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ABSTRACT

A preliminary study examined how collaboration could be successfully incorporated as an instructional strategy in a class of adult learners. The study was conducted in a graduate-level class on technology for teachers. The class was composed of 10 current and preservice teachers. The principal content of the class was how to select, design, and use instructional technology in the elementary and secondary classroom. The use of collaboration was considered technologically competent, and training the class in collaboration was the objective. Examining how the class reacted to collaboration with regard to the model of dissemination of innovation by Everett Rogers resulted in the development of a checklist of ways to structure a conversation with learners so that concerns about the innovation of collaboration can be addressed. Checklist items are: (1) relative advantage; (2) observability; (3) compatibility; (4) complexity; and (5) trialability (i.e., can it be tried on a limited basis first). One figure illustrates the discussion. (Contains 21 references.) (SLD)

Title:

Collaboration as an Instructional Innovation

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The study of collaboration as an instructional strategy has been the topic of educational research for more than seventy years. Laboratory research on collaborative learning dates from the 1920's (Slavin, 1977), intensified in the 1970's and 1980's, and continues to be an active topic today (Slavin, 1991).

However, the successful introduction of collaborative methods to a classroom requires certain changes and adjustments. Students must be taught the social skills needed to work in groups; teachers must teach those skills and guide their practice; and some adjustments must be made to the organization of the class. We found the theoretical framework of diffusion of innovation to be a valuable tool in explaining how collaborative activities are incorporated into the classroom.

Last year, we began a preliminary study of collaboration in the higher education classroom. The purpose of our study was to examine how collaboration could be successfully incorporated as an instructional strategy in a class of adult learners. Research on adult collaboration in the classroom usually focuses on either learning outcomes (for example, Johnson & Johnson, 1987) or describes specific instructional tactics that can be used to promote collaboration (for example, Kagan, 1990). Our particular interest was in how collaboration can best be initially introduced, and then maintained, as an instructional strategy.

Studies in Collaborative Learning

Collaborative learning has proven to be a powerful instructional strategy, producing consistently strong effects in both achievement and motivation to learn (Slavin et al., 1985; Johnson & Johnson, 1991; Sharan, 1980; Hamm & Adams, 1992). Cooper and Mueck (1988) define collaboration as ". . . a structured, systematic instructional strategy in which small groups work together toward a common goal." One point to note from this definition is that there is a common goal (to solve the problem, for example), but there may or may not be a common group product. Each individual may produce her or his own product in a collaborative situation.

Cooper and Mueck's definition is compatible with Slavin's (1991) stipulation that group goals and individual accountability form key components of collaborative learning situations. Instructional reward systems are often structured to provide recognition of group achievement or to assign group grades. The elements of group dependency and individual accountability also form key components in the work of Johnson and Johnson. In their exhaustive research (Johnson & Johnson, 1986) on collaboration, they describe some basic elements of collaborative learning:

- Positive Interdependence: learners feel they need each other to "sink or swim" in completing the group's task;

- Face-to-Face Promotive Interaction: interaction patterns and verbal exchanges are critical to the learners' success;

- Individual Accountability: each learner must be helped to understand and participate in the task;

- Interpersonal and Small Group Skills: learners are taught and practice abilities such as trust, communication, and conflict management;

- Group Processing: learners need the time and structure for stepping back to look at how they are functioning as a group. This metacognitive process can be aided by observations from group members and outside observers.

Our Experience

We conducted our preliminary study in a graduate-level class on technology for teachers. The class was composed of ten adult learners (three men and seven women) who were all current or preservice teachers. The three-hour class met once a week for the fifteen weeks of the semester. The principle content of the class was how to select, design and use instructional technology in the K-12 classroom (video, commercial television, e-mail, slides, interactive learning centers, CBI, etc.). The class was lecture based and often included lab sessions on the development and use of the technology. Students were required to develop a variety of media projects for the class.

The use of collaboration was considered as a technological competency. The instructor required the learners to experiment with collaboration so that they could use it themselves in their professional role as teachers, and so that they could teach their own students to collaborate. Based on Johnson and Johnson's research (1986), we devised a three-part program to train the class in collaboration: development of basic collaboration skills, coaching and practice in small group face-to-face structures, and metacognitive group processing by the learners of their collaborative activities.

Early in the semester, during the second class meeting, we conducted a three hour training session to instruct the group in some of the basic skills of collaboration (conflict resolution, listening skills, how to ask effective questions). Throughout the semester, the learners were asked to join small collaborative groups on a range of class activities. For example, groups of three learners completed the interactive computer program Oregon Trail together, then critiqued the program as a team. For another project, students were encouraged to work in groups to produce a short, instructional video. They received a group grade for this project. Two people chose to work alone, and the others formed groups of two or three people to produce the video.

Over the course of the semester, the class was required to work in collaborative groups four times. On each occasion, we provided individualized coaching and encouragement on their collaborative performance. In addition, we coached the groups to discuss and analyze their own collaborative behavior at the end of each session (see Figure 1). Group processing has been identified by Johnson, Johnson, Stanne, and Garibaldi (1990) as an important contributor to the success and productivity of groups.

COLLABORATION JOURNAL

Please take a moment to reflect on how your group used the skills of collaboration:

- Listening
- Questioning
- Resolving Conflicts
- Providing Information
- Clarifying
- Summarizing
- Making Predictions
- Elaborating/Explaining
- Expressing Empathy
- Leading
- Following
- Energizing
- Encouraging
- Compromising
- Arguing

1) One thing I think our group did well in this session was. . .

2) One thing I think our group ought to work on is. . .

3) Collaboration contributed to our productivity in this session by. . .

Figure 1. This is the format the groups used to discuss their collaborative activities. Its purpose was to promote metacognitive awareness of what they had learned and practiced, and to articulate their own goals for progress.

One of our most consistent observations about the class was that the act of collaboration seemed somewhat foreign to the students, and, off and on, they were reluctant to collaborate. They reported that they know about collaboration, and that they had collaborated successfully in other contexts. They had been told in other situations that it was important to collaborate, or told that they had to, but had never formally been taught how to do it effectively. Consequently, they lacked organized instruction, examples, practice and feedback in the skills of collaboration. They had information, but lacked the experience.

Their lack of experience should not be surprising. Our society has not placed great cultural value or invested societal resources in promoting collaboration. Judging from the literature on workplace collaboration, there is currently a desperate need to teach and encourage adults in the skills of collaboration. For example, Lunsford and Ede (1990) surveyed professionals in various disciplines about their collaborative writing experiences. Of the 700 respondents, 42 percent answered that writing as part of a team or group was "not too productive" or "not at all productive." These responses are especially disconcerting in the face of numerous surveys of professionals confirming that collaborative writing is a major activity in the workplace (Penrose, Bowman, & Flatley,1987; Couture & Rymer, 1989; Killingsworth and Jones, 1989).

Collaborative teamwork on the job has been a prime topic in business literature over the past ten years. Many of the best selling business books of the decade has been written in response to the apparent frustration and urgency of introducing teamwork in all kinds of organizations and for all levels of employees (Senge, 1990; Peters, 1992; Larson & LaFasto, 1989; Kanter, 1983; Kanter et al., 1992).

The Denver Public Schools have faced a similar difficulty in making collaboration work. Two years ago, the system was state mandated to form school-based Collaborative Decision Making Teams, composed of parents, teachers, community members, and the school principal. According to the latest comprehensive assessment, one of the most difficult problems reported by the teams has been their lack of skills and experience in collaboration (Center for Quality Schools, 1993). The teams report that this lack of skill has led to inefficiency, ineffectiveness, and high turnover in team membership.

Collaboration as an Innovation

As it became obvious to us that experience in collaboration was somewhat new to the class members, we shifted our thinking to look at collaboration not only as an instructional strategy but as an innovation as well. We reviewed the literature on innovation in order to understand the dynamics of this process. Everett Rogers' seminal work on Diffusion of Innovations (1983) provided a helpful and enlightening structure through which to organize our observations of the classes' alternating ease and difficulty in implementing collaboration.

Rogers defines an innovation as something perceived as new to the potential adopters -- in this case, our learners -- even though it might be familiar to the rest of the world (Rogers, 1983). According to the diffusion model, an innovation often involves technology, both hardware (physical tools) and software (instructions or information). In both these aspects, the diffusion model seemed to fit the situation of the introduction of collaboration into this group of adult learners. The model proved to be an appropriate choice in helping us understand the experience of the class we observed.

The Elements of Diffusion

One of the most critical concepts of the diffusion of innovations model is that of the elements in the diffusion of an innovation (Rogers, 1983). The theory states that the more of these elements that are present in any particular innovation, the more likely it will be adopted. These are the questions that potential adopters consider prior to deciding whether to adopt the innovation:

Relative Advantage. Is the innovation seen as better than that which it replaces? More economical, more socially prestigious, more convenient, more satisfying? What is the risk involved in adoption? Is it worth the change?

Observability. Are the results of the innovation visible to others, so that they can see how it works and observe the consequences?

Compatibility. How consistent is the innovation with the values, past experiences, and needs of the potential adopters?

Complexity. Is the innovation easy to understand, use, and maintain? Can it be explained to others?

Trialability. Can the innovation be tried out on a limited basis?

As we reviewed these five elements, and applied them to our observations, what we were seeing began to make more sense. Overall, the class members reported being sometimes ready and willing to collaborate and sometimes reluctant; willingness to adopt collaboration also varied with the individuals. Specific issues that surfaced in the class seemed to be captured by Rogers' elements of a successful adoption. For example:

- They wondered if the effort was worth the work (Relative Advantage).
- After the first successful collaboration, they were more willing to collaborate the second time (Trialability).
- They commented that there were too many communication rules to juggle (Complexity).
- They feared they wouldn't have time to collaborate and get their assignments done (Relative Advantage).
- They said that collaborating was hard because that they weren't used to it (Compatibility).
- Members that did not collaborate as much commented at the end of the class that those who did collaborate seemed to have more fun doing the projects (Observability).

According to Rogers theory, concerns and feelings like these will typically be experienced by the potential adopters of an innovation whether we and they are aware of them or not, and whether we and they want to deal with them or not. We believe that considering Rogers' five elements will assist us to more successfully implement collaboration by helping us decide how and when to best adopt and implement an instructional strategy like collaboration.

An Innovation Checklist

Rogers' theory states that the more of the five elements that are present in any particular innovation, the more likely the innovation will be adopted (Rogers, 1983). Looking back on our experience with the class, we realized that if collaboration were indeed an

innovation, it would be helpful to give that innovation some serious consideration before adopting it. We thought it would be helpful to develop a structured way to think in advance about how to plan for successful collaboration.

We offer a checklist of questions for several reasons. First it can be a preparation tool to trigger the thinking of teachers prior to implementing collaboration. We need to assess whether we want to incorporate collaboration, how much to incorporate it, and how to design the class to support it. Secondly, we found that collaboration was an innovation to our learners, and that it was important to prepare them thoroughly as well. We offer the checklist as a way to structure a conversation with the learners so that concerns about the innovation can be considered, articulated, and taken into account when designing instruction. Here are our initial suggestions:

Relative Advantage: (Is it worth it to us?)

What is the advantage to our using collaboration in this class? What will be the advantage to the learners? What will be the advantage to the teacher? How can we support our goals while using collaborative techniques? Is there a way that this experience in collaboration will be useful to us outside of this class? How much additional time and effort will it require to prepare for and implement collaborative activities? Given everything else we are doing in this class, is it worth our time and effort? Are collaborative activities better than the ones they will replace? How can we make collaboration interesting or fun?

Observability: (Can we see it in action first?)

Can we observe how collaboration is being used in other classrooms like ours, either in person or through other media? Can we obtain information about collaboration and how it works? In our own class, can we observe our more experienced members collaborate?

Compatibility: (Does it fit for us?)

What are our experiences with collaboration, both in and out of the classroom? Is collaboration compatible with our personal and educational values? What are our group and individual needs in this class and how can collaboration contribute?

Complexity: (How complicated is it?)

How can we keep our experiment in collaboration simple to begin with? What is an easy way to describe collaboration to ourselves and others? What kind of training and coaching will be necessary in order for our group to be successful in a collaborative activity; how can we get that training?

Trialability: (Can we try it first before we bet the ranch?)

Is there a way to try out collaboration on a limited basis at first? Instead of redesigning the

whole class, can we incorporate a few collaborative experiences? How could we debrief about our experiences in order to correct our mistakes and capitalize on our successes?

Conclusion

Although educational researchers may agree that collaboration is beneficial to learning, and we may agree as a society that collaboration is a worthwhile behavior, the skills of collaboration are not understood and practiced on a regular basis. If it is true that collaboration is still an innovation for us as adults in both the classroom and the workplace, then models that explain the process of innovation can help us understand how to promote the innovations we want. We have found Rogers' diffusion of innovations model to be especially useful in understanding how to better promote an instructional innovation like that of collaboration. We offer a checklist of questions based on the diffusion theory to prompt thought and discussion among students and teachers on how to promote the instructional innovations that they want to try.

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