Cooperative Learning in the Undergraduate Classroom: A Case Study

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Abstract

Cooperative learning is an instructional methodology that actively engages the student in the educational process. Properly instituted in the classroom, cooperative learning can lead to increases in social skills, motivation, and academic achievement. It may also be used to foster awareness related to diversity issues and facilitate student empowerment. Using Norman and McGuire's article (1992) on collaborative learning as a partial catalyst, this paper provides an in-depth perspective on the development and implementation of cooperative learning strategies in an undergraduate parks and recreation course.

Key words: Cooperative learning, Collaborative learning, Triads, Instructional methodology

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Introduction

This research outlines the development of a triad (Schmier, 1993) approach to undergraduate instruction that used the conceptual framework of cooperative learning. The term "triad" refers to the size, in terms of number of students, of cooperative learning groups used in this instructional strategy. Cooperative learning addresses the notion of a shift from professor-centered to student-centered learning. This situation allows students to construct new knowledge, share ownership of course content, and benefit from teaching one another (Ventimiglia, 1994). In, practice, small groups of students work together to maximize their own and other's learning. Major purposes of this study were: (a) to develop an alternative teaching approach to traditional lecture methodology, (b) to gauge student feedback regarding use of cooperative learning, and (c) to explore associations that may exist between use of cooperative learning and exam scores.

Considerations for Adoption of Cooperative Learning Techniques

In the spring of 1993, a syllabus that described the use of a cooperative learning approach to teaching and the supporting materials, were down-loaded from the Internet computer network. This document outlined a revision of a traditional undergraduate history course (Schmier, 1993) into a cooperative learning experience using "triad"

groups. Triads in this case referred to the three member size of the cooperative learning groups used by Schmier (1993). The intuitive nature of Schmier's approach as outlined in the syllabus was intriguing and represented a major restructuring of an existing course into one consisting entirely of cooperative learning methodology. Although cooperative learning is not a new concept, aspects inherent in Schmier's approach warranted further investigation.

A number of questions immediately came to mind. How would students react to a semester of group-based experiences? Would all group members contribute equally to the cooperative process? What steps could the instructor take to foster equity in this process? Why even bother with this restructuring attempt? What was the benefit of incorporating cooperative learning strategies? Finally, if such an attempt were to be made how could it best be done?

A review of leisure journal articles, related to the use of cooperative learning uncovered an important contribution by Norman and McGuire (1992). According to the authors, use of cooperative learning had many benefits. For example, higher achievement among students was promoted through this technique and the development of higher quality cognitive strategies due to group interaction was fostered. This article provided a catalyst for the possible restructuring of an existing leisure studies course into a cooperative learning experience. Further searching of the literature provided a broad overview of cooperative, or collaborative, learning.

The concept of cooperative learning is not new. Johnson, Johnson, and Smith (1991) suggested that cooperative learning is an old idea dating to the 17th century work of John Amos Comenius. Cooperative learning has been embraced periodically in the United States public education system. For example, in 1875-1880, Colonel Francis Parker utilized the approach in the public schools of Quincy, Massachusetts (Campbell, 1965) and John Dewey promoted the use of cooperative learning as part of his educational approach in the early 1900s (Johnson & Johnson, 1991). Johnson et al.(1991) observed that cooperative learning eventually gave way to interpersonal competition in public schools and colleges after the 1930s.

Cooperative learning received renewed attention in the 1970s and 1980s due to the perceived benefits often associated with the technique (Bruffee, 1992). On a practical level, students learned the social skills of cooperation, creative problem solving, and decision making important to functioning in a global marketplace (Ventimiglia, 1994). On a conceptual level, research on cooperative learning suggested that it had a positive effect on all aspects of student achievement (Slavin, 1992). For example, cooperative learning enhanced student achievement to a greater degree than did individualistic and competitive learning found in traditional lecture-based scenarios (Johnson et al., 1991).

Cooperative learning strategies have been used successfully in a variety of settings outside of academia. Zhang (1994) used cooperative learning to develop an intervention model of constructive conflict resolution that was implemented and tested in urban alternative high schools. Peek, Peek and Horras (1994) documented the use of coopera-

tive learning techniques to produce a business ethics program within the Arthur Anderson accounting firm that addressed the impact of group involvement on the moral reasoning of business school students. Thiagarajan (1992) explored the use of cooperative learning as a means of training employees in the areas of memory retention, information assimilation, and processing skills.

Course Development

In the summer of 1993, a decision was made to restructure an existing upper level undergraduate history and philosophy of leisure course into a cooperative learning experience. The literature suggested that incorporation of cooperative learning strategies had the potential to result in positive outcomes in terms of student achievement, student empowerment, and cultural diversity (Johnson et al., 1991; Manning & Lucking, 1993; Slavin, 1992). The questions posed earlier in this article regarding implementation of cooperative learning methodology into existing courses were addressed. The information gathered through the literature review provided a positive rationale for the restructuring process.

Instructional methodology prior to this decision had consisted primarily of traditional lecture methods based on assigned readings and distribution of chapter specific discussion questions. For the purpose of this case study, one should note that the only changes to the existing course were the introduction of cooperative learning strategies to a new group of students. The same texts, discussion questions, assigned readings, and exam questions were used. Supplementary course assignments (i.e. a research paper and book critique) not under the aegis of cooperative learning remained unchanged.

Conceptual Elements

In cooperative learning situations five elements must be present: (a) positive interdependence, (b) face to face promotive interaction, (c) individual accountability, (d) social skills, and (e) group processing (Johnson, Johnson, & Holubec, 1990). Positive interdependence implies that members of cooperative learning groups are inextricably linked to one another's success. This condition is accomplished by assigning roles to group members and by mutual establishment of group goals. The emphasis becomes that the group "sinks or swims" together. Face to face promotive interaction involves students helping, encouraging, assisting, and supporting each other's efforts to learn. Strategies include having students teach each other and share their knowledge with the group. Individual accountability exists when individual performance is assessed and the results are shared with the student and the group. This process informs the group as to who needs additional attention and helps prevent social loafing (Johnson et al., 1991). Social skills such as leadership, decision making, communication, and conflict management are needed for the group to function properly. As students may not have developed these skills to their full potential, instructors may need to elaborate on them. The final element to be considered is group processing. Here the instructor ensures that the group reflect on how well they are achieving their goals and if effective working relationships are being maintained.

Classroom Implementation

With respect to classroom implementation the instructor has a number of decisions to make. These decisions include but are not limited to: (a) the type of cooperative learning group to be used, (b) group member selection, (c) group size, and (d) evaluation procedures. Smith, Johnson, and Johnson (1991) suggest that three general types of cooperative learning groups exist that will suit the needs of most instructional situations. The first, the *informal cooperative learning group*, is used to break up or supplement a lecture or to focus student attention on a particular aspect of course work. This type of group is short term and less structured than the other choices. The second, the *formal cooperative learning group*, consists of two to four students assigned to the group randomly by the instructor. This group type is more structured and stays together to complete a task and produce a final product. The final type, *cooperative base groups*, are long term three to five member groups whose primary purpose is to provide peer support and accountability over time. For this case study the *formal cooperative learning group* was chosen as it provided the best fit with the development of a new instructional strategy and existing course content.

Decisions regarding selection of group members and group size were guided by research findings on cooperative learning. For example, findings suggest that group members be selected at random or be assigned based upon instructor observations regarding students' strengths and weaknesses. The majority of the literature indicated that random placement of students into groups is the best approach (Fiechtner & Davis, 1992). Groups can consist of two to eight members although most of the literature supported three to five as an ideal size (Ventimiglia, 1994). For this case study, group size was based on the triad approach used by Schmier (1993).

Evaluation procedures focused on the elements of cooperative learning previosly discussed. Although no hard and fast rules apply, it is generally accepted (Johnson et al., 1991) that the success of the individual must be associated with the success of the group and vice versa. Instructors need to develop grading procedures that allow for individual accountability and peer evaluation. In this case study, final grades were partially based on peer evaluations by other group members, group presentations, and exam scores.

Methodology

Sample

The sample for this case study consisted of 37 (N=37) junior or senior undergraduate students enrolled in a "History and Philosophy of Leisure" course during the 1993 fall semester. Exam scores of the spring 1993 class (N=35) not exposed to cooperative learning methodology were used as a basis for comparison. Students were given a random grouping and evaluation sheet that was distributed at the beginning of each cooperative learning session. Each individual's sheet contained a random number that assigned him or her to a group with two other students, and a peer evaluation scale that was used to rate other group members' contributions. A master set of these sheets were kept on file by the instructor and photocopied as needed. Data were analyzed through the Microstat III Interactive Statistical Software System with significance set at .05.

Procedures

Cooperative learning sessions were integrated into the existing upper level under-graduate history and philosophy of leisure course. Lecture sessions on required readings were replaced with cooperative learning sessions. Consistent with previous classes, students were given discussion questions prior to reading assignments and were expected to come to class with both the reading and questions completed. Once in class, students were placed into triads using a random grouping sheet that also served as a peer evalua-tion tool. Students were then given a predetermined amount of time to collectively produce a set of answers to the assigned discussion questions reflecting group consensus. At the end of the assigned time individual groups were randomly selected to present their findings on specific questions to the class. Students were instructed to complete their individual evaluation sheets in a confidential manner before the next class session. At the beginning of the next class session, the grouping/evaluation sheets were collected by the instructor and the process was repeated on new course content.

As stated previosly, two purposes of this study were to explore the impact of coopera-tive learning on exam scores and to gauge student feedback regarding the use of cooperative learning. Mid-term and final exam scores from the previos and present classes were used as a basis to see if relationships existed between instructional methodology and student achievement. To assess feedback regarding the use of this approach, students were asked to address the efficacy of cooperative learning groups through a mid-term analysis of teaching. Students were also asked to comment on the cooperative learning experience as part of the student opinion survey conducted at the end of the semester.

Results

Student reaction to the implementation of cooperative learning groups was ex-tremely positive. This finding echoes the experience of others who have implemented similar strategies (Norman & McGuire, 1992; Ventimiglia, 1994). Use of the mid-term analysis of teaching provided an opportunity for student input on the cooperative process and produced suggestions for improvements. End of term student opinion surveys also reflected the popularity of the cooperative approach. Open ended comments like "I learn much more this way," "the groups really let you interact with the rest of the class," and "I look forward to coming to class and sharing my ideas with others" were common.

Improvements in student achievement, as indicated by higher scores on mid-term and final exams were also noted. This finding is indicative of the change over to coop-erative learning strategies (Ventimiglia, 1994). Previous exam scores from the lecture-based class with the same course content were compared to scores from the cooperative-based class. A t-test procedure indicated differences between the two classes. Mean scores of the 100-point mid-term exams were 85.1 for the lecture-based class ($\underline{M}$=85.11) compared to 87.2 for the cooperative class ($\underline{t}$(70)=-2.12, p<.05). A t-test of the final exam scores (based on 200 points) was also statistically significant. The lecture-based final exam mean was 169.6 compared to the cooperative class mean of 179.9 ($\underline{t}$(70)=-10.04, p<.05). For both mid-term and final exams, the class using cooperative learning method-ology achieved a higher exam score.

A caution needs to be extended, however, before assuming that implementation of cooperative learning strategies will increase students' grades. In this situation a number of intervening variables could account for the improvement in test scores. Perhaps the current class was "smarter" than the previous class or perhaps a "Hawthorne effect" was experienced due to the change in instructional methodology. It might also be argued that improved test scores resulted in the positive evaluations discussed earlier. However in this study both the mid-term analysis of teaching and the end of term student opinion surveys were conducted prior to students receiving mid-term or final exam grades. The results of this study are supported by the literature which indicates that improvements in student achievement are associated with the use of cooperative learning techniques (Slavin, 1992).

Discussion

The use of cooperative learning should be considered a viable alternative, or supplement, to traditional lecture-based class structure. It should be emphasized that cooperative learning goes beyond simply putting students into groups. The experience has to be carefully facilitated and implemented by the instructor as discussed earlier. As Norman and McGuire (1992) observed, resistance to this methodology may be encountered, yet most instructors can easily incorporate cooperative learning sessions into existing course work. Educational research indicates that difficulties surrounding the use of cooperative learning can generally be attributed to an instructors lack of proper training in the technique (Fafard, 1992). Lindblad (1994) explored ways of avoiding common pitfalls when using this learning methodology and offered pointers on how to effectively manage cooperative learning situations. However, Kohn (1992) suggested that cooperative learning is sometimes viewed as a threat to standard classroom structure because the teacher control factor is reduced and commitments to individualism and competition are challenged.

This case study produced positive outcomes that were consistent with existing research findings on cooperative learning (Sharan, 1990). At a minimum, students expanded their knowledge base, enjoyed coming to class, and achieved at higher levels than in the previous class which employed a traditional lecture-based model. Ventimiglia (1994) suggested that cooperative learning methodology can also be used in upper level or graduate classes to allow greater student involvement in decisions regarding course content and development. In this scenario, perhaps more appropriate in certain courses than others, students working in cooperative learning groups may actually decide what topics the class will study.

More importantly, use of a cooperative learning approach can help facilitate efforts at student empowerment. By its nature, cooperative learning encourages and builds on students' realities and knowledges rather than those of the teacher, an important component of student empowerment noted by Freysinger and Bedini (1994). Manning and Lucking (1993) noted that use of cooperative learning in multicultural surroundings improves multicultural relationships and contributes to cultural diversity inside the classroom. Sharan (1985) adds to this line of reasoning by noting that cooperative

learning methods have traditionally been applied in desegregated, multigroup educational settings.

The fundamental principle is that people who help each other and who join forces to achieve a common goal will generally grow to feel more positively about each other and will be willing and able to interact constructively when performing a collective task. These attributes of cooperative learning may prove useful to park and recreation educators when developing educational strategies to work effectively with diverse populations (Aguilar & Washington, 1990; Grossman, 1993; Yuker, 1988).

Most importantly, use of a cooperative learning approach may help mitigate what Freire (1970) termed a "banking" model of education where the professor deposits information into students. In this traditional approach, professors, who consider themselves knowledgeable, dictate both form and content of course requirements by bestowing on those considered to know little about the subject, the students, the information appropriate for them and society. Freire points out that in this model students are expected to simply adapt and conform to the education process rather than actively participate in transforming it. In the cooperative learning model professors and students actively and mutually engage in the education process. Working together, they define and create a body of knowledge that informs and transforms both of their worlds. As Shaull so eloquently points out in the forward of Freire's (1970) *Pedagogy of the Oppressed*:

> There is no such thing as a neutral educational process. Education
> either functions as an instrument which is used to facilitate the integra-
> tion of the younger generation into the logic of the present system and
> bring about conformity to it, or it becomes "the practice of freedom,"
> the means by which men and women deal critically and creatively with
> reality and discover how to participate in the transformation of their
> world. (p. 15)

It may be argued that professors are the established experts in their respective fields and as such should make all decisions regarding course content and form. Similarly, some might make the case that students, if given a choice, will choose to study only those subjects that agree with their world. Adoption of cooperative learning strategies does not imply a retreat on the part of the professor. Rather, it suggests that professors facilitate the education process rather than dictate it. To paraphrase a statement related to the provision of leisure services, "education should be something we do with people, rather than to people." We owe our students, the future leaders of our profession, nothing less.

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