

Developments In Business Simulation & Experiential Exercises, Volume 21, 1994

COOPERATIVE LEARNING OR LEARNING TO COOPERATE

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ABSTRACT

This paper examines the applicability of cooperative learning to management education. Cooperative learning is a paradigm that has been receiving significant attention in education in the 1990's. The paper presents an overview of cooperative learning. Cooperative learning is a pedagogical approach whose basic premise is that learning involves the "active construction" of knowledge through the use of structured peer support and peer tutoring. In this paper cooperative learning is advanced as an important experiential methodology for management education. The paper also presents the results of two preliminary studies, which implemented cooperative learning protocols into typical management courses. The studies show the benefits and special considerations unique to cooperative learning, including the development of positive attitudes toward teams, individual accountability and the use of 'experts.' Finally, based on the authors' experience with the preliminary studies, several suggestions are provided on how to introduce cooperative learning methodologies into management courses.

INTRODUCTION

A major focus of ABSEL has been in the area of experiential learning. Interestingly enough, a major part of what is espoused through experiential learning is done in or through a group framework. A recent review of ABSEL experiential contributions (1990-1993) indicates that over half of the articles were devoted to promoting some type of group experience as an end, ipso facto, or used a group experience as the vehicle to demonstrate some important construct. Clearly such interest is well deserved as much of what is done in management today is in or through a group milieu. Team building, teamwork, quality circles, total quality management and re-engineering seem to be the latest vogue in management techniques. Paul Chance writes in Across the Board that teams not only promote morale, but "Increasingly, the work of business is being done by.... teams." (1989, p. 18) Business Week's report of what is "in" and what is "out" indicated the following: Many of these (in vogue) techniques are oriented toward a team or group approach. While the jury is still out in terms of the long-term benefits of teams, it seems clear that today's management orientation is decidedly toward a team emphasis...." Despite this attention to groups and group dynamics, there literally has been no mention about a concept much touted in educational circles today--a concept profoundly related to groups and team-building, viz., cooperative learning.

According to Gunter, et. al., the descriptive phrase for education in the eighties was "thinking skills" and in the nineties, it will be cooperative learning" (1990, p. 167). This marks a major paradigmatic shift in education as well as an attempt to alter the basic American value of individualism. Individualism has been associated with business success since the days of Adam Smith and Ben Franklin. Every epoch seems to have its promoters and proselytizers of rugged individualism, from yesterday's Horatio Alger to today's Anthony Robbins.

An alternative paradigm for what it takes to make a business successful today, however, is presenting a challenge to the traditional model of rugged individualism, i.e., the team concept. "Teams outperform individuals acting alone or in larger organizational groupings, especially when performance requires multiple skills, judgments, and experiences," (Katzenbach & Smith, 1993, p. 9) 50 proclaims a recent popular management book. A recent Public Broadcasting Service Show hosted by Roger Mudd showed the high

degree to which primary and secondary schools are starting to use cooperative learning--not just to increase achievement scores--but to foster what the proponents of cooperative learning call, "important social and interpersonal skills." These skills are not unlike what the AACSB recommends as critical non-cognitive skills for a contemporary business curriculum.

It should be stated here that most proponents as well as researchers, in the field of cooperative learning see it as antithetical to competition. Perhaps because of this unfavorable perspective, management educators have been reluctant to incorporate cooperative learning into their curricula. After all, competition is the byword in most management educational programs. However, it should be noted that there can be a great deal of competition in cooperative learning, as long as that competition exists between teams, and not among the individuals within the team (Gunter, et. al., 1990).

WHAT IS COOPERATIVE LEARNING

The nomenclature for cooperative learning is legion. It is known variously as "collaborative" learning, "collective" learning, "study circles," "team learning" or "syndicates" or "peer-group" learning etc. Bar-Tal and Geser (1980) have defined cooperative learning as:

An activity in which a task is performed by two or more individuals (a) employing common means in a coordinate manner, to attain individual goals or (b) striving in a coordinate manner toward attaining a goal.

Johnson and his associates have defined cooperative learning operationally as "...instructing students to study together as a group, completing one assignment sheet per group, all members giving their suggestions and ideas, seeking help and clarification from each other rather than from the teacher and the teacher praising the groups as a whole."

While there seem to be several different terms used to describe or define a similar concept, there are some essential characteristics which differentiate cooperative learning from the more traditional approaches used in teaching. These are illustrated in TABLE 1.

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**TABLE 1
DIFFERENCES BETWEEN COOPERATIVE & TRADITIONAL LEARNING**

COOPERATIVE LEARNING	TRADITIONAL LEARNING
POSITIVE INTERDEPENDENCE: (goals are structured so that students need to be concerned about performance of ALL group members)	NO INTERDEPENDENCE OR INTERDEPENDENCE NOT EMPHASIZED
INDIVIDUAL ACCOUNTABILITY	NO INDIVIDUAL ACCOUNTABILITY
HETEROGENEOUS MEMBERSHIP	USUALLY HOMOGENEOUS OR SELF-SELECTED
SHARED LEADERSHIP	USUALLY APPOINTED OR SAME LEADER KEPT THROUGHOUT
FOCUS ON MAXIMIZING EACH MEMBERS LEARNING AND ON MAINTAINING GOOD WORKING RELATIONSHIPS AMONG MEMBERS	RESPONSIBILITY ONLY FOR SELF
GROUP SKILLS ARE TAUGHT	SKILLS INFREQUENTLY TAUGHT
INSTRUCTOR OBSERVATION, COACHING AND INTERVENTION	GROUPS WORK OUTSIDE OF CLASS
INSTRUCTOR STRUCTURES PROCEDURES FOR GROUPS TO "PROCESS" HOW EFFECTIVELY THEY ARE WORKING	LITTLE GROUP PROCESSING

--adopted from Johnson, et. al., *Circles of learning*. Alexandria, Virginia: Association for Supervision and Curriculum Development, 1984, pp. 9-10.

As can be seen from TABLE 1 • there is a crucial difference between putting students into groups to learn and in structuring cooperative interdependence among students. Johnson, et. al., stress the differences between just having students work in groups and cooperative learning (1984).

COOPERATIVE LEARNING IN MANAGEMENT COURSES

"Although over 1,000 studies have been conducted on Cooperative Learning at the precollegiate level, relatively few have been done using college students," (Cooper & Mueck, 1990). This is particularly true in the management curricula, where little formal attention has been given to the concept. Some work, however, has been conducted. Cottell stresses the importance using collaborative learning as part of an assessment program in accounting courses (1991); Coffin offers a guide to using cooperative learning in an urban economics course (1992); Wagner and his associates suggest cooperative learning as a technique to use not only to enhance the learning of various management concepts, but also tout it as a practical tool to be utilized for large-sized classes (1992). Finally, Beckman warns that while cooperative learning is not a panacea for today's workplace problems, she acknowledges that the goal of students learning "well" when they work together is soundly substantiated (1990).

METHODOLOGY

In the two studies reported below, the researchers employed the JIGSAW II Method of cooperative learning. This method was originally developed by Elliot Aronson to increase students interdependence (Aronson, 1978). The JIGSAW II Method assigns heterogeneously grouped students to study teams. The instructor (or the team) then picks individual members to serve as experts on a particular subject or some aspect of a subject. The experts then learn the material and teach the other members of the group, each member having the opportunity to serve as an expert. The instructor offers guidance to each team and often teaches the team various types of social skills in order to facilitate the group process. Finally, an important aspect of

the JIGSAW II method is the incentive. The instructor tries to set up an incentive system whereby all members can benefit by helping each other reach the desired goal (positive interdependence).

DESCRIPTION: STUDY ONE

The first study took place at a medium sized university during a Summer session of a Management Concepts course. The course is required of all Management majors. There were thirteen juniors and seniors in the course, ranging in age from 21 to 37. Course sessions were held four days a week for two and a half-hours. The course lasted four weeks.

The instructor established four cooperative groups to deal with four conceptual units with an expert (or two) from each group for each unit. The groups were formed by the instructor so that potential expertise (managerial experience, university GPA and comfort with financial statements) was distributed more or less equally.

Three of the conceptual units were defined by chapters in the course textbook, while the fourth unit was a non-competitive version of the total enterprise simulation *Micromatic* (Scott, 1993). The first unit of the course (the first seven chapters of the text) was taught using a traditional lecture/exercise format. The other three units were taught with cooperative groups. During the three weeks of Coop group format, classes opened with announcements, a test or an exercise, and then expert and cooperative groups met. These meetings were scheduled during the last 1-2 hours of the class period, and when the last scheduled meeting was over, students could leave.

Seven ways to measure the effectiveness of the cooperative methodology were utilized. Two prisoner-dilemma type exercises were used, one prior to the cooperative experience for one half the class and following the second half, and a second experience prior to the second half of the class and one following the first half of the class. Each student took Rotter's Locus of Control Test (Rotter, 1967) and Wheatleys Environmental Culture Diagnostic Instrument (WECDI-Wheatley, 1992) on both the first and last days of the class. Each group was observed by the instructor and each student

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Answered three questionnaires (at the end of the second, third and last weeks of the class) evaluating their own cooperative group experience. Finally, there were pre and post tests (counting for the student's grade) on two of the conceptual units. A group of chapters were assigned for a particular day and a pre-test given two days later. If there were any lectures or exercises to be given on that unit they were given before the pre-test. After the pre-test, classes covering that unit consisted of cooperative and expert groups meetings. Two or three days later a post-test was given on the same unit.

There were incentives for the groups to do well. The simulation was introduced as a group exercise. Extra grade points were given to each member of the team when ALL the members did well.

RESULTS: STUDY 1

In general the cooperative group format worked differently for each of the four groups, and while it was clearly helpful for some, the cooperative group intervention was not entirely successful.

The conceptual pre-test pre-test scores averaged 76.0%. The conceptual post-test scores averaged 86.3%. Locus of control scores decreased from averages of 9.7 to 8.5 meaning an increase towards a more internal locus of control. Average WECDI scores increased from 88.9 to 104.1, showing an increased orientation toward cooperativeness. Prisoner dilemma exercise results showed mixed results. In one exercise, posttest students were more cooperative than pre-test students. In the other, pre-test students were more cooperative. Two other results indicate imperfections with the cooperative method. First, simulation experts were supposed to help non-experts learn the simulation, yet 5 of the 6 non-experts from 3 of the teams scored D's and F's on the simulation exam. Second, the 'concept' experts were supposed to create exam questions for the posttests, and the instructor agreed to use some of these questions (sometimes with minor modifications). In fact about 20% of the questions on the final two posttests included student developed questions. Experts made those questions and the answers open for study by non-experts, yet interestingly enough, four of the non-experts managed to get as many students developed questions wrong as instructor developed questions.

Of the four groups, one almost failed to use the cooperative group format at all. None used it optimally, but three clearly used it. The group that failed to use the format experienced the only drop of the class, a person with a high GPA and some managerial experience. One of its members had a full time job. A member was very dedicated, and this person seemed to expect a high level of dedication from all the participants with some conflict as a result. This group spent virtually no time together, even scheduled time during class hours; only the expert worked on the simulation; the non-experts made the lowest scores on the exam covering the simulation; members of this team earned the lowest grades of any team in the course. A second group worked hard at first, spending lot's of time and making simulation decisions together. This group also made conscious decisions as to how to study exams together. But one of the experts failed to meet a commitment, which opened a wound that was not healed until the last week of the term. The team spent no time together during this period. This team's grades were about average, but non-experts from this team did better on the simulation exam than non-experts from other teams. The third team used the format comfortably. This team was not close, spent minimal time together, but used this time for purposes important to team members. In particular, they traded test questions and taught each other concepts, expectations of the instructor and the simulation. All members got A's and all showed a greater internal locus of control at the end of the course than a the beginning. The final group also used the format to fit individual needs, but that included getting together socially. Their major purpose for getting together was to help their weakest member, who was getting D's on exams. They gave each other maximum peer-evaluation grades, and all members' cooperation

(WECDI) scores were higher at the end of the course than at the beginning.

OBSERVATIONS: STUDY 1

The instructor attempted to implement most of the guidelines associated with cooperative learning. Groups were formed more or less heterogeneously, incentives were arranged so that groups members would have a stake in seeing to it that all the members did well; the instructor did not choose the leader; and some group skills were taught. Unfortunately, in s short Summer course, it is difficult to inculcate cooperative principles and experience because of the short time frame. Further, the class was relatively small, which mitigate against establishing good heterogeneous groups. Another reason that the cooperative learning format did not do well was that participation in it was voluntary. Experts were not required to train others. Meeting were scheduled, but if a coop group felt it had nothing to meet about, the members could leave. Group participation in the simulation was not necessary and increased decision making time, so experts chose to manage the simulation alone. Still cooperative scores went up. Students in the first two groups gained what they wanted and at least one person's grade was saved by this format.

DESCRIPTION: STUDY TWO

The second study was conducted at a medium sized university different from where the first study was conducted. The setting for the second study was a Summer course dealing with the Fundamentals of Management. Study two consisted of 38 students enrolled in a course, which met 3 hours a night, twice a week, for six weeks. The students were assigned to teams consisting of either 4 or 5 members. While the students were told they were playing a significant role in a research project whose purpose was to examine ways of improving the transfer of knowledge, they were not given the actual research intent until after the course had been completed. During the first week of class, students were also assigned to teams using the Jigsaw II criterion.

The course used a basic Management text (Daft, 1991). The course partitioned into three discrete teaching segments. Each segment covered approximately a third of the 22 chapters of the text. The first segment of the course was taught in a fairly traditional manner (i.e., the instructor would spend an hour or so covering the highlights of the chapters and spend the remaining class time having the teams participating in experiential exercises that complemented the course material). At the end of the first segment, a forty question multiple-choice test was given. The questions were selected at random from the text's test bank and were given to each student to complete on an individual basis. After the individual score sheets had been collected, the exact same test was immediately re-issued, but this time, it was completed by the student teams. Each team could share their knowledge and agree upon answer. These texts were collected and graded.

The second segment of the course was conducted exactly like the first segment with the exception that the instructor covered only two chapters of the text and the teams were responsible for using cooperative learning for the remaining chapters. The instructor asked each team to select an 'expert' who would be responsible for learning a particular chapter--or part of a chapter--and subsequently 'teach' the rest of the group that material. Experts were to learn their material outside of class time. The instructor gave the experts time during the class to meet among themselves and share information. The purpose of this was to make sure all of the experts fully understood their material before going to their individual teams to teach the material to their colleagues. The instructor visited each meeting just to insure that they felt comfortable with the material. The instructor was able to give the remaining students (viz., those

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Who were not serving as experts for that class) a series of behavioral exercises to work on while the student experts were meeting. The third segment was completely "student expert" taught. Because of team size and absences, however, there was not an even distribution of chapters for each team member to serve as "student expert" an equal number of times.

RESULTS: STUDY 2

Cooperative learning guidelines suggest that incentives be provided to teams in order to facilitate the cooperative process. In this study, the grade structure was used as an incentive. The grade structure consisted of 20 points for each individual test, 5 point for the first team test, 10 points each for the second and third teams tests, and 20 points for team peer evaluations. On the first exam, covering the first traditionally taught segment, the individual average was 74.0% and the team average was 88.3%. These scores are consistent with previous classes taught in this fashion. The 'hybrid' second segment of the course yielded individual and team test scores of 77.0% and 90.5% respectively. In the final segment, where cooperative learning was fully implemented, individual and team test scores of 78.3% and 92.0% respectively.

The second and third individual tests results reflect an improvement of 4% and 5.7% respectively compared to the first individual test. The second and third team tests reflect an improvement of 2.5% and 4.2 respectively over the first team test. How much of this improvement can be attributed to the "student expert" intervention is difficult to determine from this preliminary study. However, student feedback indicated that there was a high degree of enthusiasm and motivation to learn using the cooperative learning methodology and the "student expert" conditions as opposed to the more traditionally oriented approach.

A comparison was then made of the test results of this study with the test results from previous courses taught by this instructor. Interestingly, the individual tests scores obtained in this study are 8.5% higher and the team tests scores are 6.2% higher than previous test scores from the same course taught by this instructor in the past. Thus, it appears that there is a definite enhancement in utilizing the cooperative learning approach compared to the more traditionally oriented method.

OBSERVATIONS: STUDY 2

Students were given Rotter's Locus of Control Inventory and the Wheatley/Armstrong "Assessing Teamness: A Group Checklist" Schedule on the first day of class and again on the last day of class. On the whole, the students scored 10% higher on the posttest of the Wheatley/Armstrong Schedule, indicating that their attitudes toward teamwork had increased during the course. This suggests that attitudes toward working in teams were influenced by the course itself.

The locus of control instrument was administered only once toward the end of the semester and yielded an average score of 7.7. This reflects a very strong proclivity toward an internal locus of control. This comes as no real surprise as the composition of the class was largely older and more mature students, who--for the most part-- were either full-time employees during the day or retired military personnel working on a second career.

The most significant finding was the feedback from the students per se. At the end of the semester, the students were required to write a short essay of their personal reflections toward the class design and the various pedagogies utilized to teach the material. This was turned into the instructor along with the team peer evaluations after the course was over. With only one or two exceptions, the entire class was very positive about the learning experience. The peer evaluations were also, overwhelmingly positive toward the efforts of their team members. These results coincide with Slavin's assertions concerning the benefits of cooperative learning (1983).

LESSONS AND FUTURE EFFORTS

As noted earlier, the studies presented above are preliminary in nature. Their principal purpose is to offer guidance on how one might begin an effort at introducing cooperative learning into a management curriculum. Further studies must be conducted with more attention to standard research design features. For example, studies such as the ones conducted here, need to be replicated in classes where the course content is considerably more complex. In the second study, for example, attention needs to be given to the potential impact of instructor bias and maturation effects. To determine the true efficacy of "student experts," control groups must be incorporated on a much greater scale and with more attention to learning effects, instructor bias. Efforts must be employed to control for demand bias. And, finally, efforts must be taken to convince the class that the instructor is truly an integral part of the class and not trying to "get out of" from teaching because he or she seems to be making the students to do all the work.

Additional lessons from the above studies suggest that Summer sessions are probably not ideal for introducing cooperative learning, particularly if it is the instructor's first experience with the method. A full semester--or even a yearlong period--is likely to lead to a better experience. The above experiences suggest that the instructor will probably need to mandate that student teams meet during class time, so that the instructor can both offer guidance and observe the group process. The instructor will also have to spend some time introducing students to the notion of cooperative learning, both in terms of having them understand its purpose and importance, as well as having them feel comfortable with it. Perhaps one of the more challenging tasks is to determine how to introduce incentives into the groups, so that each team member can see a personal advantage in having the entire group do well. One problem for traditional team learning has been the tendency for some members to dominate the group. Groups need incentives to insure that cooperation and learning is distributed uniformly among the team members. All members of the group must be responsible in some way for the learning of all the other members. Along with this, the instructor should be clear about what learning he or she expects the group to gain from the cooperative experience and how she or he intends to measure that learning.

If the instructor is thinking of introducing cooperative learning, he or she needs to pay close attention to the "process" of cooperative learning, which also means that there will be some start-up costs in learning about the method. Given that, we recommend that ABSEL consider sponsoring a workshop on cooperative learning at the next ABSEL Conference.

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