

AN ANALYSIS OF ACTIVE LEARNING OUTCOMES IN LARGE MANAGEMENT INFORMATION SYSTEMS (MIS) COURSES

Elizabeth Kemm, Central Michigan University, kemm1e@cmich.edu

Hongjiang Xu, Central Michigan University, xu1h@cmich.edu

Zhenyu Huang, Central Michigan University, huang1z@cmich.edu

Monica Holmes, Central Michigan University, monica.c.holmes@cmich.edu

ABSTRACT

Engaging students' interest in courses that are required outside of the students' major field is sometimes a difficult task. This is especially true when the courses have a large number of enrollees. This research-in-progress studies undergraduate management information system (MIS) courses at an AACSB-accredited school. The scope of material in these courses is extremely broad. MIS is the enabler for a large percentage of current business practices, yet for many business students this is the only time they will be engaged in this material. Therefore it is especially important for students to get a good understanding of the material in this MIS course before they continue their academic and professional careers. For this research the methodology is quasi-experimental with data collected from students by survey instruments and examinations. This Research focuses on immediate students' learning outcomes, long-term learning outcomes, satisfaction with the active learning process, perception of learning with the active learning process and students' preparation for class. Results of this study should benefit instructors and researchers in the MIS area.

Keywords: MIS, active learning, learning outcomes

INTRODUCTION

Introductory MIS courses are often difficult to teach. When these courses are outside a student's major field the student's interest is sometimes hard to engage and maintain. When undergraduate classes are very large and administration of these classes is minimal, keeping students engaged to the point of attending class, preparing for class by reading assigned material and applying the knowledge gained from reading the assigned material has been less than successful. Traditionally, these classes are taught by a professor lecturing on the assigned material. This, however, is the circumstance in many institutions where large numbers of students must be serviced and where budgets limit the available instructors.

This research-in-progress focuses, specifically, on undergraduate management information systems (MIS) being taught in one AACSB-accredited school of business. The scope of topics in these courses is extremely broad providing students an introduction to such subjects as information system development, database theory and design, hardware and software concepts, the use of information systems in decision making and information systems in e-commerce. The scope of the subjects makes it difficult for some students to understand the integration of the topics, i.e., how do they all fit together. For many business students this course is the only time they will be engaged in this material. Because MIS are the enablers for a large

percentage of current business practices it is important that students are well-grounded in MIS concepts before entering the professional world.

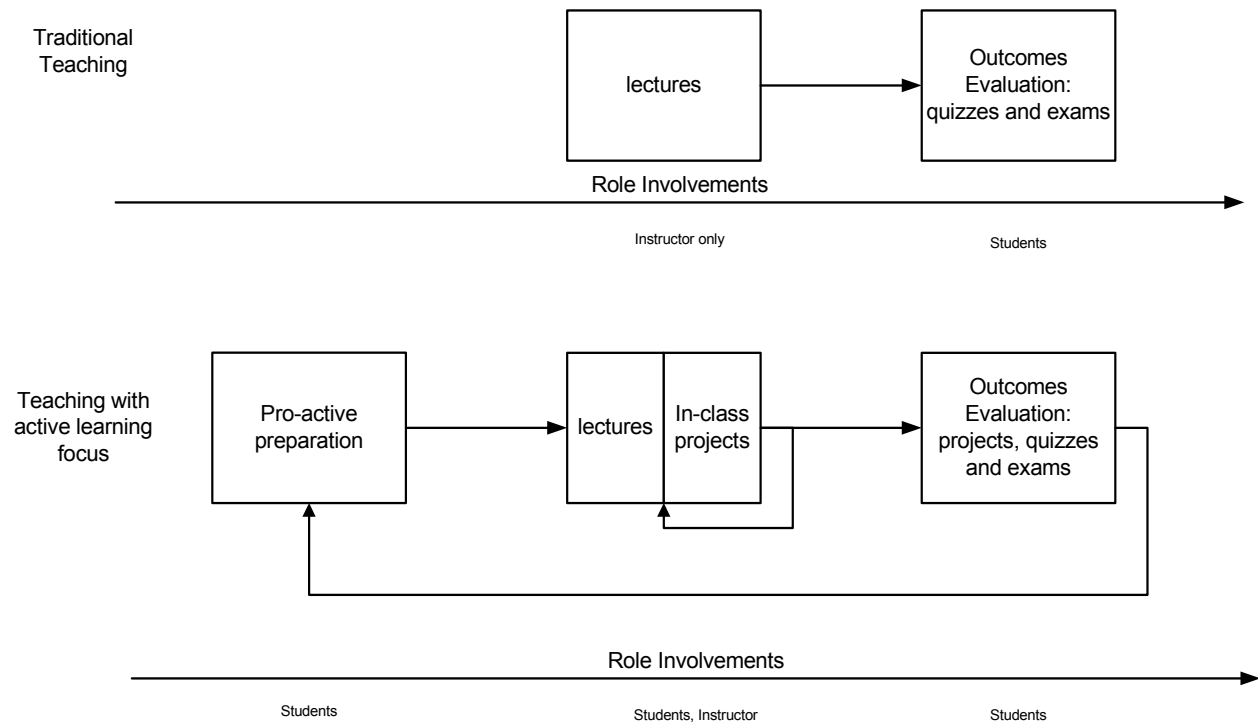
In recent years the concept of active learning has been championed by many educators as a superior technique for engaging students in the learning process. This study looks at the use of active learning in a comparison between the outcomes of an active learning project and a traditional lecture that would be used in large MIS courses.

ACTIVE LEARNING

The theory of active learning suggests that students should do most of the work of learning which includes studying ideas, solving problems, and applying what they learn. It requires personal engagement. Active learning helps students to hear, see, ask questions about issues and problems, and have the opportunity to discuss them with others. (6, 1, 2). Students in active learning experiences are generally seen to take a greater responsibility for their own learning, which, therefore, makes them take a more dynamic role in deciding how and what they need to know, what they should be able to do, and how they are going to do it. Students' roles extend further into educational self-management, and self-motivation becomes a greater force behind learning (4). Examples of active learning methods include: collaborative learning, problem-based learning, case methods, course projects, simulations, and technology uses.

Students involved in active learning processes have different learning experiences than they have in traditional learning process (see Figure 1). Active learning is based on the premise that students have read the assigned material and are prepared to use that material in a project or discussion to be done during the class period. Therefore, the students must be pro-active before coming to class so that they are able to participate in the project. Students must be prepared and ready to finish projects with their team mates during the class time. Any instructional lectures will be provided by instructor on a very limited scale.

From the learning process (Figure 1) we can see that in a traditional teaching environment, students passively participate in class activities (primarily conducted by instructor only, such as lectures). Students have limited interactions with the instructor and their peer fellows inside and outside classrooms. Students are asked to "buy in" to the course without being given a mechanism for doing so. For the students who are non-MIS majors in the class (marketing, finance, management, accounting, etc.) and who don't recognize a need for an MIS course the interest in learning is limited.



Comparison Between Traditional Teaching and Teaching with Active Learning Focus

Figure 1

RESEARCH QUESTIONS

At least five research questions are asked:

1. What are the immediate learning outcomes of courses taught using a traditional lecture method when compared with courses taught using an active learning technique?
2. What are the long-term learning outcomes of courses taught using a traditional lecture method when compared with courses taught using an active learning technique?
3. What are students' perceptions of their learning outcomes of courses taught using a traditional lecture technique when compared with courses taught using an active learning technique?
4. How do students' satisfaction levels compare between courses taught using a traditional lecture technique and courses taught using an active learning technique?
5. How does students' preparation for class differ when preparing for an active learning project and a lecture class?

METHODOLOGY

This study is done in an introductory MIS course at an AACSB-accredited school. Subjects for the study are students in three large class sections (over 100 students) taught by three different instructors. The study is done in three phases with each phase covering a different segment of the course material.

For the active learning session a project is designed to cover a segment of the course material. The project is designed to be done by a team of students working together during the class period. At the end of the project development students are given a form on which they can evaluate their colleagues contribution to the project. Students who are not prepared when they come to class are ill-prepared to participate in the project and, generally, do not receive high marks from their peers for contributions to the project. Students' participation is measured as an average of their teammates evaluation. Additionally, at the end of each class session, students are asked to evaluate their perceptions of learning in the class and to describe the preparation that they had done before coming to class.

For the traditional learning session a lecture is designed to cover the same segment of course material and is presented to other groups of students. As in the active learning session, at the end of each class session, students are asked to evaluate their perceptions of learning in the class and to describe the preparation that they had done before coming to class.

At the next class session an evaluation instrument is given to all students: the ones who participated in the active learning session and those who were in the lecture class sessions. Evaluation outcomes of the students who participated in the active learning session are compared with outcomes of the students who were in the lecture class sessions. This comparison is to measure differences between the material that was learned by each group and the relative merits, to the students, of each instructional technique.

Later, students are once again given an examination over the same material in order to measure any differences between the outcomes of students who participated in the active learning process and the students who were in the lecture class. The purpose of this examination is to determine whether or not there is any difference in the long-term retention of the material covered. The outline for these research sessions is shown in the table in Figure 2.

1 st segment of course material				2 nd segment of course material				3 rd segment of course material			
1	A L	Eval	Long-term Evaluation	TR	Eval	Long-term Evaluation	TR	Eval	Long-term Evaluation		
2	T R	Eval	Long-term Evaluation	AL	Eval	Long-term Evaluation	TR	Eval	Long-term Evaluation		
3	T R	Eval	Long-term Evaluation	TR	Eval	Long-term Evaluation	AL	Eval	Long-term Evaluation		

Legend:

- 1.....Class/group 1
- 2.....Class/group 2
- 3.....Class/group 3
- AL.....Active Learning
- TR.....Traditional Learning
- Eval.....Evaluation

Outline of Research Sessions

Figure 2

CONCLUSION AND RECOMMENDATIONS

Introductory MIS courses are often difficult to teach because of the size of the classes and the varied backgrounds and interests that students bring to the class. It is expected that the required preparation that students must do for an active learning experience would enhance the students’ participation and make the active learning experience more satisfying to the students. It is also expected that the active learning experience promotes learning at a deeper level thus increasing long-term retention of the course material.

REFERENCES

1. Bean, J. C. (1996). The professor’s guide to integrating writing, critical thinking, and active learning in the classroom. San Francisco: Jossey-Bass.
2. Bonwell, C. C. and Eison, J. A. (1991). Active Learning: Creating Excitement in the Classroom. San Francisco: Jossey-Bass.
3. Brown, David G. and Curtis W. Ellison. (1995). “What is Active Learning?” in The Seven Principles in Action. Susan Rickey Hatfield, editor. Bolton, MA: Anker Publishing Company, Inc.

4. Glasgow, N. A. (1996). New curriculum for new times: A guide to student-centered, problem-based learning. Thousand Oaks, CA: Corwin Press.
5. Rangachari, P.K. (1996). "Twenty-up: problem-based learning with a large group" in Bringing problem-based learning to higher education: theory and practice. LuAnn Wilkerson, Wim H Gijsselaers, editors. San Francisco: Jossey-Bass.
6. Silberman, M. (1996). Active learning: 101 Strategies to Teach any Subject. Allyn and Bacon: Needham Heights, MA.
7. _____ The Challenge of problem-based learning. David Boud and Grahame I. Feletti, editors. London: Stirling (USA) : Kogan Page (1997).