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# **An Exploratory Study On the Effects of Electronic Collaboration In An MBA Core Course in Information Systems**

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## **Abstract**

Internet based collaboration tools are increasingly being used in information systems courses. This study reports on the results of one such implementation at Lawrence Technological University. Using a sample of 51 students, the researcher explores three hypotheses. First, students in a class with electronic collaboration will work on course material more days during the week than those without. Second, students will perceive that quiet peers can more freely express themselves. Third, students in a course with electronic collaboration will perceive a greater gain in their Internet skills compared to those in a course without collaboration. The researcher supported his second hypothesis.

## **Introduction**

With the advent of Internet based collaboration tools, such as chat rooms and bulletin boards, there have been general calls for their widespread use (McLellan, 1998). Employers increasingly are calling for graduates to be adept at new ways of working, especially with collaboration tools (Alavi, 1995). This researcher set out to add a collaboration component to a MBA Core Course in Information Systems and to measure the impact of this component on his students. This report summarizes the findings.

The instructor has taught the course in question for several years to part-time MBA and MS in Information Systems (IS) students. Utilizing a standard IS textbook, students meet one night a week for lecture and discussion. The course includes a full array of hands-on assignments, including weekly case write-ups, an Internet scavenger assignment, database assignment, systems development assignment and a term project (RFP development). The instructor's overall concerns are three fold:

- With class only meeting one night a week, students might be tempted to put their books away for five days after a class meeting. How can students be encouraged to think about course material throughout the week?
- Quiet students are not actively involved in the discussion and, hence, do not benefit from class as much as more vocal students. Can a tool be implemented that will encourage quiet students to speak more freely?
- Students have varying levels of Internet skills. How can a student's own confidence in their skills be improved?

Internet based collaboration tools seem to be a perfect

answer to these concerns. With the researcher's institution recently implementing WebCT as a WWW teaching tool, the researcher was able to use this Internet based collaboration tool and conduct a test

## **Literature Review**

A significant body of research exists on collaborative learning. The research generally supports the use of collaboration in teaching, supporting the notion that group learning is superior to traditional learning methods in several regards (Alavi, 1995). Reported superior characteristics include student satisfaction, student involvement, problem solving and critical thinking skills (Alavi, 1994). A meta analysis of 375 studies by Johnson (1991) suggest that participants in collaborative learning achieve approximately two-thirds of a standard deviation above the average achievement in traditional settings. Beyond achievement, collaboration has been found to have social effects, bringing increasing caring and commitment to the classroom (Alavi, 1995). Further, collaboration can help reduce anxiety for shy and quiet participants.

## **Methodology**

Based on the literature reviewed, one would expect the following:

- |     |   |
|-----|---|
| H1: | Students in a class with Internet based collaboration will work on course material more frequently than those in classes that do not use such tools.                                |
| H2: | Students will perceive that quiet peers more freely express themselves in a class with Internet collaboration than in a class without such tools.                                   |
| H3: | Students in a class with Internet based collaboration will perceive significantly greater increase in their Internet competence than those in a class that does not use such tools. |

The researcher's circumstances did not allow for a full experimental design and randomization of the two sections. A quasi experimental framework was developed using two sections of the course offered in succeeding semesters. As such this is an intact equivalent design. Although several sources of bias are likely, the instructor worked to minimize these by:

- Maintaining identical assignments in both sections.
- Maintaining nearly identical section size (24 and

27 students) in the sections.

- Utilizing the same textbook and lecture notes for both sections.
- Using parallel forms of exams.

Analysis of the final grades in the two sections shows no significant difference in final exams or course grades. Further research showed no significant difference in student satisfaction between the two sections.

Students in the section that had the WebCT component participated in three weeks of on-line discussions. Using the bulletin board feature of WebCT and instructor provided articles and related discussion questions, students were required to participate. The instructor measured student participation and included it as an element in students' grades.

To test these three hypotheses, the researcher employed a survey instrument at the end of each course. Students in the first section (without collaboration) answered a set of four questions that measured:

- Program (MBA, MS Information Systems and other)
- Number of days per week the student spent more than 30 minutes studying for the course (measured as an integer).
- A self rating of competence in using Internet tools before the course (four point scale)
- A self rating of competence in using Internet tools after the course (four point scale).

Participants in the second section answered an additional three questions:

- Perceived usefulness of the WebCT tool (five point scale).
- Desire to see WebCT used in more classes (five point scale)
- A measure of student perceptions on whether WebCT allowed quiet students to more freely express themselves than they would in a traditional classroom (five point scale).

The researcher analyzed the data to test the three hypotheses. For the first hypothesis a simple one-way ANOVA compared number of days of study per week for students in the two sections. For the second hypothesis, the scale of the last question was assumed to be interval. The researcher then conducted a t-test of responses compared to the neutral point of the scale. Finally, for the third hypothesis, a one way ANOVA tested whether the difference in the self rated competence (before minus after) was significantly different for students in the section that had Internet collaboration versus those that did not.

## Conclusions

H1, difference in the number days of study, was not supported. The F-Ratio was 1.06 with a significance of .31. Students in both sections reported, on average, working on course work about 3.5 days a week. Apparently, the inclusion of an Internet collaborated meeting did not significantly impact their self-reported

study habits. This may be due to an insufficient number of on-line assignments. However, if student self-reports are accurate, the researchers initial concern about leaving course material alone may be unfounded. To see if the reports are inflated, further research using web tools to monitor actual participation may be revealing. This result, however, is lower than in many on-line degree programs that require students to participate as many as five days per week.

H2, student perception of quiet peers' expression, was supported. Testing responses against the neutral value of 3, resulted in a t value of 5.09 and a significance of .000. Students believed that quiet peers could more freely express themselves in the electronic bulletin board than in class.

H3, increased gain in Internet skill for students in a collaborated class, was not supported. Interestingly, students did report a significant gain in Internet skills during the course. However, there was no significant difference between students in the two sections. Apparently, other Internet assignments, namely the scavenger hunt, provided the bulk of the gain.

In terms of the author's original research questions, the use of an Internet based collaboration tool helped meet one of the author's three initial concerns. Future study will allow the researcher to pursue several other areas. First, the author has only begun to use collaboration tools in the classroom. With more effective use, these tools may yield positive results on H1 and H3. Second, establishment of a formal experimental method, including randomization of subjects, control of sources of bias and more reliable and valid instruments, will allow for more accurate tests.

## References

- McLellan, Hilary. . "The Internet as a Virtual Learning Community" *Journal of Computing in Higher Education*. (9:2) 1998, p. 92-112.
- Alavi, Maryam. "Using IT to Reengineer Business Education: An Exploratory Investigation of Collaborative Telelearning" *MIS Quarterly*
- Alavi, Maryam, Wheeler, B.C., and Valacich, J.S. "Using IT to Reengineer Business Education: An Exploratory Investigation of Collaborative Telelearning" *MIS Quarterly*. (19:3) 1995, p. 293+.
- Alavi, Maryam. "Computer-mediated Collaborative Learning: An Empirical Evaluation" *MIS Quarterly*. (18:2) 1994, p.
- Dennis, Alan. "Information exchange and use in group decision making: You can lead a group to information, but you can't make it think" *MIS Quarterly*. (20:4) 1996, p. 433-457.
- Johnson, D.W., Johnson, R.T. and Smith, K. Cooperative Learning, Increasing College Faculty Instructional Productivity. ASHE-ERIC Higher Education Report (4), Clearinghouse on Higher Education, The George Washington University, Washington, D.C., 1991.