe other teachers and sometimes taught the first grades in a combined class so the teachers could plan together.

Mrs. Stone has good relationships with the staff at Shawnee Hills Elementary School. She talks with the other first-grade teachers on a daily basis. She sometimes talks with a third-grade teacher who used to teach first grade as well as the kindergarten teacher who taught her students the previous year. The teachers often share ideas and materials. Mrs. Stone says that "Just about everything I'm using I've gotten from someone else" (Vol. II p. 168).

The Cooperative Learning Training

Mrs. Stone and I first talked at length during the fifth week of school. She still feels a little ambiguous about cooperative learning, having attended the third of four training days about two weeks previous to our talk. "It's a good theory, but I think it's hard to get it down on paper. I've yet to do a five-step Cooperative Learning strategy. I've done a lot of the [quick strategies]. I've done a lot of grouping but--I don't know" (Vol. II p. 170).

Nonetheless, Mrs. Stone is very pleased with the training sessions she has attended. "[It was] an excellent workshop. She does a fine job and she teaches what she preaches. She's doing what she asks us to do. I [especially] like the sharing part with the teachers of [similar] levels" (Vol. II pp. 170-171).

In the next section, a cooperative learning lesson in Mrs. Stone's firstgrade class is described in order to provide a taste of what a cooperative learning lesson was like in her class.

A Cooperative Social-Studies Lesson

The lesson I have come to observe is a social studies lesson about the Pilgrims. Thanksgiving is less than two weeks away. The children will work in groups of four where each child will make a picture of what a Pilgrim child might pack in a trunk for a trip to America.

Mrs. Stone begins by writing "trunk" on the board and saying, "Let's put thumbs up if you know what [this word] could be" (Vol. I p. 118). After the word is correctly identified, Mrs. Stone asks:

What does the word trunk make you think of? She wrote on the board responses like elephant, treasure, costumes, car and anteater. Mrs. Stone then brought out a small trunk to the delight of the students. It had belonged to Mrs. Stone's mother and [now her] daughter. She used to keep her doll dishes in it as a child. The trunk (which has been hidden all day) seems to be the "piece d' resistance" of the lesson and certainly gets the children's attention. (Vol. I p. 118)

Mrs. Stone then focuses the lesson on the Pilgrims by asking, "What do you think a Pilgrim mother would take in a trunk?" (Vol. I p. 118). Three of the boys suggest bread, corn, and apples. Mrs. Stone asks, "Amanda, do you think they would take bread in their trunk?"

"No."

"Why not? "

"It would get soggy."

"O.K., it might."

(To the whole class) "So do you think they would take it in the trunk?"

"Noooo!" (Vol. I pp. 118-119).

After students suggest a few more items that might be packed in the trunk, like blankets and clothes, Mrs. Stone begins to give directions for the cooperative groups. Introducing the lesson using the trunk has taken ten minutes. The directions, take another six minutes. Mrs. Stone introduces the task to be worked on by the first-grade students by asking, "If you were a Pilgrim child and Mom said you had a trunk to pack, just for you, what would you pack?" (Vol. I p. 120).

Mrs. Stone briefly explains the following directions as she writes them on the board.

1. Talk about it
2. Give one idea
3. Draw it
4. Cut around it
5. Paste it around the trunk (Vol. I p. 120).

One boy says, "I don't get it."

"Who can help Bret?" asks Mrs. Stone.

"We'll cut it out and put it in the trunk," replies another student" (Vol. I p. 120).

Mrs. Stone mentions two rules the students should follow and shows the students the paper they will use. One is for them to draw on and one is a ditto sheet for each group with a picture of a trunk on it. The students are to paste the pictures that each member of the group has drawn around the picture of the

trunk each group will have. Mrs. Stone remarks that she should have made the trunk larger so that students' drawings would not have had to be so small.

Bret again asks a question about the rules. Mrs. Stone asks, "Who can tell Bret the two rules?" and calls on students to repeat the rules. Good thing, because I had missed the second one! (Vol. I p. 121).

Mrs. Stone then writes the rules on the board:

1. Everybody draws one picture
2. They are all different

As Mrs. Stone begins to pass out paper for the lesson, several students start drawing immediately.

"Don't draw yet. You aren't in your groups yet. You don't know what the other people in your group are going to draw yet" (Vol. I p. 121).

Mrs. Stone finishes passing out paper and begins assigning students to groups. This process takes about five minutes. She uses name cards which she draws randomly from a can but holds on to some cards to avoid putting certain children into the same group. As she names four people to a group she tells them, "Someone gets the paper, someone is the speaker, and someone does the gluing. One person won't have a job today but that's okay."

Just as the groups are ready to begin their work, 22 minutes into the lesson, a PTA parent comes in the room. She tells Mrs. Stone she needs to have two students at a time come down to the PTA fund-raiser "Santa's Workshop" to shop.

With a big sigh, Mrs. Stone asks if another teacher's students can go first and is informed that hers is the last class left to go. Reluctantly, Mrs. Stone sends two students out.

As the five groups begin their work, Mrs. Stone circulates around to the groups taking notes. Two groups are near the front of the room, three are situated across the back. All are sitting on the floor. Within five minutes one group has finished drawing their pictures and sends a boy up to get the trunk picture for their group. He gets one for each of the students rather than one for the whole group. Several other students make a similar mistake during the lesson thinking each person gets a complete set of materials. Mrs. Stone comes over to one group and reminds them that they need only one sheet. When she sees a student gluing his own drawing to the trunk picture she asks the group who their "gluer" is.

A student in another group says, "I can't believe she only wants us to draw just one picture!" (Vol. I p. 122).

After groups have been working for about fifteen minutes, Mrs. Stone says, "I don't see any groups ready to report. But I do hear talking. I shouldn't hear any talking." Within three minutes most of the groups finish. Mrs. Stone has the spokesman and group picture from one group up front. The other groups remain in their places. Mrs. Stone has the spokesman explain the four pictures to the class. She then asks the class, "What did this group do right?" *There is still some talking in several groups and not all are looking toward the teacher* (Vol. I p. 124).

Mrs. Stone hangs the first group's project on the board and prints the names of the items under it. After discussing the next group's work, she does the same.

The third group has not followed directions and two of the students' pictures are of dolls. After putting up their work Mrs. Stone asks the class:

What did you think of the groups's work?

They don't listen to each other.

Did this group follow the rules very well?

No they drew two the same.

What would you tell this group for next time?

Talk more, listen to directions.

Just before calling up the next group spokesman Mrs. Stone says, Nice pictures though, huh? And good cutting. Good cutting. (Vol. I p. 126)

For the last group Mrs. Stone lets the discussion center on the students drawings (as opposed to centering around how well they followed directions) and does not add comments of her own about listening or following directions. She reflectively repeats what students say.

I realize here that it has been very easy to tell immediately what Mrs. Stone liked or disliked about a group's work by her reactions to student statements [or the questions she asked]. Now she is . . . hiding her value judgments. I [expected] her to make it clear that Pilgrim children would not pack a glass of water in a trunk but instead she . . . seems interested in getting a wide range of discussion. After a couple of minutes, Mrs. Stone asks, I wonder if the child would really be interested in bringing the glass of water? (Vol. I p. 127)

Mrs. Stone concludes the lesson 45 minutes after it started by asking students what they liked about working on the project. "A lot of people listened to other people." "In stations a lot of people get their names up for talking but today nobody did" (Vol. I pp. 122-123). Mrs. Stone then says, "You know what I didn't like?" I really, really, didn't like the interruption from Santa's Workshop."

A student reminds Mrs. Stone, "You have to do whatcha have to do, don'tcha?" (Vol. I p. 123).

Mrs. Stone's Thoughts About the Lesson

As Mrs. Stone returns from escorting her children to Physical Education class she says to me, "There's always something, isn't there?" I agree and she goes on:

I tried to get [the PTA lady] to change, and do someone else's class but she couldn't. I think that kind of put the kibosh on the whole thing. Maybe I need to think smaller. . . . Maybe I didn't take enough time to explain the directions carefully. It's difficult for them with so many directions to follow. . . . Maybe I should have told them, "Remember you're [pretending to be a Pilgrim] child." (Vol. I p. 129)

Mrs. Stone then discussed the students' performance relative to following directions.

One group wasn't talking, no interaction. Some groups forgot who had which job. I think I'll make up cards with all the jobs on them and keep them so I can give them a card with their name on it. But they'll have different jobs on some lessons. Well, I can just save them . . . so I'll eventually have all I need.

Partners they can handle but groups is a whole new concept for them. . . . I need to be more organized with directions and materials.

It seems to me that you had everything planned very carefully.

Well, I tried to think through the whole lessons step by step. (Vol. I p. 129-130)

I asked Mrs. Stone if she saw other problems related to the groups.

No, I think they like doing it. I can really see the merits of cooperative learning

It's just frustrating to walk around and not correct people when you see them make a mistake and just letting them go ahead. But I think I did the right thing not butting in, don't you?

Well what are your main goals for cooperative learning?

I'd like to see some thinking, . . . and some creative thinking and the use of some social skills. I'd like to see some interaction and some talking about [the task].

Even if it's not exactly what you planned?

That's right. (Vol. I pp.130-131)

As we ended the interview I thought about what Mrs. Stone said about goals for cooperative learning and what I had seen during the lesson.

It's hard to reconcile [Mrs. Stone's goals] with Mrs. Stone's practice. It seemed she was more interested in having groups follow directions and was not pleased when they [were creative and] came up with items that didn't match what she thought Pilgrim children would really pack in a trunk. (Vol. I p. 131)

Choice of a Lesson to Report

This was the second or third "full length" cooperative lesson that Mrs. Stone taught. Because of the interruptions and because the lesson did not go as she hoped, Mrs. Stone probably thinks it was a poor choice for writing up. I chose it because it shows clearly many of the challenges teachers face in implementing cooperative learning at the first-grade level. It also shows a clear contrast between regular classroom routines and cooperative group practices.

The very brief interview gives a particularly clear view of how Mrs. Stone evaluated and thought about cooperative learning lessons. It shows how she developed ideas for improving how she taught and some of the seemingly contradictory ideas with which she struggled.

Summary of Data According to Coding Categories

Configuration of the Model

Cooperative learning as implemented by Mrs. Stone is described below and can be compared to the training model presented during the training Mrs. Stone attended. The training model is outlined and explained in Chapter 4.

Mrs. Stone varied the subject areas in which she used cooperative groups and made adaptations throughout the implementation period. She made extensive use of some of the less complex cooperative strategies that did not involve a full five-step or three-step lesson, particularly in reading. Those are not described.

Lesson Structure

Introduction

Mrs. Stone usually had some kind of introduction to lead into the lesson. In the lesson described above, the introduction took ten minutes. The lessons after that had brief introductions of a minute or less. During the introduction Mrs. Stone reviewed a previous lesson, showed a picture, or introduced a word or concept related to the task around which the cooperative lesson was based. The way Mrs. Stone structured her lessons is explained below and outlined in Table 6.

Directions.

Mrs. Stone took from 5 to 12 minutes for directions. Directions for the task or content the students would be working on usually took six or seven minutes. In the three lessons which involved a social skill, those directions took one, four, and six minutes, respectively.

Mrs. Stone wrote directions for the group task on the board for all but one lesson. Sometimes she wrote them as she explained them. Other times she wrote them ahead of time and then explained them to the class. Typical directions from two lessons are given below.

1. Talk about it
2. Give one idea
3. Draw it
4. Cut around it
5. Paste it around the trunk (Vol. I p. 120)

1. Put pictures in order
2. Teacher checks
3. Gluing
4. Write down a sentence (Vol. I p. 136)

Table 6

Lesson Structure: Mrs. Stone

| Lesson Segments | Time (min.) | | | | |
|----------------------|-------------|-------|-------|------|------|
| | 10/18 | 11/13 | 11/27 | 12/6 | 1/29 |
| Introduction | 4 | 10 | 1 | 1 | 1 |
| Directions - Content | 6 | 10 | 5 | 7 | 7 |
| - Social Skill | 6 | 0 | 0 | 4 | 1 |
| Forming groups | 4 | 2 | 2 | 3 | 2 |
| Group work | 20 | 19 | 11 | 44 | 53 |
| Processing - Content | 5 | 20 | 0 | 0 | 12 |
| - Social Skill | 2 | 0 | 0 | 0 | 4 |
| Total lesson time | 47 | 61 | 19 | 59 | 80 |

During lessons I observed later in the school year, Mrs. Stone repeated directions. Often during directions, four to six students at any one time would not be looking at the teacher and did not seem to be listening to directions.

When social skills were a part of the lesson, Mrs. Stone did not use a "T-Chart" to show what the social skill looked like or sounded like. Once she wrote two social skills on the board. The social skills she covered during various lessons were: sharing ideas, following directions using indoor voices, and taking turns.

Getting Into Groups

In the lesson described earlier in the chapter, Mrs. Stone took five minutes to assign students to groups, assign them an area in which to work, and distribute drawing paper. In all subsequent lessons, students were in groups or pairs

that had been predetermined so this part of the lesson went faster. Distributing materials and getting groups ready for group work took two to three minutes even though these later lessons involved substantially more materials.

Group Work

During group work, Mrs. Stone circulated through the room observing and helping groups. She took notes as she observed during only one of the six lessons I observed.

Mrs. Stone often gave groups help when they had difficulty getting along or following directions. During one lesson using math manipulatives, Mrs. Stone helped one group having some difficulty:

We're not doing pluses. No, that's not it.

She then demonstrates $5 - 1 + 4$ [using the tokens students had for that purpose], and corrects the boy who keeps covering up the [tokens] making it [difficult] for the girl writing the number sentence. [Since] he also keeps giving her bad advice . . . Mrs. Stone says to him, . . . Bob, you let her do the writing. It looks like she knows what she is doing. (Vol. I p. 163)

To another group Mrs. Stone says, This is not right, and proceeds to help them through the problem. (Vol. I p. 164)

During a science lesson I noted--*one group is considerably behind the others and [the students] are arguing a little about who is to do what. Mrs. Stone has to help them get going (Vol. I p. 232).*

In the lesson reported previously in the chapter, Mrs. Stone had taken notes during group work. She reported using restraint, trying to avoid "butting in" to help students (Vol. I p. 130).

During a writing lesson, Mrs. Stone helped groups but tried not to tell them what to do (Vol. I p. 189).

Processing

The time Mrs. Stone spent processing, or discussing what happened during a lesson, varied widely.

During the first lesson I observed, she spent five minutes processing the lesson content and two minutes processing the assigned social skill. Three and one-half weeks later she spent 20 minutes processing content, and in the two lessons I observed during the next three weeks, no processing at all was done. The next month Mrs. Stone spent 12 minutes processing content and four minutes on social skills.

During the first lesson she processed, Mrs. Stone had students complete the sentences. "We did well in our group sharing ideas by . . ." which she wrote on the board. She also asked students, "What was hard?" and "How did you like this cooperative activity?" (Vol. I pp. 81-82). After students told what was hard about the lesson, Mrs. Stone explained some of the things they had done wrong and which had caused problems.

During the last lesson I watched Mrs. Stone process, she asked students to complete two statements which she had written on the board: "We like our skeleton because . . .", and "It could be improved by . . ." (Vol. I p. 233). When students had difficulty answering these Mrs. Stone would ask the class, "Did they do a good job?" (Vol. I p. 234).

During the same lesson, Mrs. Stone displayed one group's project and when the group could not answer the processing questions, she allowed the class to respond. She asked, "What do you think of their use of glue? Yes, it's still dripping." She also commented, "But they did get quite a few of the words in the right spot" (Vol. I p. 234).

During the lesson reported earlier in this chapter, which was the other lesson Mrs. Stone processed, Mrs. Stone did not have processing questions written on the board. She asked a spokesperson from each group to explain what the group had done and then asked the class questions like: "What did this group do right?" "Did they follow directions?" and "What could this group have done differently?" (Vol. I pp. 124-125).

Critical Attributes

The critical attributes of cooperative learning addressed in this section are taken from the training model described in Chapter 4.

Shared Leadership

Mrs. Stone did not assign students to be leaders within a group. However she did assign students to roles or jobs within groups when the groups had more than two members. She assigned jobs like getting materials, gluing, group spokesman, sorter, signaler, and recorder (Vol. I pp. 80, 121, 186). When groups had problems, Mrs. Stone would remind students of their jobs and how they were to be done. During processing when Mrs. Stone asked questions about the group's work, she would say, "How did they [the group] do" . . . and seemed to hold the group responsible rather than the person assigned a specific job.

Positive Interdependence

Mrs. Stone made sure that the students in a group or pair needed the group and were motivated to work together in three ways. First, she gave groups limited amounts of materials, i.e., one set of manipulatives, one set of cut outs,

or one set of pictures. This meant students had to share the materials to accomplish the task.

The second way she built in positive interdependence was to require only one product, such as a picture or a story. Consequently, students could not just work on their own but had to work within the group structure.

The final way Mrs. Stone built in positive interdependence was to assign roles. When the group needed materials, or it was time to glue, a certain student assigned that job had to be relied on.

In one lesson, I observed some groups where students participated with the group only when it was time to do their job. Otherwise they visited or played.

Individual and Group Accountability

Mrs. Stone did not hold individuals accountable in a formal way. She did not give quizzes or call on students randomly to be sure they had mastered skills or knowledge. Mrs. Stone was concerned about and aware of how individuals performed and used this information to adjust lessons or to evaluate the lesson.

Mrs. Stone did not hold groups accountable in any formal way either, but she did evaluate group work during processing time. If a group had followed directions and completed their tasks properly, they would be praised. If groups had not followed directions or had done work poorly, shortcomings would be pointed out during processing by Mrs. Stone or other students. An example of this was related above in the section on processing.

Interpersonal and Group Skills

Interpersonal and groups skills are important to Mrs. Stone. As I observed her one morning, two second graders stopped by to see her and get hugs on their way to class. On another day, former students stopped in after school to talk with Mrs. Stone. She seemed to work to build and maintain relationships with her students.

At first Mrs. Stone did not make social skills an important part of her cooperative learning lessons. She reported in an interview that "At the beginning, I forgot to build on and stress social skills" (Vol. I p. 257). After a lesson in October, Mrs. Stone asked students to complete the sentence, "We did well in our group sharing ideas by . . ." (Vol. I p. 81). The brief discussion did not focus as much on the development of that skill as it did on properly following the directions for the assigned task. The social skill "sharing ideas" had not been introduced previously in the lesson.

In a lesson in December, Mrs. Stone listed two group goals on the board:

Our group is going to

- 1. Follow directions**
- 2. Use indoor voices (Vol. I p. 187)**

In discussing these goals, Mrs. Stone asked students what they would do if a group member uses a loud voice or does not follow directions. Two boys respond, "Tell them to be quiet," and "Tell them to follow the directions and do things in order" (Vol. I p. 183).

No time was left after the group work to discuss if students practiced the skill or how they did it.

In January, Mrs. Stone assigned a clearly focused skill, "taking turns." The skill was discussed briefly at the beginning of the lesson and again at the end of the lesson. After group work, Mrs. Stone asked students to complete the sentence, "In any group it is helpful to take turns because" (Vol. I p. 233). Several students told why they thought taking turns was helpful. There was no discussion of how groups took turns or what happened in their groups relative to taking turns.

Face-to-Face Interactions

During group work students sometimes worked on the floor or around a single desk. Mrs. Stone instructed students to sit "Indian Style in a circle" (Vol. I p. 183) when they worked on the floor. When working on the floor or at a desk, students were all at the same level (either the desk or the floor) and close enough together for face-to-face interaction. When students did not have a specific task in a group, some would move away from their group to sit alone or visit with someone in another group.

Other Aspects of Cooperative Learning

Giving careful directions. Directions were very important to Mrs. Stone. She sometimes evaluated groups based on how well they followed directions. As mentioned above, she assigned "following directions" as a group goal in one lesson. In one interview Mrs. Stone emphasized that "Clear, definite directions are important" (Vol. I p. 270). In another interview after one of the first "full length" lessons Mrs. Stone taught, she said, "Maybe I didn't take enough time to

explain the directions carefully. It's difficult for them with so many directions to follow" (Vol. I p. 129).

In subsequent lessons, Mrs. Stone listed directions and went over them before the lesson. She also emphasized following directions as an important part of the lesson.

Problems with students listening to and following directions were persistent in Mrs. Stone's class and are discussed further in the section on problems.

Imposing time constraints. Mrs. Stone did not set a specific time for completion of group work in four of the five "full length" lessons I saw her teach. In a lesson in January, she did set a time and placed a cardboard clock with it's hands set to the "stop time" of 1:20. She eventually extended the time twice to allow groups to finish. In an earlier lesson, she used a timer so that student pairs would switch roles after seven minutes.

In another lesson, Mrs. Stone used all of the available time for group work, and in yet another lesson, Mrs. Stone hurried groups along by saying, "I don't see any groups ready to report" (Vol. I p. 124). In four minutes, all the groups had finished with their work.

Answering students' questions. Students did not ask Mrs. Stone questions very frequently during most of the cooperative lessons that she taught. They were used to answering each others questions since during reading group time in the morning they were not allowed to ask the teacher questions but were allowed to ask each other questions. This may have been a factor leading students to ask fewer questions of the teacher during group work. Mrs. Stone often busied herself helping groups during group work which eliminated the need for some questions and prevented others since students would not interrupt Mrs.

Stone when she was with another group. When she was asked, Mrs. Stone usually answered students' questions. In one lesson where students were asking lots of questions about words that they could not read, she referred 12-15 questions out of 40-50 back to the groups.

Mrs. Stone reported that, in her opinion, one of the benefits of cooperative learning was getting the children to talk to each other and help each other more.

"At this age level I want them to know it's okay to check with their friends and that the teacher isn't the only one with the answers" (Vol. I p.238).

Allowing groups to do their own work. Mrs. Stone reported, "It's just frustrating to walk around and not correct people when you see them make a mistake and just letting them go ahead" (Vol. I p. 130). During the lesson she referred to I did not observe Mrs. Stone helping groups with their work. In other lessons she did help groups.

In one lesson which eventually had to be halted because it involved a task students did not understand, Mrs. Stone gave considerable help to groups before ending the lesson and giving the whole class further instruction. In another lesson, I observed Mrs. Stone working with groups who were sorting items drawn from "junk boxes":

Don't put those back Now, how many groups do you have?
(Students try to explain). No, now listen to me. . . .

(To another group) You have too many things to talk about. You have too much stuff. Put some back. The teacher combines two groups [of items]. One girl says, No, that's our big and small group. [Mrs. Stone] pushes them together then starts to sort them and gets students working to sort them [her] way (Vol. I pp. 80-81)

During another lesson, I watch Mrs. Stone try to help a group which is having difficulty. I note that she is careful to *try to help the group without telling them what to do* (Vol. I p. 139).

Cooperative Learning Problems

This coding category includes problems that occur during a cooperative learning lesson and does not include problems encountered in planning lessons. Based on the dictionary definition, a problem was considered to be a situation that was unexpected or presented perplexity, difficulty or challenge.

The problems Mrs. Stone encountered are differentiated into two groups; those that were related to students working in groups and those that were not.

Problems Related to Group Work

Deciding Who Will Do What

Mrs. Stone almost always assigned roles, or jobs to students so there was little need for the groups to make a decision. She did assign "taking turns" as a social skill for one lesson done in pairs. When it was time for one student from each pair to get the necessary materials, both members of several pairs went up to get materials rather than deciding which one should do it.

During another lesson, students could not agree on something and spent time arguing, eventually needing help from Mrs. Stone to get started (Vol. I p. 232).

Getting Into Groups

As students formed groups Mrs. Stone would assign roles to group members and places for groups to work.

During one lesson, boys from two groups threatened each other with their fists as they argued over the spots where they were supposed to be working. Two other groups also argued over work areas because one group thought the

other was too close to them. Because of the size and arrangement of the room when students were to work on the floor in groups, finding enough space was a challenge.

Limited Materials and One Product

Limiting materials to one set per group and requiring only one product are both ways of motivating students to work together since they do not have "their own" materials nor can they make "their own" product. This was sometimes perplexing to students. In the lesson described earlier, one boy tried to get materials for each member of the group (Vol. I p. 123). In another lesson done in pairs, several pairs tried to come up for their own materials, rather than sending just one member up to get materials (Vol. I p. 231).

Students Not Remembering Assigned Roles

After one of the earlier cooperative lessons she taught, Mrs. Stone observed:

Some groups forgot who had which job. . . . I think I'll make up cards with all the jobs on them and keep them so I can give them a card with their job on it. But they'll have different jobs on some lessons. Well, I can just save them each time so I'll eventually have all I need. (Vol. I pp. 129-130)

Mrs. Stone put her idea to use in future lessons.

Students Not Working Cooperatively

Sometimes a few students in some groups did not work together cooperatively. In the lesson reported earlier, one boy assigned pictures of his choosing to the other members. They were not sure about following his direction and

wanted to tell the teacher (Vol. I p. 122). Another group did all of their work individually without discussing it either before or after they finished (Vol. I p. 122). Yet another group argued about the appropriateness of the picture one boy was drawing:

One boy is drawing a "Vietnam soldier" and explains it to another boy. A girl tries to tell him that Pilgrims didn't have Vietnam and the boy replies that she needs to mind your own business because girls can't join the army anyway but boys can and girls don't know anything about it, Right, Tom? Tom doesn't look convinced but finally nods in agreement. (Vol. I pp. 122-123)

During another lesson, three of seven groups have trouble working cooperatively. In one group a boy disagrees with everyone else's ideas and insists on doing things his way. In another group, a boy completely takes over in the beginning and does not let the others help or have input. In the third group, students take turns doing the work on their own and then playing or visiting while another member works. There is no discussion of what is being done.

Problems Not Related to Group Work

Not Listening to Directions

Mrs. Stone's students frequently did not listen carefully to her directions. The fact that this was an important concern to her is substantiated by the emphasis she put on following directions by making it a focus of the groups' tasks (Vol. I p. 187) and a criteria for evaluation during processing (Vol. I p. 125).

Several instances of students being restless, not listening during directions, and of Mrs. Stone rebuking students for not paying attention are recorded in my notes (Vol. I pp. 119, 162, 187, 231). In an interview in March, Mrs. Stone identified 6 of her 21 students as (1) being labeled emotionally impaired, (2)

doing so poorly that they would be retained, or (3) living away from their parents due to extreme family circumstances, "And these are the kids that don't work well in groups" (Vol. I p. 269).

The fact that students often were not listening to directions (or not understanding them) is perhaps best confirmed by the fact that many did not follow them, as indicated in the next section.

Not Following Directions

Whether students did not listen to the directions, chose not to follow them or, as Mrs. Stone indicated in an interview, "Didn't really understand [the lesson]" (Vol. I p. 259) they at times did not follow directions.

During one lesson, Mrs. Stone told students to take out their math books and turn to page 68, "And don't tear out the page." Several students immediately tore out the page (Vol. I p. 165). During another lesson, Mrs. Stone gave directions to students to send up one member of their pair to get materials when it was time. About three minutes later, several pairs come up together to get materials (Vol. I p. 231). During another math manipulative lesson on subtraction, Mrs. Stone went to help a boy with a task and found that even after nearly 30 minutes of directions, demonstrations, and work, he was doing addition rather than subtraction (Vol. I p. 165).

In another lesson, Mrs. Stone gave directions which had included the fact that students had to discuss what they would draw before they started drawing. As paper was passed out, several students began drawing immediately (Vol. I p. 121). During the same lesson, reported earlier in the chapter, one group of students did not follow the instruction that each group member was to draw a

different picture though they were reminded as paper was distributed. Several students did not draw pictures appropriate to the directions (Vol. I pp. 126, 129). Still other students did not follow the roles assigned to the members in their groups (Vol. I p. 123).

There are examples of students not following directions in two other lessons as well (Vol. I pp. 80, 82, 186, 190, 235, 236).

Other Problems

Two other problems occurred frequently during Mrs. Stone's lessons. They were alluded to earlier and are related in some ways. They are noted because of their singular effect on Mrs. Stone's efforts to teach cooperative learning.

The first is interruptions from outside the classroom. In the lesson reported earlier in the chapter, the PTA fund-raising sale caused an interruption which in Mrs. Stone's eyes was a major interruption. On another occasion, a student from another room interrupted the lesson to return a playground ball (Vol. I p. 230). The majority of interruptions, though, were those related to Physical Education class, recess, or the end of the school day. These were not unplanned nor unexpected interruptions, but they did directly affect the lesson in three of the five lessons I observed.

Related to the problem above is the second problem--time. Mrs. Stone told me that scheduling an uninterrupted time of 45 minutes or more for each lesson was a problem (Vol. I p. 261). The number of "interruptions" caused by scheduled events supports this assertion. Three lessons had to be cut short because time had run out (Vol. I pp. 190, 232-233).

The Implementation Process

In February, I talked with Mrs. Stone about what the process of implementation had been like for her.

I think right off the bat . . . I tackled too big of a hunk of cooperative learning. I tried to have too many in a group. I think things go smoother--better--with two or three children in a group. It's less work for the teacher, too.

At the beginning I forgot to build in and stress social skills. I started to work that in after the [third training] class in the fall. (Vol. I p. 257)

[At first] I wasn't completely comfortable with [cooperative learning]. The more you use it you begin to know the techniques--try things out and use what's best. It gets easier.

You start looking for things in planning to see what can work into a cooperative group. You kind of get the feel of what subject matter lends itself to use in cooperative situations. (Vol. I p. 258)

In an earlier interview, I had asked Mrs. Stone how she had decided to do a certain lesson cooperatively. "I guess it's just the timing of the lesson . . . I don't really know how I pick them. I guess when I saw [the lesson], I thought it would make a good cooperative learning situation" (Vol. I p. 238).

As we continued, Mrs. Stone became more definite about how she prepared for the lessons she planned.

I refer to [the books and notes from the training] occasionally. I use the lesson plans sheets each time. I'm a person that needs to see it before me. I use that lesson planning sheet as a guide.

When I first started planning I would list techniques and step by step [plans]. Now I can just use a single word or phrase to let me know what is coming. I still write a plan though. You [teach a cooperative lesson] a few times and you get the idea of what's going to happen. (Vol I pp. 262-263)

Mrs. Stone had told me previously that the hardest part of cooperative learning was planning. "I think actually doing [cooperative learning] is easy. I think the work comes in the preparation beforehand. [The lesson] is the fun

part. It takes more forethought to prepare a cooperative learning lesson" (Vol. I p. 238).

Mrs. Stone then returned to the issue of choosing lessons to be taught cooperatively.

The biggest thing is knowing how to work it into the curriculum. You need to know where you are going with the curriculum and what you want to accomplish. Then you get the idea for what can be done cooperatively. After that it's easy.

It's just like cooking. I've cooked for many years but I still like to look at a recipe. That's why I follow the lesson planning guide.

You feel like you are following the cooperative learning recipe?
Exactly! (Vol. I p. 263)

When I asked Mrs. Stone if she had any strategy when she started implementing cooperative learning, the question puzzled her. I gave her some examples; a teacher might decide to work only in one subject area, or might decide to work with only one kind of cooperative group structure.

"I had no strategy just 'if you think it will work, do it'. I've tried it in different subject areas, I've done it in math, I just look for ways to fit it in" (Vol. I p. 260).

For Mrs. Stone, an important aspect of the implementation of cooperative learning was grouping students. She had tried pairs, threes, and groups of four or more in the various lessons she had taught. She told me during our interview, "I shake the groups up a lot. It depends on what you are doing. Sometimes in math you want lower students with higher students. In reading partners, you want students of about the same level" (Vol. I p. 262). She told me that learning how different groups work together had been an important part of implementation (Vol. I p. 262).

In another interview Mrs. Stone had shared frustrations about "the kids who don't work well in groups." These were students with emotional, learning, or family problems. "If you pair them with high ability students those students take over and do all of the work. If you pair them with other low ability students it's rough and things don't go well" (Vol. I p. 269).

During our interview I asked Mrs. Stone what hurdles, discouragements, obstacles, challenges, or problems she faced during the implementation process.

It would be nice if someone would sit down and say cooperative learning is thus and so and here's how you do it. I'd like to see some more ideas on how to use cooperative groups.

The time element is important and you have a tendency to broaden out the lesson and the kids get tired after a certain time. They can only stand it for so long.

. . . Scheduling too, is a consideration. You have to set aside a good 45 minutes on a day with no interruptions, which isn't easy. (Vol. I pp. 260, 261)

Mrs. Stone continued to list obstacles she encountered during the implementation process, almost as if she were making a shopping list.

I guess it would be nice to talk it over with other people, but again time is an issue. It would be nice to have more feedback.

It's hard to orient a new student to a new system (I've gained three new ones), especially when you have finally realized where your children fit. (Vol. I p. 161)

As we neared the end of our interview, I asked Mrs. Stone what she remembered specifically from her cooperative learning training which had started more than five months ago. "All I can think of now is . . . you get out of something what you put into it" (Vol. I p. 262).

After comparing cooperative learning planning to cooking (quoted previously), Mrs. Stone paused and then summarized her use of cooperative learning: "I think I can see the pattern now. Cooperative learning will have a place in my

plans every week, or at least every other week. It's used every day, but not with the itemized recipe" (Vol. I p. 263).

Her reference to using cooperative learning on both a semi-weekly and daily basis is explained in the next section which shows how Mrs. Stone views cooperative learning, dividing it into two types.

Mrs. Stone's Thinking About Cooperative Learning

Mrs. Stone differentiated two types of cooperative learning. What she called "biggies," essentially five-step or three-step lessons take a full 45 minutes or longer. The other kinds of cooperative learning were things like "partner reading, drill in telling time with a partner, math facts, sight words, work[ing] cooperatively with a worksheet" (Vol. I p. 264).

Mrs. Stone told me she taught "one big one--well one five-step--[a week] and several partners or turn to your neighbors daily" (Vol. I p. 191).

Mrs. Stone differentiated cooperative learning from other group work. "I do group work every other day or so in reading. It's not a cooperative learning situation because [the] attribute of limited materials [isn't] there. It's group work and not cooperative learning because there's no social skill" (Vol. I p. 73).

The social skills aspect of cooperative learning was important to Mrs. Stone. She told me that the fact that "[the kids] need the social skills" (Vol. I p. 191) was what kept her using cooperative learning with her class.

Mrs. Stone saw the social skills as a necessary and needed aspect of cooperative learning and told me once that "it's hard for [the students] to listen to one another. I think we're learning to go back and forth and work together" (Vol. I p. 73). In the same interview, Mrs. Stone told me that for the kids

working together "is no biggie, they are used to it from kindergarten [where] they do so much that way" (Vol. I p. 77). She said that with the introduction of working together as part of cooperative learning "the atmosphere of a helping family is not [emphasis added] different this year" (Vol. I p. 77). The implication being that it was her practice to have students help each other in past years also.

My observations bore this out. When I observed reading groups one day, I saw students often seeking help from one another. Another time I saw several students working together informally on a math worksheet they had been assigned after completing a cooperative learning lesson. They were pointing out each other's errors, sharing crayons, and discussing the various colors they were using to color their completed worksheet.

Mrs. Stone seemed to view assigned roles or jobs as an integral part of cooperative learning. She always assigned jobs as a part of a cooperative lesson, and students had roles or jobs even when working in pairs. As reported earlier, Mrs. Stone had developed an idea of distributing cards with jobs on them so students would remember the job they had been assigned. She told me once that "the hardest part for kids to know is to stick to their own job" (Vol. I pp. 76-77).

Mrs. Stone saw a regular but limited place for cooperative learning in her classroom. As reported earlier, she planned to do a five-step cooperative lesson each week or two. When I asked her in October if she would like to be doing cooperative learning more often she said, "No, for me I am doing a good amount . . . I think that where the students are--their abilities--there's a limited amount

they can do since I am concentrating now on reading and math and I'm happy with that" (Vol. I p. 73).

When I asked a similar question in late February, she said, "I'm satisfied [with how much cooperative learning I'm doing]. At this point I can't see fitting in any more with what I'm doing. There's just too much other stuff that has to be done" (Vol. I pp. 263-264).

Summary

Using material from my first interview with Mrs. Stone, I presented a snapshot of her both as a woman and a teacher. I took the reader into Mrs. Stone's classroom by presenting a condensed version of my fieldnotes from an observation and accompanying interview.

Next I summarized data from all of my interviews and observations using as a framework the four major categories used to code the data.

1. The training model was used to organize material in the first section which dealt with the configuration of the model.

2. The second section looked at two main types of problems Mrs. Stone faced during cooperative learning lessons.

3. In the third section, a semi-structured interview conducted during the last two weeks of gathering data organizes material relating to the implementation process.

4. The fourth section reports data that reveal most directly Mrs. Stone's thoughts about, or views on cooperative learning.

The next chapter is a cross-case analysis of the three cases presented in this and the preceding two chapters. In the cross-case analysis, selected aspects of the three case studies are summarized briefly. Conclusions and recommendations are also made based on the findings of the case studies.

CHAPTER VIII

CROSS CASE ANALYSIS

Introduction and Overview

This study was prompted by my interest in cooperative learning as an instructional method. Of particular interest to me was what happens as teachers seek to implement cooperative learning in their classrooms, since I found little in the literature relative to the implementation of cooperative learning. I was also interested in spending a good deal of time watching teachers and talking with them as they were trained and as they taught students in their classrooms.

My interest in spending time with teachers and the paucity of studies relative to cooperative learning implementation suggested the selection of a qualitative methodology for the study. I decided to do three descriptive case studies built around two questions of interest that became clear soon after the study began: (1) What, from a teacher's point of view, happens as cooperative learning is implemented in the classroom? and (2) What happens to a model of cooperative learning as it is implemented in the classroom?

Beginning in early August, in a small Midwestern town, I attended cooperative learning training as a participant observer along with 35 educators from several rural and residential school districts. Using a short questionnaire, I identified five teacher groups among the 35 teachers present, based on the situations

in which the teachers would be implementing cooperative learning. Based on their intention to implement cooperative learning during the coming school year, I selected for observation and interview 11 teachers from four of the teacher groups.

During the first eight weeks of the school year, I observed in the classrooms of these 11 teachers as well as the classrooms of some of their colleagues. I talked to principals and listened in teachers' rooms and hallways. I spent 30 to 60 minutes administering an adapted Growth States Interview (Joyce & McKibben, 1982) to each of the 11 teachers. Based on my observations and interviews, I selected for further study the three early elementary teachers whose case studies appear in the previous chapters.

The case studies are based on data gathered through participant observation and ethnographic interviewing over the middle two quarters of the school year. During data collection, a limited analysis of data established coding categories and directed future data collection. The next stage of data analysis was done as the case studies were written. I tried to make the case studies descriptive and to limit the amount of inferential analysis I did. For each case I described a selected cooperative lesson and post-lesson interview which required little analysis other than deciding what to report. Inferential analysis became more important for the remainder of each case study which contains a summary of data according to the four main categories used to code the data.

In this final chapter, I use an analysis across the three cases to directly address the two questions of interest to the study. First, I briefly relate findings from the literature (Chapter 2) relative to the question of interest. Then, using selected coding subcategories as an organizing framework, I summarize and

compare the individual cases, and finally infer the conclusions and recommendations that I think are warranted. Recommendations are of three types; those that address cooperative learning training, those that address implementation, and those that suggest future research.

What Happens to the Cooperative Learning Model as It Is Implemented?

Comparison of Research Findings

St. Maurice (1990) indicates that teacher views of cooperative learning may differ fundamentally from those of their trainers in important ways. I have described how teachers view cooperative learning in ways probably related to their own views of teaching and learning processes, and how they discard some aspects of cooperative learning (i.e., rewards) based on their personal values.

Like St. Maurice, Kalkowski (1989) reported that teacher's views on cooperative learning differed from those of their trainers. However, she looks at the practical rather than theoretical aspect of cooperative learning and cites the assigning of roles as one difference. Interestingly, assigning of roles was an area about which two teachers I studied held contradictory views.

When he observed two elementary middle-grade classrooms, Logan (1986) found that teachers and students emphasized a narrow range of academic skills and distinguished between "smart" and "slow" students. Perhaps because of the age difference between the different classes we studied, I did not recognize a "narrow emphasis" on reading and writing skills by teachers, nor a distinction by students between "smart" and "slow" students. The teachers I studied, however, did make marked distinctions between higher and lower academic ability students for the purpose of grouping. One teacher reported that

an advantage of cooperative learning for "slower" students was the chance to make contributions to the group. This is unlike Logan's report that "slower" students were not given the same opportunities to participate as "smarter" students.

Jefferies (1987) found that teachers modified the method they had been taught to fit their situation. I also found teachers modifying cooperative learning as they used it in their classrooms.

Interpersonal and Group Social Skills

Summary

All three teachers thought social skills that helped students work together were important. Their importance was a big reason for their interest in cooperative learning. Interestingly, the three teachers differed in their approach to social skills in cooperative learning lessons. As a teacher, Mrs. Stone worked hard to build caring, interpersonal relationships with her students and succeeded. She assigned social skills during some of the lessons she taught, but in only one instance was the assigned skill clearly an interpersonal skill--sharing. In other instances, the skills were following directions, staying on task, and checking others' work. Mrs. Stone took very little time to discuss social skills after cooperative lessons.

On the other hand, Mrs. Fox, who never assigned a social skill as part of a five-step cooperative learning lesson, always allowed time for students to talk about how they had shared, made decisions, and worked together--important interpersonal skills. Her directions always made it clear that taking turns and working together were important parts of the lesson.

Mrs. Waite was careful to assign and process, at least briefly, a social skill during cooperative learning lessons, even very short ones. Much of her "discussion" of social skills involved pointing out which groups did well and which did poorly relative to the social skill.

All three teachers reported that one or more of their students improved dramatically in their ability to work cooperatively as part of a group. This indicates that they perceived some improvement in students' social skills. My observations confirmed improvement in some students which may or may not have been short term in nature. All of the teachers reported that students who joined their classes after they had begun using cooperative learning at first had a noticeably hard time working cooperatively.

Conclusions

Cooperative learning lessons are simpler if social skills are not assigned and processed.

Teachers may have trouble knowing how to identify and describe social skills in ways that are appropriate for the age levels they teach.

Students can show improvement in the use of social skills during cooperative groups early in the implementation process.

Social skills can be an important aspect of a cooperative learning lesson even if a social skill is not assigned as part of a five-step lesson in the manner demonstrated during the training.

Recommendations

Teachers should have training in identifying and describing social skills. Lists of a few social skills and what they "look like" and "sound like" should be

made available during training. The skills could be organized into age or grade-level appropriate lists, i.e., early, middle, and upper elementary.

For teachers learning to use cooperative groups, a four-step format should be taught as a less complicated and perhaps more effective way of introducing teachers and their classes to social skills instruction. This four-step format is described in the next section.

Lesson Format

Summary

All three teachers followed the general pattern of a three-step or five-step cooperative learning lesson as presented in the training. How much time was spent on each part of the lesson varied as did the way the three teachers handled each aspect of the lesson.

Conclusions

The teachers I studied all liked the simple three- or five-step format in which cooperative learning was presented to them, and it helped them to plan and structure lessons.

A format that would allow teachers to teach social skills and yet not take as much time as the five-step lesson format would be a benefit for teachers.

Recommendations

The four-step lesson outlined below can help teachers to shorten the time needed for cooperative lesson presentations when they first begin implementing while at the same time raising the awareness of students and teachers about group dynamics which may help smooth the implementation process. The four-

step model leaves out the assignment and monitoring of a specific social skill but includes a step for processing of standard "group dynamic" questions applicable to most cooperative learning lessons.

The Four- Step Model

1. Subject matter directions.
2. Teacher monitors during group work.
3. Process subject matter.
4. Process group dynamics.
 - a. How did your group decide who would do what?
 - b. What problems did you have working together as a group?
 - c. In what ways did you work well as a group?
 - d. How can your group work together better next time?

A four-step lesson allows teachers to begin working with students on social skills early in the implementation process which may motivate them to continue use of cooperative learning. Finally, a four-step lesson can be diagnostic and prescriptive as teachers recognize group-dynamic problems. When teachers are ready to use a five-step format, they will have a basis for selecting the social skills they will teach.

Directions

Summary

Although short but clear directions were modeled during training, directions that I watched teachers give were almost always lengthy, sometimes unclear, and sometimes both.

Mrs. Fox took 13 or 14 minutes for directions in each of the three cooperative math lessons I saw her teach. However, the way she held the attention of her students during this time was remarkable. Her directions were very specific and she demonstrated what children were to do and reviewed the directions at least once even though her class had done similar activities on an individual basis within a week previous to the cooperative lesson. The structure and length of directions in Mrs. Fox's class were similar each time I observed her. Mrs. Waite, on the other hand, varied widely the amount of time she spent on directions, from 1 to 18 minutes. Sometimes she wrote directions on the board, sometimes on a paper passed out to each group, and sometimes she gave only oral directions.

Mrs. Stone most often wrote directions on the board either ahead of time or as she gave them. She varied the amount of time she spent on directions, taking from 5 to 12 minutes. During the first two lessons I observed, Mrs. Stone did not repeat directions for the class. While she was giving directions, several students did not listen to nor watch her. When group work started it was always evident that some students had not understood directions.

In Mrs. Waite's and Mrs. Stone's class, directions seemed to me to take longer than was necessary.

Conclusions

The teacher who best held the attention of her class as she explained directions had a distinct way of giving directions which modified the approach modeled during the training. She was also adept at regaining students' attention when necessary.

As seen in the case studies, giving directions to early elementary students, especially first graders, is a special challenge because they have difficulty reading written directions.

The case studies also demonstrated that a teacher's skill in giving directions can affect the success of a cooperative learning lesson.

The teachers studied had a tendency to extend the time used to explain directions which is one reason they become pressed for time later in the lesson.

Recommendations

Some time should be spent during training to help kindergarten and first-grade teachers adapt procedures for giving directions. Having students help spell and read back directions is an approach which was successful for Mrs. Fox.

Training should emphasize keeping directions short and repeating them after group work begins. Though giving clear directions and holding students' attention are not teacher skills peculiar to the use of cooperative learning they should be emphasized and discussed since they have an impact on the success of cooperative learning. One way for teachers to keep directions short would be to write them out ahead of time.

An adaptation developed by Ms. Waite is helpful for those who can read. Brief directions are passed out to groups on clipboards. A quick review is all that is necessary then before group work begins.

Helping Groups and Answering Questions

Summary

Even though it was discouraged during the training, all of the teachers studied spent time helping groups, sometimes in very directive ways. Mrs. Fox

made the most consistent effort to allow groups to work on their own and sometimes let groups go ahead on their own when she felt like helping them.

Mrs. Stone sometimes was careful to help groups without being directive, letting them work problems out on their own. At other times she told groups what to do if she saw problems as she observed groups working.

Mrs. Waite sometimes observed groups without saying anything but often got involved in helping them by telling them what to do.

Conclusions

The case studies demonstrate that not assisting groups of early elementary students as they first begin using cooperative learning is difficult for teachers. They may tend to be more controlling or directive of groups than necessary.

Recommendations

Trainers should forecast that students will need more help as they first begin working in cooperative groups. Realizing this, teachers can then set a goal of reducing the assistance they give to groups over a period of time.

Ms. Carter pointed out to me in correspondence regarding the training model that "teachers should interact not intervene" during group work time. (The Johnsons list "intervention" as a teacher responsibility during student group work [Johnson D., Johnson R., & Holubec, 1991].) Teachers need to clearly understand the difference between interaction and intervention and have an easy way to differentiate between them.

One way of differentiating is for teachers to understand interaction as asking questions of the group so that the teacher (and students) can better understand what the group is doing and thinking, and to understand intervention

as telling groups what to do or giving them help with something they can or should do themselves. Before intervening with a group teachers could ask themselves: "Will their activity be a waste of time and a negative experience for this group if I don't intervene?"

Processing

Summary

Teachers varied markedly in the way they processed the cooperative lessons they taught and in the time they allowed for processing. Mrs. Fox allowed 20 minutes, 15 minutes, and 6 minutes for processing during the three lessons I saw her teach. She did little talking except to ask questions that elicited specifics when children spoke in generalities. Mrs. Fox almost never criticized the work a group had done when the class was processing the lesson.

Mrs. Waite allowed only 4 to 8 minutes for processing during three of the lessons I saw her teach and 12 to 14 for the other three lessons. More time was used to process the content of the lesson and less for the social skill involved. Mrs. Waite did ask students questions during processing but did most of the talking herself. During the last two observations, Mrs. Waite chose students at random to be the spokespersons for their groups. She would then ask them processing questions which sometimes required them to make negative judgments about their groupmates and how the group had worked. The children did not seem upset by the mini-lectures on improvement that Mrs. Waite gave them during processing nor the criticisms and suggestions about the way their group worked together.

Mrs. Stone skipped processing altogether for two of the five lessons I saw her teach. During the other lessons, she spent 7 minutes, 16 minutes and 20 minutes. Mrs. Stone spent only a little time talking about the social skill(s) involved, spending most of the time talking about the content of the lesson. Like Mrs. Waite, Mrs. Stone did more talking than the students during processing. She used processing time to point out where groups made mistakes so they could improve. She sometimes held a group's work up for critique by the class. This did not seem to bother students as much as it did me. Like Mrs. Waite, Mrs. Stone used group spokespersons during one lesson to stand in front of the class and answer her processing questions for their group.

Conclusions

Processing is the most difficult step of cooperative learning for teachers to understand, perhaps because they process so very little else of what they teach. Teachers may have difficulty with processing even though it is included as part of demonstrations during training and materials for teachers to use during implementation are provided by the trainer.

Because processing is the last step in a cooperative learning lesson and teachers are often pressed for time, it is easy for teachers to skip processing.

Recommendations

Since processing is an important part of learning and applying social skills and is also important in helping students increase gains in academic skills and knowledge, it is important that teachers be able to process cooperative learning lessons well.

In training situations structured like Ms. Carter's, processing could be

"assigned" on the third day of training for teachers to work on as they teach cooperative lessons. It could then be discussed on the fourth day of training a few weeks later. This may increase teachers' awareness of processing during the training process.

More research as to how teachers think about and structure processing is needed. The implementation experience of teachers who successfully implement the processing aspect of cooperative learning should be described over a one-to-two-year period.

It would be helpful to know if teachers who implement cooperative learning over a period of several years have an increasing or decreasing emphasis on processing. This would help those interested in cooperative learning to know whether or not processing is most effective as students learn to work cooperatively or more powerful as students become used to processing.

Positive Interdependence and Individual Accountability

Summary

All three teachers built positive interdependence into their groups by limiting the materials available to one set per group and by requiring one product from each group.

Mrs. Fox also rewarded groups who completed tasks as assigned by giving them bonus points. Mrs. Waite and Mrs. Stone both disliked the idea of giving material rewards of any kind and they did not.

Mrs. Stone also built in positive interdependence by assigning jobs to students so that students needed each other to complete the group task.

None of the teachers built in individual accountability such that students were quizzed or held accountable for content or skills learned in their group. On one occasion Mrs. Waite did give students a timed drill after some group practice but did not set minimum standards nor give rewards based on that criteria.

All of the teachers did evaluate individual students informally based on their observations of groups as they worked. This evaluation often focused on the students who were having difficulty working cooperatively in groups.

Conclusions

In the early elementary grades, students can work cooperatively in groups without a strong component of individual accountability built in.

Positive interdependence was most often built into lessons with "limited materials," "one product," and sometimes assigned roles.

Even though training emphasizes the use of rewards based on praise (certificates, etc.), some teachers may still be reluctant to use rewards in the classroom, believing students should be self-motivated to do what is right. Since group contingencies are powerful motivators and an important part of cooperative learning, this presents a challenge to trainers.

The teachers in this study who were opposed to the use of rewards were also likely to be critical of a group's work in front of the class. Their purpose seemed to be to motivate students to follow directions better in the future.

Recommendations

Trainers should help teachers evaluate their feelings about the use of rewards to motivate students. Teachers should clearly understand the importance and power of group-based rewards in making cooperative learning work.

Individual accountability should be emphasized as a necessary aspect of group tasks, particularly among those more academic in nature. In training and follow-up teachers should be assisted in developing simple ways to build individual accountability into cooperative learning lessons.

Face-to-Face Interaction

Summary

All three teachers ensured face-to-face interaction during group work. In all three classes, students commonly worked on the floor during group work time. All three teachers instructed students to sit cross-legged on the floor. Mrs. Waite told students to sit "knee to knee" in their groups.

Conclusions

The practical emphasis placed on rather technical, non-theoretical aspects of cooperative learning during training by Ms. Carter were successful. Demonstrations and discussion of practical issues like these in cooperative learning training are helpful for early elementary teachers.

Recommendation

Cooperative learning training should include practical demonstrations and discussion of technical aspects of cooperative learning such as student seating and forming of groups.

Problems Related to Group Work

Summary

Deciding Who Will Do What

In all of the teachers' classrooms, I recorded some instances of disagreement among students in groups about who should do a certain task. The most common was going after necessary materials. At other times there was disagreement about who should do something related to the group task.

Mrs. Stone usually assigned roles or jobs to students so that there was little question about who should do what for most lessons.

Limited Materials and One Product

I did not record instances of this problem in Mrs. Waite's second-grade class but did so in both Mrs. Stone's and Mrs. Fox's first-grade classes. Students were at first perplexed by the fact that materials were given out one set per group rather than one set per individual as well as by the fact that individual students did not pass in their own assignments but shared ownership with the group.

The problem students had with limited materials and one product may indicate the pervasiveness of the individualistic nature of the structure usually used in their classrooms.

Students Not Working Cooperatively

This problem was clearly in evidence in Mrs. Stone's room. Both Mrs. Fox and Mrs. Waite also had some students that did not work as well as other students in a group structure. The problem of students not working well in groups centered in large part around individual students who were overly

aggressive or would not compromise. During follow-up training days, many of the questions other teachers had for the trainer related to individual problem students. The problems Mrs. Fox, Mrs. Waite, and especially Mrs. Stone faced with individual students were not isolated incidents. It is encouraging to note that all three teachers saw progress with some students who at first had difficulty working as part of a group.

Conclusions

Early elementary students who are learning to work in groups can have problems deciding who will do what job. However, even early in the fall, first-grade students are able to develop and discuss strategies for managing the problem. Early elementary students also have a problem when materials and products are limited to one set per group. For the first-grade students in particular, working cooperatively seemed a difficult concept for some to grasp.

How to deal with individual students who do not work cooperatively is an important concern for teachers.

Recommendations

Trainers should forecast, as was done during Ms. Carter's training, that students as well as teachers will have to get used to working in cooperative groups. Teachers should be prepared for this to take several lessons, perhaps 10 or 15.

Trainers can also forecast for teachers that students will have some difficulty deciding who will do what in a cooperative group. Although this can be solved by assigning jobs, it is valuable for students to develop strategies for sharing responsibilities. By assuring that there are enough special jobs or roles,

teachers can build students' confidence that all will have a chance for a special job or role.

Teachers should be made aware that at first some students may be confused by limited materials and one product and that the idea of sharing materials and shared ownership should be discussed with students and emphasized in directions.

By including "Processing Group Dynamics" as part of the four-step lesson suggested above, problems related to group work can be handled effectively.

Trainers should forecast, as Ms. Carter did, that teachers usually have one or a few students who have difficulty working cooperatively. This should not prevent the use of cooperative learning. Teachers can and do find strategies (too numerous to mention here) to deal with such students. The teachers studied found great satisfaction in helping these students learn to work together cooperatively.

Problems Not Related to Group Work

Summary

Problems With Directions

The students in the three classrooms studied varied widely in how well they listened to and followed directions. Mrs. Stone had numerous problems with students not listening to or following directions. This affected many of the cooperative lessons she taught.

Mrs. Fox had some problems with students listening to and following directions but she was able to address the problems before they affected the lessons she taught.

I did not observe Mrs. Waite having problems with students following directions, although students frequently were inattentive during the time she gave directions.

Time Problems

The time needed to complete a cooperative lesson was a concern for all three teachers, but the ways they handled the problem varied. The impact that time issues had on cooperative lessons also varied from classroom to classroom.

All of the teachers at one time or another adapted their plans during lessons to require less of students or to allow more time for assigned tasks.

Mrs. Fox was the least hurried of the teachers, always allowing time for processing. She approached the time problem by allowing plenty of time (60 to 80 minutes) for a cooperative learning lesson.

Mrs. Waite allowed time for processing but sometimes had to cut this step short because of time constraints. She adapted the way she processed so that it "went faster"; she also held students closely to the time she allowed them for group work.

Mrs. Stone skipped the processing part of two lessons I observed when she ran short of time. She allowed only four minutes in one other lesson. Another lesson was completed after students returned from physical education class when there was not enough time to finish in the time originally allotted.

Conclusions

Problems listening to and following directions are certainly not peculiar to cooperative learning lessons, but they can have an impact on a cooperative learning lesson. In cooperative learning, as in any type of lesson, the teacher's

ability to command attention and give directions has an effect on the quality of the lesson. Students' attention to the task, their inclination to work efficiently, the time available for the lesson, the effectiveness of the activity can all be affected by the teacher's ability to give directions.

Teachers will adapt cooperative learning models because the time needed to complete a lesson cooperatively can be longer than a teacher anticipates. Often this adaptation cuts the time allotted for processing. Not having time to complete lessons frustrates teachers.

Recommendations

Trainers should model, as Ms. Carter did, short concise directions for teachers. Trainers should forecast that directions may take longer at first.

Teachers can plan similar cooperative activities until students are familiar with the structure and many directions can be shortened or eliminated.

Teachers should allow extra time for cooperative activities when first starting to use cooperative learning. This can be done by assigning simple activities which are familiar to students so there will be more time for group directions and processing. It can also be done by allowing for a full hour (or more) to accomplish a substantial academic task.

The sections above summarized findings, drew conclusions, and made recommendations relative to the first of two questions of interest in this study. The next section addresses the second question of interest in a similar fashion.

**What, From a Teacher's Point of View, Happens
As Cooperative Learning Is Implemented?**

Comparison of Research Findings

Jefferies (1987) found that teachers saw the use of cooperative learning methods as taking time away from the existing curriculum and felt some loyalty to the existing curriculum. These findings are similar to my own in which I describe teachers who delayed and/or limited use of cooperative learning if they felt it interfered with other aspects of their teaching.

St. Maurice (1990) found that teachers implementing cooperative learning met with resistance from students and parents as they implemented cooperative learning.

The teachers that I studied were encouraged by their students and got very little feedback from parents. The feedback one teacher got from parents was positive. St. Maurice's study was not with early elementary teachers. The fact that older students were involved may partially explain the difference in findings. The teachers he studied were part of a project for mainstreaming learning disabled students. This may also have been a factor leading to resistance from students and parents.

St. Maurice also found that teachers were essentially alone during the implementation process without support from principals or other teachers. I found the same.

Logan (1986) found that fourth- and fifth-grade teachers faced problems during implementation related to how students worked in groups and particularly the difficulty some students had working cooperatively. I identify a set of nearly identical problems with the first- and second-grade teachers I studied.

Logan found that teachers implement cooperative learning in a context of their current beliefs and practices. I describe similar findings, though they are not as clear cut as Logan's.

Logan suggests that implementation of cooperative learning does not show long-term benefits at first. I found that implementation and change take place slowly but I also found that teachers perceived some benefits for some students after two or three months of implementation.

Kalkowski found that teachers cited planning time as a problem during implementation. So did I.

Kalkowski differentiated high-level users of cooperative learning, describing their view of cooperative learning as similar to a philosophy of teaching. I indicate that a teacher's view of teaching and motivation for learning to use cooperative learning affects implementation and suggest further exploration in those areas.

Davis (1984) recommended, based on his research experience, that cooperative learning be implemented vigorously over a long period of time. He suggests active administrative support as well as in classroom consultation and demonstrations by trainers. This is similar to my recommendation for continued follow-up training beyond the first three months of implementation.

The Implementation Process

Summary

Motivation for Using Cooperative Learning

The teachers I studied had a range of reasons for wanting to learn to use cooperative learning methods in their classrooms.

Mrs. Fox had a philosophical and deep-seated motivation for using cooperative learning but she needed proof it would meet her requirements. Mrs. Fox wanted to learn cooperative learning because she thought it would complement what she did and wanted to do in her classroom. However, she was reluctant to take time away from the other instructional activities to which she was already committed, and so she was slow in starting to use cooperative learning.

Ms. Waite had a specific reason for using cooperative learning, which was improving social skills. She started out using cooperative learning early and frequently to test how successful it was in meeting that specific goal.

Mrs. Stone seemed to be motivated by reasons outside of herself and an assumption that cooperative learning was a good thing to do. She never questioned that she should use cooperative learning. She started out using cooperative learning early and frequently but became somewhat less enthusiastic about cooperative learning and took a more conservative approach to implementation after starting to use it.

Beginning Implementation

At first Mrs. Fox struggled with the question of whether or not cooperative learning was better than what she was already doing. She also struggled with the fact that students working in groups would not have their own papers to pass in.

Mrs. Waite, on the other hand, did not question the usefulness of cooperative learning. She saw it as a way that she could teach social skills along with academics and wondered if social skills might be more important than academics.

Mrs. Stone seemed to have no question about whether or not to use cooperative learning; she just started right in. She said later that she may have tried to tackle too much at first.

All of the teachers reported some difficulty as they began to use cooperative learning. Mrs. Stone said she felt uncomfortable teaching cooperative learning at first since it was new to her. Both Mrs. Fox and Mrs. Waite said that just starting out using cooperative learning was difficult.

Strategies for Implementation

The strategies for implementation varied among the three teachers. Mrs. Fox had a long-range picture of how she would implement cooperative learning. Mrs. Waite said she did not have a strategy but described a short-range plan which seemed to develop as she went along. Mrs. Stone did not claim to have a strategy and was somewhat puzzled by the question, though she recognized a pattern of use as she thought about it.

Groups and Grouping

Learning how to best group students was an important part of the implementation process for all three teachers. Mrs. Fox thought the turning point in the implementation process when everything "clicked" for her came after she rearranged her groups. After working through grouping issues herself and with students, she changed some groups and everything about cooperative learning began to come easier and more naturally for her.

Mrs. Waite found that the makeup of the group was very important. She liked to keep the same groups of students together but switched a few students to be sure each group had a student who was "strong" academically.

Mrs. Stone changed her groups frequently, adjusting their size and makeup. She experimented and tried different groupings in different subject areas. At first she had tried groups that were too large and had subsequently found that smaller groups of two or three worked best.

Planning a Cooperative Learning Lesson

All three teachers reported using planning materials from the training workshop but were depending on them less and less as they went along. There were similarities and differences among the teachers as to their use of the materials and how they chose what to teach as a cooperative lesson.

Mrs. Fox reported that about five months into the school year, after doing 15 or 20 cooperative lessons, she could come up with an idea for a cooperative learning lesson and plan it in her head as she drove home. When she first began using cooperative learning, she had sat down with the materials from the training as well as other cooperative learning materials and used them, along with the lesson planning guide, to plan lessons.

Mrs. Fox did not look for new material to teach cooperatively. She used cooperative learning to teach things she had already planned to teach. She did not introduce material that was new to students but used cooperative learning to practice or review math activities with which students were already familiar.

Mrs. Waite said that especially at first she found careful planning to be necessary. After about five months and 30 or so cooperative lessons she did most of her planning "in her head". She still carefully thought through lessons ahead of time, developing specifics on how to introduce the lesson and where groups would meet, etc.

Mrs. Waite did not introduce new material with cooperative lessons. She often used cooperative lessons in science for review. During one period in the late fall, Mrs. Stone used cooperative learning almost every day in science for two weeks, which meant that she adapted all of the content to a cooperative learning format during that time. Before that she reported using cooperative learning only when she saw a lesson or material that would lend itself well to cooperative learning.

Mrs. Stone used the lesson planning sheets each time she planned cooperative learning lessons and listed specific techniques step by step when she first planned lessons. After five months of cooperative learning use involving 20 lessons or so, she used only single-word phrases in her planning but still used the planning guide.

Like the other teachers, Mrs. Stone emphasized using cooperative learning with the existing curriculum. For her, deciding what could be done cooperatively and getting ideas for how to structure it cooperatively were the hard parts. Usually Mrs. Stone used cooperative learning when a lesson came up that she thought lent itself to a cooperative strategy.

Problems and Frustrations During Implementation

All three teachers listed time for planning as a major problem during implementation. For Mrs. Waite this was partly ameliorated by the fact that she had a student teacher during the first part of the year. For Mrs. Stone, planning time during the school day to spend an uninterrupted 45 minutes or more on cooperative learning was difficult.

Teachers sometimes felt they did not understand necessary aspects of cooperative learning. Mrs. Fox was frustrated with the processing part of a cooperative learning lesson. Even though she had been using cooperative learning for several months, Mrs. Stone expressed the desire to have someone tell her exactly what cooperative learning was and how to use it in first grade.

Conclusions

Time for planning and preparing cooperative lessons is perceived as a major problem for teachers beginning the implementation process. The teachers I studied as well as others in the training group discussed this problem frequently.

Finding lessons that lend themselves to a cooperative structure is also a problem for teachers at first.

Cooperative lesson planning guides are helpful and necessary for some teachers. The teachers I studied all used materials provided during training to assist in planning lessons. They tended to rely on them more at first and did more planning in their heads later on.

Grouping issues are an important part of the implementation process. Learning which groups of students work best, where to place students who have difficulty working cooperatively, and how various students will work in groups are important factors for teachers to learn. Group size and how often to change groups are also important concerns. Teachers feel more comfortable using cooperative learning as they resolve issues related to grouping.

Even after several hours of training and several months of implementation, teachers may still have numerous questions about the use of cooperative

learning in the classroom. Some of these questions may deal with very basic and fundamental aspects of cooperative learning.

Recommendations

Trainers should provide activities allowing teachers to explore and discuss their reasons for pursuing cooperative learning training and what they, as teachers, expect from the use of cooperative learning in their classrooms.

More research should be done exploring the relationships between teachers motivation for learning to use cooperative learning and the implementation process. If research were available, trainers could forecast how motivation for using cooperative learning would affect the implementation process, and thus what needs particular individuals or groups might have.

Because some teachers have difficulty beginning to use cooperative learning right away, follow up sessions should be a scheduled part of training. Ms. Carter's plan for two initial days of training and two days of follow up is one way to accomplish this.

Trainers should forecast that time for planning and preparing cooperative learning lessons and identifying areas of the curriculum that lend themselves to cooperative learning are common challenges for teachers. Planning, including identifying good topics for cooperative learning, becomes easier after several lessons for many teachers (for the teachers I studied, 15-20 lessons).

Trainers should provide clear and helpful planning materials, particularly lesson planning guides, for teachers, as did Ms. Carter in her training sessions.

Implementation can be easier for some teachers if they make cooperative lessons as uncomplicated as possible at first by (1) using curriculum materials

with which they are familiar and comfortable, (2) doing activities with which students are familiar and not introducing new materials to students, (3) using a simpler four-step lesson format (explained above) rather than a five-step format, and (4) sticking with a particular subject area until they are comfortable with it before trying cooperative learning in other areas.

Trainers should forecast that teachers will have to deal with issues related to grouping and that as they resolve them, cooperative learning will become easier for them to use. In general trainers should encourage teachers to use smaller groups (of 2-3) at first. Teachers should be encouraged to try the same students together in groups for several lessons as a general rule, making a few switches, as necessary, to make things work smoothly.

Since trained teachers may still be unclear about important issues or techniques relative to cooperative learning, follow-up training is important.

After six months to one year of implementing cooperative learning, follow-up training should be available to teachers. The training should review and build upon the initial training.

Teacher Thinking About Cooperative Learning

Summary

Mrs. Fox liked cooperative learning from the time she started the training and continued to like it over the next several months of implementation. However, like both the other teachers, Mrs. Fox saw limits on the use of cooperative learning. She thought that too much cooperative learning would not be good for her or her students. Though I did not learn how much she thought was too much, I think that Mrs. Fox was satisfied with doing one or two cooperative

lessons a week. To Mrs. Fox, the essence of cooperative learning was that "everyone is a teacher and a learner" and that "everybody helps everybody." She further identified cooperative learning as producing one product for which everyone in the group has taken responsibility.

Mrs. Waite saw the social skills aspect of cooperative learning as being more valuable than academics at the second-grade level. However, Mrs. Waite did use cooperative learning for lessons with important content and sometimes evaluated how a lesson went based on how well students did on the academic content. Mrs. Waite thought one could "overdo it" with cooperative learning and told me about a teacher that she felt "overdid it". She made an important distinction between "doing groups" and cooperative learning. If a teacher assigned roles to students then the lesson was "groups" and not cooperative learning.

Mrs. Stone, on the other hand, saw assignment of roles as an integral part of cooperative learning and always assigned roles. Like Mrs. Waite she also saw limitations to the use of cooperative learning. Twice she told me she was satisfied with one or two cooperative learning lessons each week. It seemed that when she had to cover important content she did not choose to use cooperative learning.

Conclusions

Teachers view cooperative learning from their perspective of what teaching is or should be and how learning is best accomplished. This affects how, and how much, they use cooperative learning.

Teachers I studied felt that there was a limit to how much cooperative learning was good for them and their classes. An approximate range of one to five lessons per week might include the opinions of all three. They seemed to think that teachers using traditional individualistic classroom structures could cover more important material more easily, and should do so. For all the teachers, cooperative learning seemed like an "extra" and got cut when things got busy.

Even though teachers attend identical cooperative learning training they can hold widely different views on how cooperative learning is defined.

Even though research reviewed in Chapter 1 indicates that cooperative learning promotes academic achievement, the teachers I studied justified the use of cooperative learning because of the social skills and group dynamics involved. To them, cooperative learning was a way to improve social skills and peer relationships rather than a better way to learn academic material.

Recommendations

Those concerned with implementing cooperative learning should realize that the process of teacher change from individualistic and competitive classroom structure to cooperative structures can be slow.

Further research on teacher thinking about cooperative learning should be done in the following areas.

1. Exploration of teacher thinking about cooperative learning. Details about teacher thinking will help trainers to better understand the issues that are important to teachers relative to cooperative learning. Whether teachers want to

improve social skills, academic skills, or intergroup relationships, for example, should be a factor in selecting cooperative structures and lesson topics.

2. Comparison of teacher thinking about cooperative learning at various stages of the implementation process. I have data on teacher thinking after about six months of implementation. If that could be compared to the thinking of teachers after 12-18 months of implementation as well as at the initial stages of training, it may be possible to determine the changes in thinking (if any) that a teacher goes through during the implementation process. It may also be possible to determine what most influences that process, which would be advantageous to trainers and others concerned with implementation.

3. Comparison of teachers who have been trained by different trainers or methods. This may reveal the relative strengths of various approaches to cooperative learning training.

Comparison Across Implementation Situations

Summary

The three teachers studied were selected based in large part on the situations in which they would be implementing cooperative learning. Those situations are described in Chapter 4. I hoped to discover what effects those situations would have on the implementation process.

The implementation situations were not included as part of the case studies because nothing I observed nor talked with the teachers about during the study pointed to the principal, school district, or other teachers as being of any import to the implementation process that these teachers went through.

During most of the interview sessions, I asked teachers what feedback about cooperative learning or what discussions about cooperative learning they'd had since the last time I saw them. All of the teachers reported positive feedback from students who enjoyed doing cooperative learning lessons. Mrs. Waite reported once that she had told some parents about cooperative learning during parent-teacher conferences. Mrs. Stone reported that her colleagues commented favorably on group projects that she had hung in the hallway. However, when I asked teachers about the feedback that they got from principals and colleagues, the answers were always, quite starkly, "None."

Because Mrs. Waite attended the training on her own and her principal was not knowledgeable about cooperative learning, it was not expected that she would receive support from her principal or colleagues. She did not.

Neither did Mrs. Stone. Though many of her colleagues used cooperative learning, none of them assisted her during the implementation process. Her principal, who liked and approved of cooperative learning, never discussed it with her. She did not seek any assistance from her principal or colleagues.

Mrs. Fox's principal did not discuss cooperative learning with her, though he attended the training with her. Though they had intended to, the trained teachers at her school never got together during the first six months of the implementation to discuss cooperative learning.

Mrs. Stone and Mrs. Fox, like Mrs. Waite, implemented cooperative learning entirely on their own, discussing cooperative learning and getting feedback only from me as we discussed the lessons I observed.

Differences in the implementation process in the three classrooms can be explained entirely by differences in the students, the teachers' personalities and

abilities, the different understanding each had of cooperative learning, and the different ways each approached the implementation process. After the training teachers were truly on their own.

Conclusions

Having teachers attend training in groups and/or with their principal may not have an impact on the implementation process if follow-up activities are not formally planned and pursued.

If implementation does not actively include the principal and/or collaborating groups of teachers, the implementation process for teachers may indeed be a lonely one.

Recommendations

If teachers are required to attend cooperative learning training in groups or with their principal, material for effectively influencing the implementation process by actively involving the principal and/or groups of collaborating teachers should be emphasized and readily available as part of the training.

Schools or districts that are serious about cooperative learning implementation should provide for active involvement of principals and groups of collaborating teachers as part of the implementation process.

Summary

Chapter 8 organized the cross-case analysis into two major sections based on the two questions of interest to the study. Each of these sections begins with a brief comparison of my findings with the findings related to each question found in the literature reviewed in Chapter 2. Following the comparison of

findings, summaries of data, conclusions, and recommendations relative to each of the questions of interest were organized by coding categories and sub-categories.

The question, "What happens to a cooperative learning model as it is implemented?" was addressed by the following sub categories: (1) interpersonal and group skills, (2) lesson format, (3) giving directions, (4) helping groups, (5) group processing, (6) positive interdependence and individual accountability, (6) face-to-face interaction, (7) problems related to group work, and (8) problems not related to group work. Twenty-two conclusions are drawn relative to these items, 17 recommendations for training, five recommendations for implementation and two recommendations for future research.

The question, "What, from a teacher's point of view, happens as cooperative learning is implemented?" was addressed by the following categories and sub categories: (1) the implementation process, (2) motivation for using, (3) beginning implementation, (4) strategies for implementation, (5) groups and grouping, (6) planning, (7) problems and frustrations, (8) teacher thinking about cooperative learning, and (9) comparison across implementation situations. Relative to these items 11 conclusions were drawn and 8 recommendations for training, 6 recommendations for implementation, and 4 recommendations for future research were made.

APPENDIX

**Questionnaires Used to Gather Data In Both
Survey and Interview Formats**

Training Teacher Questionnaire

NAME: _____ PHONE # _____ - _____

SCHOOL AND DISTRICT _____ PHONE # _____ - _____

GRADE/SUBJECT TAUGHT _____ YEARS TAUGHT _____

What previous exposure have you had to cooperative learning methods? _____

How many other teachers from your school are attending this cooperative learning training? _____

About how many of the teachers from your school have had some kind of formal training in cooperative strategies and methods? (I.e. '4 out of 12') _____

About how many of the teachers in your school consistently use cooperative learning strategies 5 or more times each week? _____

In 1 or 2 sentences please briefly describe your reasons for taking this workshop including whether or not you are doing it voluntarily or because it is required of you.

In 1 or 2 sentences please tell briefly when and to what extent you intend to begin using cooperative learning in your classroom.

Please give us your home and/or school address so that we can contact you by mail between training sessions.

GROWTH STATES INTERVIEW-Coop.Lrn.

(Adapted from Joyce, Hersh, & McKibben, 1983)

This interview is part of an effort to understand the environment that teachers live in, how they cope with the workplace, and their response to staff development efforts, especially in the area of cooperative learning. This particular interview format has been used widely in California.

I will take notes rather than make a tape recording and your replies will be kept strictly confidential. Any reports of the data will be made either in summary form or with identifying details changed to veil your identity and the identity of your school.

1. How and why did you become a teacher?

- Response to Higher education
- Major influences on professional development
- Attitudes toward the profession
- Influences by mentors during the early career
- *people and events influencing predisposition toward growth.

2. "I would like to get as complete a picture as I can of the ways you use and react to the formal system of staff development -- university courses, district sponsored workshops, and curriculum development activities, whether you receive formal clinical supervisions, etc.

Please Describe the staff development activities you have participated in since last summer.-who sponsored,-content,-reaction University courses, regional, district, school.
-skills and materials obtained that are currently used in the classroom.

3. " I would now like to get as clear a picture as possible of the informal network of people that influence your teaching.

- Who have you talked to about teaching this past week? Month? About what?
- How often do you talk to other people about teaching?
- Number of times people visit you; you visit others; type of info exchanged
- How often do you plan with others? What do you plan?
- specific "things borrowed"
- skills and materials obtained that are currently used in the classroom.

"What are you doing now in your teaching that is new to you and where did it come from?"

4. "I'd like to ask you talk about your life outside of school so that we can learn about activities that may have a bearing on what and how you teach. Please describe your life outside of school."

"How long have you lived in the area?"

"How do you spend your time when you are not on the job?"

What Civic activities do you regularly participate in?

"Books?" In the last 2 mos? The last year?

"What magazines have you read in the past two months?"

"T.V.Shows?"

"Movies?"

"Performing arts?"

Most Prominent. Vivid Snapshot of

"Travel?"

previous two months.

"Athletic Activities?"

"Hobbies?"

"Have your personal activities provided you with content, materials, or teaching strategies that you use as you teach? If so, please describe these and where they came from."

5. "How has the Cooperative Learning training that you have received compare to other staff development workshops that you have attended or that your school has sponsored."

"How does cooperative learning as a strategy or method compare with other methods or strategies that you now use or have been trained in in the past?" "Different?" "Similar?"

"What part do you see cooperative learning playing in your classroom or in your teaching repertoire?"

Semi-Structured Final Interview

- 1. Think back to the first two days of training, the first weeks of school and the subsequent training days as you implemented cooperative learning in your classroom. Tell me what it was like for you.**

- 2. Would you say there have been any high points for you in the process of implementing cooperative learning?**

- 3. Have there been any low points for you in the implementation process?**

- 4. Have you made any important discoveries during the implementation process?**

- 5. Did you have any kind of strategy for implementing cooperative learning?**

- 6. As you implemented and continue to implement cooperative learning what are the hurdles, discouragements, obstacles challenges or problems you have faced?**

- 7. As you implement cooperative learning in your classroom what things do you "see" or "hear" from your training?**

- 8. How do you use your training, books or notes as you develop cooperative learning lessons?**

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EDUCATION:

- 1991 Ph.D. Curriculum and Instruction. Andrews University, Berrien Springs, MI
- 1987 M.A. School Administration. Grace Theological Seminary, Winona Lake, IN
- 1977 B.S. Elementary Education. Plymouth State College, Plymouth N.H.

PROFESSIONAL EXPERIENCES

- 1991- Assistant Professor of Education. Cedarville College Cedarville, OH.
- 1988-1991 Research Fellow, Graduate Assistant, Contract Teacher.
Andrews University Berrien Springs, Michigan.
- 1979-1988 Founder and Principal. Epsom Christian School, Epsom N.H.
- 1977-1979 Fourth Grade Teacher. Allenstown Elementary. Allenstown, N.H.

PROFESSIONAL ACTIVITIES

- 1989-1991 Curriculum Development Substance Abuse Prevention, K-12.
- 1985-1988 Executive Board Member Granite State Christian Schools Association.
- 1987-1988 District Representative Association of Christian Schools International.
- 1980-1988 Recording Secretary N.H. Dept of Education Non-Public School
Advisory Council.
- 1989- Member Phi Kappa Phi International Honor Society.

PROFESSIONAL INTERESTS:

Cooperative Learning, Teacher Education, Qualitative Research Methodologies

PUBLICATIONS:

Listen magazine teachers edition, 1990-91, 1991-92.

PERSONAL:

Married 17 years to Susan. Six children; Dana 1966 (adopted 1978), Sarah 1967 (adopted 1978), Carrie 1979, Amanda 1981, Rachel 1983, Reuben 1985, Matthew 1990.