Are We Giving Cooperative Learning Enough Attention in Preservice Teacher Education?

By M. Jean Bouas

John I. Goodlad's (1990) 10th postulate among the 19 he considers important for creating quality teacher education programs is a call for teacher educators to model best practices in their classrooms. Cooperative learning is a practice (teaching strategy) that has been found to enhance student achievement, encourage positive self-esteem, and facilitate growth in social interaction skills (Johnson & Johnson, 1991; Kagan, 1989/90; Slavin, 1991). In light of the volume of research based findings regarding the benefits realized as a result of cooperative learning (Johnson & Johnson, 1989, 1991; Kagan, 1989/91, Sharan & Sharan, 1989/90; Slavin 1989/90, 1991), it seems logical to expect cooperative learning to be both exemplified and taught in teacher education programs.

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David and Roger Johnson (1985) claimed that despite the documented effectiveness of cooperative learning, this teaching strategy received little attention in teacher education. Lawrence Lyman and Harvey Foyle (1990) declared that it was "...lamentable that there are still colleges of education that

graduate teachers and principals who are not equipped with the skills necessary for effective collaboration and cooperation" (p. 12). They insisted that the skills necessary to implement interactive methods such as cooperative learning be included in every teacher education program. Allan Glatthorn (1993) cautioned beginning teachers that a prerequisite to the successful implementation of cooperative learning was systematic instruction about this complex model. If future teachers are to make positive use of cooperative learning, they need to know what it is, recognize the value of the strategy for their students and have knowledge and skill to plan cooperative learning activities. Therefore, teacher educators face the challenge of how best to insure that preservice teachers acquire the knowledge and skill to enable them to implement cooperative learning and at the same time influence them to want to learn to use the model.

Purpose of the Study

The intent of this study was to examine the effect instruction about and participation in group work/cooperative learning in three preservice teacher education methods classes had on future teachers' attitudes toward, knowledge about academic and social benefits related to, and pedagogical competence to organize classrooms for group work/cooperative learning. Professors at the midwestern university where the study was conducted spoke positively about cooperative learning and group work. They often used the terms interchangeably. The researcher felt the study would call attention to well intentioned but fragmented instruction about group work that is thought of as cooperative learning. The failure to distinguish the two modes of collaborative work leaves preservice teachers with a vacuum regarding competence to implement effective cooperative learning. The term cooperative learning was not distinguished from group work in order to analyze the quality and quantity of instruction about and participation in collaborative learning. It was felt that findings could provide insight about potential inservice/staff development needs of the teacher educators with regard to cooperative learning. All four research questions, listed below, addressed this concern for clarity:

1. Did instruction about and experience with cooperative learning in preservice methods classes positively influence preservice teacher' attitudes toward this model of teaching?

2. Did instruction about and experience with cooperative learning in preservice methods classes positively influence subjects' knowledge of the academic and social benefits of the model? (Academic benefits include higher achievement, more on task behavior, increased retention, more frequent higher-level reasoning, deeper-level understanding, critical thinking, and more positive attitude toward school. Social benefits include the development of interpersonal communication skills, tolerance, higher self-esteem, positive, trusting, accepting and supportive relationships with peers regardless of ethnicity, sex, ability, social class, or handicaps.)

3. After participating in one of the methods classes under consideration in this study where there was instruction and discussion about and/or opportunity to experience cooperative learning, what perceptions did preservice teachers have regarding desire and knowledge to implement cooperative learning in their future classrooms?

4. At the end of their respective student teaching experiences, what perceptions did two student teachers have regarding desire and pedagogical competence to organize and implement cooperative learning in their future classrooms?

Research Design

The research paradigm for this study was naturalistic and utilized both qualitative and quantitative methodologies. Four data sources were used: a researcher-designed pre-post Likert scale survey of attitudes/opinions toward cooperative learning; a researcher-designed pre-post true/false test of knowledge (see Appendix A) about academic and social benefits associated with cooperative learning; post-class interviews; and interviews conducted with two subjects during their respective student teaching experiences. The pre-post survey and pre-post true/false test were administered to subjects enrolled in one of three methods classes in one academic semester. A number of the subjects participated in post-class interviews and two were interviewed three times each during their respective student teaching experiences. The qualitative data obtained from interviews were triangulated with the quantitative data (attitude/opinion survey and true/false test of knowledge regarding cooperative learning).

A pilot study was done but no statistical data was run on the true/false test or the Likert scale survey. Both instruments, however, did have face and content validity. According to Michael Quinn Patton (1982) face validly is a priority when research results "...are aimed at getting simple and straightforward information from participants in a program..." (p. 153). Because the true/false test and the Likert scale were based on the cooperative learning literature, the researcher purports that the instruments had content validity as defined by James McMillan and Sally Schumacher (1984).

In this study, group work and cooperative learning were considered as parallel terms. Group work/cooperative learning was defined for all subjects at the outset of data collection as follows: An academic situation in which students are requested or required to work with others on a specific task, goal, or set of materials. It might be argued that this definition defined group work and not cooperative learning. The distinguishing characteristics that, in the literature on cooperative learning, set cooperative learning apart from group work were purposely not discussed or included in the definition of group work/cooperative learning given to subjects at the outset of the study. The reason for not distinguishing cooperative learning from group work was to avoid giving subjects information in the definition that might influence their responses on the pre-post Likert scale opinion/attitude survey. The

true/false test of knowledge about group work/cooperative learning, or their responses in the interviews.

Setting and Subjects

The setting for the study was the preservice teacher education program at a regional midwestern university. Specifically, the study involved 53 elementary education majors who were enrolled in one or more of the following three methods classes in one academic semester: Teaching Language Arts in the Elementary School, Teaching Reading in the Elementary School and/or Classroom Management and Discipline. All of the subjects were volunteers. Course instructors were provided with a copy of the study abstract but had no access to students' individual responses.

Fourteen subjects, with representation from all three methods classes, participated in post-class interviews. Two criteria were used to select subjects for the interviews. First, only those subjects who received a grade of B or better in the classes were considered. Second, responses to the following survey item were used to identify subjects who had more positive attitudes toward cooperative learning and subjects who had less positive attitudes toward cooperative learning: "I think I will use cooperative learning as a teaching strategy very frequently." Subjects who responded to this item with a lower number (4 or below) and subjects who responded with a higher number were identified. The researcher drew three names from each category from each class and contacted these preservice teachers by phone to arrange a time for interviews. Fourteen agreed to be interviewed.

Two of the 14 subjects interviewed were followed into their respective semesters of student teaching in order to examine their attitudes toward and use of cooperative learning as student teachers. These two were interviewed three times during the semester of student teaching. Subjects taught in one of the university teacher education centers. The following four criteria were used to select subjects for the interviews during student teaching:

1. A positive response in the post-class interview to the question: How do you think you might use group work/cooperative learning? (The standard used to define positive response was: Student provided no less than two examples of how she or he might use group work/cooperative learning.)

2. Students' willingness to be interviewed during student teaching.

3. Academic strength of the students based on their active participation in the methods classes observed as a part of this study and achievement of a final grade of "A" or "B" in the observed methods classes.

4. Field assignment classroom environments that were receptive to student teachers' implementation of cooperative learning activities during the student teaching experience. The researcher did not serve in an evaluative role for either of the student teachers.

The researcher observed every class session in all three methods classes under consideration in this study during one academic semester to identify what was done in the classes that was related to group work/cooperative learning. Field notes obtained from these observations revealed that instructors talked about, explained or made reference to group work/cooperative learning via oral and printed communication. These oral explanations and suggestions made by instructors and the printed handouts distributed were for the purpose of illuminating subjects' understanding of group work/cooperative learning. Subjects also participated in group work/cooperative learning activities in each of the three methods classes in the study. In some of the activities, subjects were engaged in group work/cooperative learning arrangements for very short periods of class time (4 minutes) and in other activities subjects engaged in group work/cooperative learning for longer periods of class time (30 minutes). The most frequently used type of group work/cooperative learning activity in the three methods classes involved subjects in the preparation of a product to be turned in or in the preparation of oral responses that a few groups would be randomly called upon to share at the end of a group work time. The second most frequently used type of group work/cooperative learning activity was informal dialogue that involved students in clarifying information and discussing or summarizing content. Role playing/simulation type activities were used in all methods classes.

The characteristics of cooperative learning were not clearly delineated. In some of the collaborative activities individual accountability and positive interdependence were evident, e.g., group members were assigned roles or all group members had to make a response. In other activities, students just "got in groups" to complete a task and no structure was arranged to insure cooperative effort.

Data Analysis

The pre-post Likert scale survey of attitudes/opinions and the pre-post true/false test of knowledge were treated statistically. A dependent *t*-test was run on individual attitude/opinion survey items to determine degree of change in attitudes/opinions from the beginning of the semester to the end of the semester of data collection. A dependent *t*-test was run for each class on the pre-post true/false test of knowledge to assess degree of composite change in preservice teachers' knowledge about academic and social benefits associated with cooperative learning. The qualitative data obtained in the post-class interviews with 14 subjects and the data obtained from interviews conducted with two student teachers were analyzed using an interpretive/descriptive analysis procedure (Tesch, 1990). The researcher looked for consistency in overall patterns or themes.

Data were triangulated. Triangulation was done to strengthen the validity of findings. Findings are considered to be more credible when they are based on analysis of data from different sources (Patton, 1980).

Findings

Instruction about and experiences with group work/cooperative learning in the three methods classes appeared to have had a positive effect on subjects' attitudes toward and their knowledge about academic and social benefits related to group work/cooperative learning. The findings provide insight into how instruction about and experiences with group work/cooperative learning in three preservice teacher education classes impacted subjects' perceptions of their desire and pedagogical competence to implement cooperative learning in their future classes.

Findings Related to Research Question #1

Attitude/Opinion Survey Data

Table 1 presents the pre- and post-mean scores for the language arts methods, reading methods, and discipline and management classes. Table 2 presents the pre- and post-mean differences for each class. All means in all three classes moved in a positive direction with the exception of Items C, D, and J. Other than Item C, there were only two survey items, A and H, with pre- or post-means below 5. The pre-means on these items were not low. Means on both items moved in a positive direction on the post-assessment. Items A and H were somewhat related. The fact that the means were lower on these two items than any other items may suggest that subjects have trouble trusting group mates when working collaboratively.

Post-Class Interview Data

All 14 interviewees expressed that group work/cooperative learning in the methods classes fostered the creation of a positive learning environment and all subjects identified at least one academic or social benefit derived from their cooperative learning experiences in the methods classes. The benefits described fell into two main categories: academic outcomes and nurturant effects/social benefits. Academic benefits identified by the subjects included higher grade achievement, expansion of perspectives, and clarification/reinforcement of understanding. Nurturant effects/social benefits identified included more person to person interaction, creation of more enjoyable learning atmosphere, growth in self-confidence, and emergence of more teamwork.

Student Teaching Interview Data

Both student teachers stated that learners benefitted socially as a result of cooperative learning. When children collaborate with peers in the classroom, they practice communication skills. They share ideas, resolve differences, listen to one another and learn to care about each other. The following quote is illustrative of thoughts expressed by both student teachers regarding positive social outcomes

Table 1

Data Summary:
Language Arts Methods, Reading Methods, and Discipline Management

Pre-Post Means

Table 2

Composite Summary of Data—Attitude Survey

(differences)

related to cooperative learning:

> When they are working together and they disagree on an answer they have to think about how they can correct that answer or think about how they might use the other person's information and do it a different way to prove that it is right or wrong—problem solving. Also, communication skills because some of them can't express themselves or they don't want to. (STB2, p. 10)

Findings Related to Research Question #2

Findings from the four sets of data suggested that instruction about and experience with group work/cooperative learning in methods classes positively influenced subjects' knowledge of academic and social benefits of the model.

True/False Test Data

The test dealt with research based academic and social benefits associated with the cooperative learning model previously identified. Pre-means were not low but post-means moved in a positive direction. At an alpha level of .05, the post means were significantly higher than pre-means.

Attitude/Opinion Survey Data

Items dealing with attitudes and opinions regarding academic and social benefits moved in a positive direction with the exception of item J in one class. Item H, which dealt with learning to trust, had a post-mean below 5 in two classes. This was the only item dealing with academic and social benefits that had a post-mean below 5.

Post-Class Interview Data

Subjects described their own personal awareness of the academic and social benefits of group work/cooperative learning as it was experienced in the methods classes. The following quote represents the theme of comments regarding academic and social outcomes associated with cooperative learning groups:

> Like when I was in school and was younger, we really didn't do cooperative learning. When you grow up, you go out into the world and you find that you have to work with other people and you have to get along with them and I feel that cooperative learning does that; it helps people see that you're not independent—that you do need other people to talk to or help you out. (PC6-26, p. 2-3)

Student Teaching Interview Data

Both student teachers stated that they observed positive social outcomes in their field placement sites as a result of group work/cooperative learning activities.

Findings Related to Research Question #3

Attitude/Opinion Survey Data

Items D and E dealt with perceived competence and anticipated use of cooperative learning in future classrooms. The pre-mean range on these two items was 5.00-5.78 and the post-mean range was 5.30-6.10. Subjects seemed to feel a moderate degree of confidence about their pedagogical competence to plan cooperative learning activities. The post-means on Item E suggested that subjects think they will use cooperative learning frequently.

Post-Class Interview Data

Three major categories emerged in the post-class interview data that reflect

desire and competence to implement cooperative learning. Those three categories are listed and briefly described:

> 1. **Potential Uses.** The potential uses cited were: literature study groups, social studies and/or science projects, and practice and reinforcement activities.
>
> 2. **Perceptions of Knowledge to Implement Cooperative Learning.** Five sub-categories emerged in the interview data regarding subjects' perceptions of the knowledge they felt they had about how to implement cooperative learning. Those five sub-categories were: structure cooperative learning so that learners are individually accountable; consider group compatibility when forming groups; clearly define group task and behavioral expectancies; allow adequate time for the cooperative learning to take place; and set aside time to plan cooperative learning activities. There was not a consensus view regarding how to insure individual accountability. Subjects identified nine different possibilities.
>
> 3. **Value of, Exposure to, and Engagement in Cooperative Learning** While in Preservice Teacher Education. Subjects felt that the cooperative learning activities they experienced in the methods classes had a positive effect on their academic learning and/or social interactions. They expressed that participation in cooperative learning provided them with background knowledge and experience that would make them more willing and able to orchestrate cooperative learning in their future classrooms. The following quote reflects the value subjects seemed to place on the opportunity to experience group work/cooperative learning in preservice teacher education classes:
>
> I think it's really neat when the instructors explain something in the classes and then they actually have you do it because then you yourself can see how it makes a difference. I hate it when teachers talk about how you should do this; you should do that; then they don't even do it themselves. (PC11-23, p. 9)

While they spoke positively about the group work/cooperative learning activities in the methods classes, 12 of the 14 interviewees expressed that more direct instruction about and/or more opportunity to engage in such activities would have strengthened their confidence and competence to implement this model.

Findings Related to Research Question #4

Both student teacher expressed their intentions to use cooperative learning in their future classrooms. They both, however, expressed uncertainty about the depth and breath of their pedagogical competence to organize and implement this model of instruction. The following quote illustrates the desire and the hesitancy student teachers felt regarding the implementation of cooperative learning in their future classes:

> So it'll come slowly and I think it's like everything else. You add a little bit all along. Maybe one year you'll use a little bit of it [reference to group work/ cooperative learning] and maybe next year more, a little bit more and as you

> become more proficient with it, then it becomes easier to use. (STB3, p. 16)

Two categories that emerged in the interviews with the student teachers were: perceptions of the relationship between structuring strategies and positive outcomes and perceived constraints that influenced decisions regarding their use or non-use of cooperative learning while student teaching. In the latter category, student teachers talked about time needed to implement cooperative learning activities, expertise of the student teacher to orchestrate cooperative learning, lack of training, and anxiety about evaluation during the student teaching experience. The following quotes reflect student teachers' concerns about time to implement cooperative learning in light of content coverage expectancies and the student teachers' perceptions of their preparedness to implement cooperative learning:

> I felt so limited to get in what I had to get in to do my unit and things like that...that's why I didn't do anything more. I had my unit planned. And there was so much material that we had to cover. (STA3, p. 3)

> I feel like when you are student teaching you are on display and you are trying to do your best work. So of course, when I was doing my best work, I was going to do something I felt comfortable with and I knew a little bit more about. (STB2, p. 20)

Both student teachers expressed that the limited emphasis on cooperative learning in their professional course of study was a weakness in their professional preparation. According to both student teachers, group work/cooperative learning was presented by professors of methods classes as a worthwhile model of teaching but both felt they were only presented with an overview of cooperative learning. Neither felt they had been presented with a clear explanation of the difference between group work and cooperative learning. They desired more immersion in and information about cooperative learning in order to feel competent to implement this instructional model on their own during student teaching when they were being "scrutinized." The following quotes reflect the scope of suggestions that student teachers made when probed for what they thought would better prepare them to implement cooperative learning:

> We need to know the background on it and we need to practice it ourselves—to participate in it more and then also need the feedback on it. (STB2, p. 15)

> We need to have specific structured activities and do it as we expect our kids to do more of it down at [name of the university]. I know there is too much to teach and too much for us to learn. (STA2, p. 12)

Implications for Teacher Educators

The data and subsequent analysis yielded insights regarding subjects' perceptions of their pedagogical knowledge regarding how to implement group work/cooperative learning and their desire to implement collaborative activities in their

future classrooms. Three important implications for teacher educators regarding instruction about and implementation of group work/cooperative learning in preservice teacher education came out of this study.

First, while in methods classes, preservice teachers value having the opportunity to engage in group work/cooperative learning as they receive instruction about this strategy. The value that preservice teachers attach to this opportunity is supported by research and literature on the necessity of teacher educators actively and purposefully modeling instructional methods in ways that encourage students to adopt the methods (Fosnot, 1989; Stover, 1991).

Second, preservice teachers recognize the umbilical relationship between structuring strategies and positive academic outcomes and they feel the need to have "a lot" of specific instruction about strategies that facilitate this relationship. According to the literature on cooperative learning this relationship is facilitated by structuring tasks and/or rewards so that learners feel a sense of individual accountability and a sense of positive interdependence (Johnson & Johnson, 1991; Slavin, 1991). The fact that none of the subjects interviewed in this study used the term positive interdependence suggests that teacher educators may need to be more explicit about the importance of this component of cooperative learning. Positive interdependence and individual accountability are elements (characteristics) of cooperative learning that may or may not necessarily be characteristics of group work. This absence of specific language about cooperative learning suggests that teacher educators could benefit from inservice/staff development on the nature of cooperative learning so that they are better equipped to implement it and teach preservice teachers the distinguishing characteristics.

Third, it is important to have field placement sites that are receptive to the implementation of cooperative learning by student teachers. Student teachers faced with the pressure of being evaluated may revert to using methods that are more familiar but less effective unless field site personnel encourage them to try cooperative learning methods.

Conclusion

The findings from this study support what John Dewey (1938) and John Seely Brow, Allan Collins, and Paul Duguid (1989) have advocated. Dewey believed that if education was to accomplish its ends, both for society and individual learners, it must be based on experience (p. 89). Brown, Collins, and Duguid (1989) proposed that knowledge is situated. That is, the physical and social context should be structured so activities that occur in a learning environment contribute to the cognitive understanding of that which is to be learned. Dewey (1938) and Brown, Collins, and Duguid (1989) purport that "how" something is learned should be given as much consideration as "what" is to be learned. Findings from this study suggested that subjects recognized the pedagogical value of preservice teacher

education experiences that enabled them to not only learn about cooperative learning as a model of instruction but also provided them the opportunity to experience the model.

Appendix A

Student Name:

Test Your Knowledge of "Cooperative Learning" as a Teaching Strategy

I. Directions: Circle the "T" in front of the items that you believe are true about cooperative learning (working in small groups on an assigned task in a classroom). Circle the "F" in front of the items that you believe to be false regarding cooperative learning. If you do not know whether the item is true or false circle "DK" for don't know.

T F DK 1. Students' academic achievement suffers as a result of group work.

T F DK 2. Cooperative learning results in students having a more positive attitude toward school.

T F DK 3. Cooperative learning deters racial prejudice among students.

T F DK 4. Cooperative learning leads to decreased student productivity because students socialize more and do not stay on task.

T F DK 5. Cooperative learning causes frustration in brighter learners because they are "held back in making progress" by the presence of slower learners in a given group.

T F DK 6. Cooperative learning encourages a positive attitude toward academic work.

T F DK 7. Self-esteem of low level students suffers in cooperative learning activities.

T F DK 8. Cooperative learning improves peer relations among students of different ability levels.

T F DK 9. Group work causes students to be less dependent on the teacher for their learning.

T F DK 10. The reward and structure of the group task should be intertwined in order for group work to be most effective

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