COOPERATIVE LEARNING AND OBSERVED INTERACTIVE BEHAVIOUR

Umar Ibrahim Darma
Department of Technical Education, Hassan Usman Katsina Polytechnic, Katsina
E-mail: umaridarma@gmail.com

Abstract
Teacher’s use and evaluation of cooperative group learning were examined in this study, along with students’ reactions to working in groups and their verbal interactive behaviours during group activities. Teachers and students reported that cooperative learning occurs in their classrooms almost every day, with many positive academic, social, and attitude outcomes. No evidence was found to link evaluations of cooperative learning to overall effectiveness of implementation. Observations showed that the majority of student interactions were directly related to teaching and learning. Behaviour such as listening to another student or watching a student demonstrate how to complete a task occurred most frequently during group activities.

Keywords: Interactive behavior, cooperative learning, observations, teaching, learning

Introduction
Cooperative learning (CL) is a process by which students work together in groups to “master material initially presented by the teacher” (Slavin, 1990). According to Slavin (1990), the goal of CL is for students to help each other succeed academically. To be successful, all members in a group must achieve mastery of the material or contribute to the completion of a group assignment. Theoretically, CL fosters a cooperative atmosphere in classrooms, rather than a competitive one, because students are invested in each other’s learning, not just their own (Slavin, 1990). Furthermore, CL is believed to enhance cognitive skills to the extent that students share ideas and explain their thinking as they work together (Meloth, 1991).

Cooperative group learning
Several goals of cooperative group learning have been identified in the literature. Two primary goals for all students are: (a) to assume leadership responsibilities in the group, and (b) to participate equally and actively in the group process (Dishon and O’Leary, 1984). Additional goals of CL include fostering academic cooperation among students (Hilke, 1990; Slavin, 1983a), encouraging positive group interactions (Hilke, 1990; Johnson and Johnson, 1985), increasing academic achievement (Hilke, 1990; Johnson and Johnson, 1985; Slaving, 1983, 1991), and developing self-esteem (Hilke, 1990; Slavin, 1991).

Specific characteristics of cooperative groups have been shown to maximize the extent to which these goals are achieved. One characteristics linked to the effectiveness of CL is heterogeneity of group members (Dishon and O’Leary, 1984; Hilke, 1990; Johnson and Johnson, 1985; Slavin, 1991). Research has shown that effective CL groups include relatively equal proportions of males and females, students with diverse socioeconomic backgrounds and academic skills, and students who present both majority and minority ethnic groups. For example, Larson and others (1984) found that students who worked on reading assignments in heterogeneous ability groups scored significantly higher on measures of main-idea recall than did students in homogeneous groups. Larson and others (1984) concluded that working in heterogeneous groups may benefit low-ability students because they are able to observe strategies of high-ability students. Similarly, high-ability students may learn new strategies by teaching other students in the group. In a study examining helping behaviour, Webb (1991) also found that groups with equal numbers of boys and girls promoted more explaining between students than did same-sex groups.

A second feature of CL related to effectiveness is reward structure. According to Slavin (1983), the success of CL is highly dependent on the underlying incentive or reward structure. There are three general types of reward structures. Students may receive (a) individual rewards for individual
achievement, (b) group rewards for group achievement, or (c) group rewards for individual achievement. The third type, which is called an interdependent reward structure, has proven to be most effective (Slavin, 1983). When students’ success as individuals is dependent on the success of other group members, students are more likely to work to ensure that peers learn the material.

**Interdependent reward**

The use of an interdependent reward structure circumvents many problems inherent in alternate reward structure. For example, when students receive group rewards for the completion of a group product, there is no way of ensuring that all group members have learned the material. The academically strongest students may tend to take over the project to obtain a good grade. Similarly, when students are rewarded individually, they have no incentive to help other group members learn the material because their grade is not affected by anyone else’s performance. According to Johnson and Johnson (1985), “under purely cooperative conditions, an individual can attain his or her goal if and only if the other participants can attain their goals” (p. 104).

A final characteristic of CL is task structure. Two types of task structure can be incorporated into CL. Students may either participate in group study or be assigned specialized individual tasks (task specialization). With a group-study task structure, all group members work cooperatively to learn material, solve problems, or find answers to questions. In contrast, when students are given specialized tasks, they are responsible for learning a particular section of material independently and then teaching it to the rest of their group. Both task structures have been more effective than competitive or individualistic methods, although there is little evidence to suggest that one type of task structure is more beneficial than the other (Johnson and Johnson, 1985). Research concerning the differential effectiveness of task structures remains inconclusive because most researchers have investigated only group study, not both group study and task specialization. Furthermore, task structure is typically embedded in an interdependent reward structure. Thus, reward structure may account for positive outcomes more than task structure does indeed.

In addition to identifying effective features of CL, researchers studying elementary children have documented several academic and social benefits that result from implementing CL techniques (Dishon and O’Leary, 1984; Hikle, 1990; Johnson and Johnson, 1985; Slavin, 1983, 1991). Although these researchers have focused primarily on academic achievement, there is growing evidence that CL promotes positive affective and social outcomes as well. In their review of research, for example, Johnson and Johnson reported that for 35 out of 37 students comparing cooperative with competitive and individualistic learning, CL promoted the most positive interpersonal relationships among students. Students specifically reported feeling like and supported by other students in their group. Johnson and Johnson also found that CL promotes positive attitudes toward the subject matter and toward school in general.

**Benefit of cooperative learning**

According to Dishon and O’Leary (1984), another benefit of CL is improvement in students’ social skills, such as initiating interactions, sharing information and ideas, asking questions, following directions, and staying on task cooperatively at the same time. When students engage in appropriate social behaviors, they feel better about themselves and about others in their group with one another, enjoy time spent together, and produce high-quality work. Dishon and O’Leary cautioned, however, that such benefits do not happen coincidentally. Classroom teachers must assume primary responsibility, at least initially, to teach, observe, and reinforce students for using appropriate social skills in groups. Finally, according to Slavin (1983, 1990), feeling liked by peers and feeling academically competent contribute to positive self-esteem among students. Thus, the academic and social benefits of CL are likely to lead to higher self-esteem among students as well.

Despite research documenting both academic and social benefits of CL, few researchers have examined the nature of student interactions during cooperative group experiences that may contribute to these outcomes (Davidson and Kroll, 1991; Deering and Meloth, 1993). Researchers have hypothesized that certain interactive processes are likely to occur during CL; however, the
identification of specific behaviours is often based on anecdotal data and narrative reports, rather than on systematic observations. As a result, we have little knowledge concerning verbal interactions that actually occur when CL is implemented in naturalistic classroom contexts.

Many experts have maintained that CL encourages students to engage in verbal learning behaviours, thus enhancing their achievement (e.g. Webb, 1985). For example, because students are required to discuss class material, oral rehearsal of information often occurs during CL. Furthermore, group members facilitate learning by providing support, feedback, and encouragement to one another (Johnson and Johnson, 1985). Webb (1991) examined specific task-related verbal interactions that occur during small-group activities. Two verbal processes were observed – giving help and receiving help. Giving help ranged from offering detailed elaborations to simply providing the answer to a problem. Webb found that when students did not understand a teacher’s explanation, peers were often able to provide explanations in words that were more easily understood. Webb also found, however, that the effectiveness of receiving explanations from peers depended on several factors, including the relevance of the explanation given, whether the explanation was understood, and whether students had an opportunity to apply the explanations to their work.

Finally, Hythecker, Dansereau, and Rocklin (1988:31) found that CL “provides an opportunity for observational learning of reading and thinking activities, which generally are not public”. Specifically, in cooperative groups, students are able to observe and model learning strategies, such as summarizing information and monitoring errors. Hythecker and others theorized that peer modeling that occurs during CL influences metacognitive skills as well as motivation.

In sum, CL is a potentially effective instructional approach that leads to documented academic and social benefits. There are several combinations of structural features that teachers may use to design their cooperative groups. Specifically, groups may vary on task structure, reward structure, and heterogeneity of group members. According to Slavin (1983), cooperative groups associated with the greatest benefits feature group study and an interdependent reward structure. Heterogeneity of group members has also been shown to be a characteristic of effective cooperative group activities observed in this study could be characterized as primarily academic in focus, with only minimal negative interactions and conflicts. Although the relatively high proportion of task-related verbal interaction is promising, it is important to caution that reactivity effects may have decreased the overall rate of off-task behaviour. The presence of the video camera may have spurred higher task engagement among students than what typically occurs during group activities. Focusing on groups in counterbalanced order and videotaping over the course of 6 weeks were intended to minimize reactivity. Nonetheless, on-task behaviour rates may have been inflated with the presence of the camera.

Despite this limitation, the findings based on observed group activities accord well with a recent study that examined the specific content of student discussions under two different CL conditions (Meloth and Deering, 1994). Using a coding procedure that included detailed transcriptions and categorization of all verbal exchanges, Meloth and Deering (1994) found that task-related talk, which involved the exchange of explanation or elaborations between students, constituted a major proportion of all interactions. They also found, however, that the cognitive level of these peer discussions and the average length of student utterances were generally low. In future studies, examining the content of student talk in greater detail will provide insight into how peer groups function.

Conclusion

Most CL methods emphasize the importance of establishing group interdependence, based on the assumption that doing so encourages students to help each other learn. Furthermore, an incentive structure that delivers group rewards based on individual performances, theoretically, is considered the best reward system to foster interdependence and peer teaching (Gettinger, 1992). Although intuitively appealing, these assumptions have rarely been tested directly. In the present study, we found no differences in the frequency of group teaching and learning behaviours between classrooms differentiated, in
part, on the basis of teacher-reported use of interdependent reward structures. Furthermore, Meloth and Deering (1994) found that an interdependent reward condition had only a moderate impact on peer communication. Their results showed that encouraging effective peer interactions through interdependent rewards was not necessarily more effective than simply directing students to verbalize and share their learning strategies with one another. Therefore those researching CL in the future should explore further the precise role of interdependent reward structures in obtaining academic, social and attitude benefits for students. Encouraging group interdependence through rewards may not be the only method that leads to cooperative, teaching-learning interactive behaviours.

References


