EXPERIENTIAL LEARNING-BASED DISCUSSION VS. LECTURE-BASED DISCUSSION: A COMPARATIVE ANALYSIS IN A CLASSROOM SETTING

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ABSTRACT

A study was conducted to determine the effectiveness of experiential learning-based discussions vs. lecture-based discussions in enhancing student understanding of communication network concepts. Undergraduate students (n=188) in four sections of an introduction to management course participated in the study. Two sections discussed communication network concepts after a lecture; two sections discussed the material after an experiential learning exercise. Results indicated the experiential learning - discussion approach was more effective in facilitating understanding than the lecture - discussion approach.

INTRODUCTION

The active participation of students in the learning process has long been considered an effective technique to enhancement of understanding. participation has been found to be an effective technique because of its value as a reinforcement tool in the learning process. The learning theory literature is replete with citations on the value of reinforcement in learning from as early as Thorndike [18], Tolman [19], and Blodgett [2] and as recently as the 1970's [6; 13; 7]. There are empirical evaluations of participative vs. nonparticipative learning. But there is very little empirical evaluation comparing one participative approach with another, especially in the experiential learning literature. The experiential learning literature tends to deal with how to develop measures of performance in experiential learning settings [3; 5; 8; 12; 15; 16]. However, relatively little of the literature contains recent empirical evaluations of learning in an experiential setting [1; 4; 9; 14].

The following describes a study conducted to determine whether experiential learning-based discussion or lecture-based discussion is more effective in facilitating understanding of management concepts, specifically organization communication networks. The experiential learning approach called for more student involvement than the lecture approach did.

Organization communication is a topic taught in most introduction to management courses. One of the major factors that influences the effectiveness of organization communication is the degree of decentralization of the communication network [11]. Research has been done on communication networks and their effects on communication accuracy, task performance, and group member satisfaction [10; 17]. The research is important because teenagers have some influence over how the communication networks develop in their work units and can design their units in such a way that effective communication can be accomplished. Therefore, most introduction to management courses cover the results of the research on communication networks. As with many of the concepts taught in management courses, the management educator is faced with choosing the most effective technique to facilitate learning of the results of the communication network research. This specific situation was used to conduct a study to determine whether experiential-based discussion or lecture-based discussion is the i~re effective technique.

METHOD

Subjects

Subjects were 188 undergraduate students enrolled in an introduction to management course at a large public university in the Midwest. Four sections of the course, taught by two different instructors, were involved in the study. Data were collected from two of the sections during the fall semester, 1982 and from the other two sections during the summer session, 1983. One instructor taught the fall sections, the other instructor taught the summer sections.

Treatment

Subjects were exposed in one 50-minute class session to one of two approaches to participative learning. In Treatment 1, a lecture was followed by discussion. In Treatment 2, an experiential learning exercise was followed by discussion. One section of students fro4n the fall semester (n.75) and one section from the summer session (n~38) were assigned to Treatment 1. The remaining two sections from fall and summer (n~40 and 35, respectively) were assigned to Treatment 2. The teaching objective of both treatments was to expose the students to the concepts involving the varying effects networks have on communication.

Treatment 1. Students in Treatment 1 were given a 30-minute lecture on communication networks. A summary of the material covered follows.

Much of the research to test the effectiveness of various communication networks is based on a series of experiments (l0;17). Some of the communication networks tested are presented in Appendix I (blackboard or overhead). (Networks were explained and organizational examples were given.) In a representative study in the series, five subjects were asked to solve simple problems. In one simple problem, subjects were each given a card with five symbols on it. Only one of the symbols was common to all of the cards. The group's task was to determine which was the common symbol. However, the subjects only could communicate with each other to solve the problem along communication lines controlled entirely by the researchers. In the "circle" network, for example, subject B could communicate only with subjects A and C. To communicate with subject E, subject B would have to go through A or through subjects C and D. (See Appendix I.) The series of studies showed that network centrality was the critical feature that determined whether a particular communication network was effective and/or satisfying to its members.

In most tests, centralized networks performed faster and more accurately than decentralized networks, provided the tasks were simple. For example, with the card symbol experiment, the

centralized network was quicker because only minimal communication between subjects was required. In addition, the central subject could solve the problem alone (after obtaining the necessary information). In the decentralized networks, however, the subjects had to communicate with each other far more extensively before they could determine the card symbol they all held. The centrality of the networks also affected group member satisfaction. Group member satisfaction tended to be higher in decentralized networks regardless of whether the task being performed was simple or complex.

The lecture was followed by 20 minutes of discussion regarding the research on communication networks just presented, specific examples of when to use which network and why, and the advantages and disadvantages of laboratory studies, using as an example the network research.

Treatment 2. Students in Treatment 2 participated in a 30-minute experiential exercise. As part of the exercise, the students were told a laboratory study on communication networks was going to be conducted in class and they were to be the subjects. (The laboratory study was a replication of the card symbol study which was presented in detail during the lecture part of Treatment 1. Therefore, the students in Treatment 2 experienced directly the card symbol study rather than just hearing about it as the Treatment 1 students had.) The experiential exercise is described below.

Students were given the Instruction Sheet presented in Appendix II. To assure that only the allowable communication channels were followed, no talking was allowed from the time of receipt of Instruction Sheets until the questionnaires were collected. Each group of five formed a circle and a card was placed on each desk indicating whether a student was member A, B, C, D or E. Any students left over after groups of five were formed became student helpers. In a brief meeting in the hallway outside the classroom, the helpers were told which card symbol was common to all cards in all groups. The exercise was started with a "Ready, Set, Go. command from the instructor. The time at the start of the exercise was noted by the helpers and instructor. All groups started the exercise at the same time. The helpers and instructor spotchecked that only allowable channels were followed during the study. If a student thought he/she had the correct answer, he/she raised a hand. One of the student-helpers or the instructor then went up to the student and indicated with a "Yes or "No whether the symbol the subject pointed to on their card was the correct symbol. The student had been instructed not to say anything and to point to the symbol such that only the student and the helper/instructor could see the symbol. If the student had the correct symbol, he/she was given the amount of time (minutes and seconds) that had elapsed. The student recorded the time and number of incorrect guesses on a questionnaire (See Appendix III). After successful completion of the exercise, a student could no longer participate in the group and had been instructed to complete the questionnaire and not to interact with anyone. When all group members had finished or given up, the instructor asked that each group calculate an average for member satisfaction (from questions 4 and 5 on the questionnaire, see Appendix III) and for time taken to complete the exercise (from question 1, Appendix III). Each group was also asked to total the number of errors made (from questions 2 and 3, Appendix III). The instructor recorded on the blackboard the data for satisfaction, time, and errors for each network type (I, II, or III,

see Appendix II). Students were informed that in the original research the more centralized the structure, the less time it took to solve the problem and the fewer the errors made, but the lesser the member satisfaction. A comparison was then made between the blackboard data generated in class and the original research results. Discrepancies, if any, were discussed.

A 20-minute discussion covering topics identical to those following the Treatment 1 discussion was held after the completion of the experiential exercise. Again, the topics covered were the research on communication networks just experienced, specific examples of when to use which network and why, and the advantages and disadvantages of laboratory studies, using as an example the network research just presented.

Dependent Variable Measures

The dependent variable was comprehension of communication networks and their effect on accuracy, efficiency, and satisfaction with the communication process. To measure this criterion, four questions were included on a class examination administered two weeks subsequent to Treatments 1 and 2. So as not to make the significance of the research known, the examination was one of two regularly scheduled during the fall and summer semesters and the items were embedded among a number of others. One question was an essay worth six points: Discuss the problems you as a manager might have in applying the results of research based on a laboratory study. To receive the six points, a student had to mention three valid problems. The other three questions were two-point multiple choice questions testing student comprehension of which network is best to use when a simple task is being performed (highly centralized), when member satisfaction is a major concern (highly decentralized) and when a complex task is being performed (decentralized).

RESULTS

Data were analyzed using z-tests of the differences between proportions of correct responses across the Treatment 1 and 2 groups. The Treatment 1 group contained 113 observations and the Treatment 2 group, 75. The difference between the two groups was statistically significant for the essay question (z=2.19, p..0l) and for the multiple choice questions (z=l.90, p-.03). The experiential learning exercise preceding discussion was found to be more effective than the lecture-based discussion.

DISCUSSION

The results of this empirical investigation support the contention in the literature that student participation enhances understanding. This study compared two types of student participation, lecture-based discussion vs. experiential learning- based discussion, and found that the type which involved the student to a greater degree also resulted in a greater understanding of the material. Understanding of the material was measured with items on a class exam.
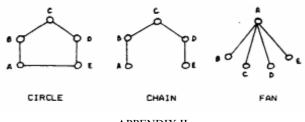
The study makes a contribution to the literature in that few empirical investigations have been conducted comparing experiential learning exercises to other types of participative learning in a business

classroom setting. In this study, experiential learning may have been the most effective because it optimized student involvement in the learning process. The experiential exercise was also a novel teaching technique in the two Treatment 2 classrooms. This may have enhanced student interest in the material. What is not known is if a series of experiential exercises over several class periods, followed by a lecture approach, would have netted the same results. Another possible weakness in the study was the simplicity of the material. A lecture followed by discussion might prove more beneficial than an experiential exercise followed by discussion if the material to be understood by the student is quite complex. The time element must also be considered. An experiential exercise involving co~uplex material might take more classroom time than a lecture and therefore not be as efficient of a technique. Although there was no reason to assume differences in the students in Treatments 1 and 2, such differences, as in grade point average or motivation, may have affected the results. More research evaluating experiential learning exercises will provide information regarding the effectiveness of this technique.

APPENDIX I.

COMMUNICATION NETWORKS IN TREATMENT 1 LECTURE
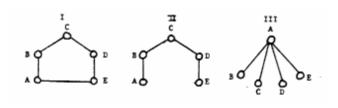

CIRCLE   CHAIN   FAN

APPENDIX II.

INSTRUCTION 5HEET* FOR TREATMENT 2 GROUP

Communication Channels

This exercise is designed to help you explore the influence group structure has on communication. You will be asked to form groups of five and will work together on a task without talking to one another. You will be allowed to communicate with selected members of your group by writing messages to one another on 3 X 5 pieces of paper. The object is to complete the assigned task in as short a time as possible.

Your group will be formed into one of these three structures:

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* Partially adapted from Glueck, W. F., and Jauch, T. R., The Managerial Experience. Hinsdale, Ill.: Dryden Press, 1977.

In each case, you will be assigned as member A, B, C, D, or E. You may only communicate with the person(s) in your group to whom your letter is connected, and only in writing.

You will receive a card with five symbols or numbers on it. Do not let any other member of your group see this card at any time. Through sending messages, your task is to find out which symbol is on all five cards in your group. Only one of six possible symbols is common to each and held by a member of your group.

Your instructor will give you more detailed directions. But when you think you know the answer, raise your hand. You may change your mind and lower your hand. When all members of the group have indicated they know the answer, your task is completed.

At the completion of this exercise, you will be asked to complete a questionnaire.

APPENDIX III.

QUESTIONNAIRE FOR TREATMENT 2 EXPERIENTIAL EXERCISE

STRUCTURE (Circle one):   I   II
                          III

MEMBER (Circle one):   A   B   C   D
                        E

1.   How long did it take to complete the task?

2.   How many times did you raise your hand, then change your mind about which symbol was correct?

3.   Did you have the correct symbol at time of completion? Circle: Yes No

4.   How much did you like your job? Circle:

Very Unfavorable								Very Favorable	
1	2	3	4	5	6	7	8	9	10

5.   How satisfied are you with the job done?   Circle:

very unsatisfied								very satisfied	
1	2	3	4	5	6	7	8	9	10

REFERENCES

[1] Bartlett, Robin L. and Amsler, Christine. Nan Evaluation of the Synergistic Simulation of the Federal Open Market Committee, paper presented at the American Educational Research Association, April 4-8, 1977, p. 14.

[2] Blodgett, E., University of California Publications in Psychology, 1929.

[3] Boardman, Gerald R., "A Computer-Based Simulation Model for the Feedback and Analysis of the Administrative In-Basket Exercise," Educational Administration Quarterly, Vol. 11, No. 1, 1975, pp. 55-71.

[4] Brenenstuhl, Daniel C. and Blalack, Richard 0., "Role Preference and Vested Interest in Bargaining Environment, Simulation and Games, Vol. 9, No. 1, 1978, pp. 53-65.

[5] Burns, Alvin C. and Gentry, James W., Moving Toward a 'Theory' of the Use of Simulation Games and Experiential Exercises, in Daniel C. Brenenstuhl and William D. Biggs (eds.), <u>Experiential Learning Enters the 80's</u>, <u>ABSEL Proceedings</u>, 1980, pp. 17-20.

[6] Estes, W. K., "Reinforcement in Human Behavior," <u>American Scientist</u>, Vol. 60, 1972, pp. 723-729.

[7] Howell, W. C., <u>Essentials of Industrial and Organizational Psychology</u> (Homewood, Ill.: Dorsey Press, 1976).

[8] Hunsaker, Phillip L., <u>Leadership Assessment and Training Simulations: Field Application and Faculty Training System</u> (Milwaukee, Wisconsin: University of Wisconsin, 1975).

[9] Kaufman, Frank L., "An Empirical Study of the Usefulness of a Computer-Based Business Game," <u>Journal of Educational Data Processing</u>, Vol. 13, No. 4, 1976, pp. 13-22.

[10] Leavitt, H. J., Some Effects of Certain Communication Patterns on Group Performance, <u>Journal of Abnormal and Social Psychology</u>, January 1951, pp. 38-50.

[11] Lesikar, Raymond V., "A General Semantics Approach to Communication Barriers in Organization," in Keith Davis (ed.), <u>Organizational Behavior: A Book of Readings</u> (New York: McGraw-Hill, 1977, pp. 336-337).

[12] Lucas, Henry C., Jr., "Performance in a Complex Management Game," <u>Simulation and Games</u>, Vol. 10, No. 1, 1979, pp. 61-74.

[13] McKeachie, W. J., "Instructional Psychology," <u>Annual Review of Psychology</u>, 1974, pp. 161-193.

[14] Remus, William and Jenner, Steve, "Playing Business Games: Attitudinal Differences Between Students playing Singly and as a Team," <u>Simulation and Games</u>, Vol. 10, No. 1, 1979, pp. 75-8 5.

[15] Robinson, J. N., "Teaching Economics to Adults: The Use of a Game," <u>Adult Education</u>, Vol. 49, NO. 5, pp. 280-283.

[16] Ruben, Brent D., "Toward a Theory of Experience-Based Instructions," <u>Simulation and Games</u>, Vol. 8, No. 2, 1977, pp. 211-231.

[17] Shaw, M. E., "Communication Networks," in Leonard Berkowitch (ed.), <u>Experimental Social Psychology</u> (New York: Academic Press, 1964, pp. 111-147).

[18] Thorndike, E. L., <u>Psychological Monographs</u>, Vol. 1, 1898.

[19] Tolman, Edward, <u>Purposive Behavior in Animals and Men</u>, 1932