8-25-1995

Teaching the 'Other' IS Skill Set:Developing and Integrating Collaborative Experiences in the IS Curriculum

Rebecca Berens

Wright State University, rkoop@desire.wright.edu

Follow this and additional works at: http://aisel.aisnet.org/amcis1995

Teaching the 'Other' IS Skill Set: Developing and Integrating Collaborative Experiences in the IS Curriculum

Rebecca Berens Koop, Ph.D.
Management Sciences and Information Systems
College of Business and Administration
Wright State University
Dayton, OH 45435
(513) 873-2748
rkoop@desire.wright.edu

Abstract

Information systems professionals perform daily in complex organizational environments. As such, the technical skills they possess are as critical as the ability to work across functional areas in a goal-oriented team environment. The IS'95 Curriculum emphasizes and formalizes the need to explicitly develop group work and communication skills: the 'other' IS skill set. Group work and communication skills development should be taught within the context of current course work by incorporating collaborative learning methods in the teaching strategy. This paper will discuss the benefits of collaborative learning, the need for collaborative experiences across the IS curriculum, and strategies for implementing collaborative exercises within the IS classroom.

Background

Information systems professionals are multifaceted individuals. It is unrealistic to assume that an IS student without a solid understanding of hardware and software issues would be well prepared for today's work environment. It is, however, equally unrealistic to assume that IS students without a solid understanding of speaking, writing and team work skills would be prepared. Recognition of the need for developing IS students' skills beyond technical content areas was <u>formalized</u> by the IS'95 Curriculum Committee with two of six objective areas emphasizing the 'other' IS skill set: communications and group work skills.

Mastery of communication and group work skills cannot be achieved by adding a single course, or providing a one-time group experience such as the capstone group project. Expertise in these areas can only be developed over time with exposure to different problems, settings and people. As the IS'95 curriculum emphasizes, group work and communication skills must be learned in a spiral process where ideas are presented stepwise and repeated again at a higher level.

How can we infuse the IS curriculum with communications and group work skills while retaining the vital emphasis on technical content? How can we ensure that our students build their communications and group work expertise at increasingly higher levels over time while retaining an emphasis on higher level learning in the technical skill set? The answer lies in the classroom teaching methodology:

Integrate collaborative experiences into our IS technical course work.

Infuse the entire IS curriculum with collaborative learning experiences.

This paper discusses collaborative learning, strategies for developing collaborative learning experiences within existing IS course work, and the challenges of implementing collaborative learning across the IS curriculum.

Collaborative Learning

Setting: S*ystems Analysis Class*
The instructor has just completed a lecture outlining fact and perception finding techniques, and student learning teams are given an assignment. Each team is to read a description of a systems project, discuss techniques that could be used to define the system requirements, and come to consensus by outlining a "best" strategy for proceeding with the systems project. At the end of the exercise, any one of the team members could be called upon to present the group's results, or to represent the group by writing up the group's response.

In the above scenario, students were asked to work together, collaboratively (or cooperatively as others describe the experience; Slavin, 1995, Johnson et al., 1991), to achieve a common goal: understanding when to apply different analysis techniques and understanding what types of data each technique is likely to uncover. The discussion of a technique's merits is richer because of each student's prior experiences: one may have had prior internship experience or a part-time job in the IS field, another may work full-time as a computer programmer or technician, while still others may have experience only on the receiving end of information systems as users of retail or accounting software. The students' backgrounds guide their views of the techniques and their views of each technique's potential for eliciting information. Students' prior experiences also influence their perceptions of the type of information needed for the project. Whereas one student's view of the relationship among techniques may be biased, the group's view will represent a much broader understanding of issues. "Reflection is spawned from argument." (Vygotsky, 1978, p. 47)

This collaborative learning experience was developed by the instructor to guide student groups in purposeful activities while working toward a common goal: maximizing student learning of assigned material.

As the scenario illustrates, collaborative learning entails more than assigning students to groups and giving them a task. Slavin (1995) discusses the five essential characteristics of successful collaborative learning:

1. Collaborative learning experiences require positive interdependence among students in terms of goals, roles, resources and rewards. It is helpful to diagram a matrix for each classroom exercise that explicitly outlines each element and how it promotes interdependence. The goal is not to create an assignment that can be accomplished by one person working alone -- it must require the input of group members.

2. Collaborative learning experiences encourage and promote interaction among group members. In general, the more heterogeneous the group, the more interaction the group will experience. The ideal group size is between 3 and 5 depending on task complexity, time, heterogeneity of groups, etc.

3. Collaborative learning experiences require individual accountability for each group member. Individual accountability helps to remove the problem of "slackers", students who ignore or hinder the group process, then bask in its achievements.

4. Collaborative learning experiences require the development of social skills to facilitate communication among group members. While some students may have already mastered skills necessary to perform cooperative work, IS instructors must explicitly teach communication skills to most students.

5. Maximum benefit from collaborative learning experiences is gained by allowing the group to process their results -- how well goals were achieved -- so that processes may be improved upon with the next experience. Reviewing the group decision process is most likely a new task for every student.

It is extremely important to remember that students must develop collaborative learning skills. The teamwork skills required by IS'95 will not automatically develop because students are placed into work groups. Collaborative skills (4 and 5 above) must be taught along with the technical content. Solomon, et al. (1992) emphasize the need to explicitly state objectives for each collaborative experience which outline the activities to be completed, thinking skills and processes the students must work through to complete the activities, and the social skills required to complete the task. Koop (1995) details the development of an IS collaborative learning exercises.

Implementing Across the IS Curriculum

It is not enough to provide a few collaborative experiences within scattered IS courses. The implementation of collaborative learning must be a deliberate, planned course of action within the IS curriculum.

The design goals for collaborative learning within the IS curriculum are: 1) to institute spiral learning, 2) to give students practice and exposure to many individuals, problems,

and settings, 3) to allow students opportunities for observing dynamics under differing group objectives. Based on these three design goals, the ideal implementation of collaborative learning is within strict sequenced course work. Each course in the sequence would provide increasingly challenging collaborative experiences, building on skills learned in previous courses. For example:

Course Sequence	Degree of Collaboration
Systems Analysis	Classroom Exercises (Beginning difficulty)
Systems Design	Classroom Exercises (Increased difficulty)
IS Managerial Issues	Collaborative Course
Senior Development Project	Self-Managed Teams

Koop (1995b) maps specific IS'95 teamwork and communication skills to collaborative exercises within sequenced IS courses, describing the effects of spiral learning for both technical and communication skills.

Sequencing exercises and building collaborative skills over a number of courses has several benefits: 1) students are prepared for more difficult collaborative challenges because they have previously encountered collaborative experiences, 2) no single course or instructor is overwhelmed by the task of teaching all of the collaborative skills necessary to survive in today's marketplace, 3) students are not overwhelmed by the collaborative experiences to the exclusion of the technical content, 4) experience and exposure over several courses allows students the time necessary to adapt and develop social skills required to effectively learn within teams.

As we reengineer our IS curriculum to meet the new IS'95 standards, we must not ignore the potential of integrating new teaching methodologies. By infusing the IS curriculum with collaborative experiences, our graduates will be prepared to meet the challenges of tomorrow's workforce.

References

Adams, Dennis, and Hamm, Mary, *Cooperative Learning: Critical Thinking and Collaboration Across the Curriculum*, Springfield, IL: Charles C. Thomas Publisher, 1990.

Bruffee, Kenneth, *Collaborative Learning: Higher Education, Interdependence, and the Authority of Knowledge*, Baltimore: Johns Hopkins University Press, 1993.

Johnson, David, Johnson, Roger, and Smith, Karl, *Cooperative Learning: Increasing College Faculty Instructional Productivity* , Washington, DC: ERIC Clearinghouse on Higher Education, 1991.

Johnson, David, Johnson, Roger, and Smith, Karl, *Active Learning: Cooperation in the College Classroom*, Edina, MN: Interaction Book Company, 1991. Koop, Rebecca, "Anatomy of an IS Collaborative Classroom Experience," Unpublished working paper, RBK-95-05 Wright State University, 1995.

Koop, Rebecca, "Collaborative Learning and the IS Curriculum: Mapping Objectives, Achieving Goals," Unpublished working paper, RBK-95-04, Wright State University, 1995.

Slavin, Robert, *Cooperative Learning: Theory, Research and Practice, 2nd Edition*, Needham Heights, MA: Simon & Schuster Company, 1995.

Solomon, Richard, Davidson, Neil, and Solomon, Elaine, "Some Thinking Skills and Social Skills that Facilitate Cooperative Learning," *Enhancing Thinking through Cooperative Learning* , Davidson and Worsham, eds, New York: Teachers College Press, 1992, p. 101-119.