

Using the Internet to Simulate Virtual Organizations In MBA Curricula

Brian Dobing
Faculty of Management
University of Lethbridge
4401 University Drive W.
Lethbridge, AB, T1K 3M4 Canada
(403) 329-2492
brian.dobing@uleth.ca

Jeffrey Parsons
Faculty of Business Administration
Memorial University of Newfoundland
St. John's, NF, A1B 3X5 Canada
(709) 737-4741
jeffreyp@morgan.ucs.mun.ca

ABSTRACT

Emerging telecommunications technology is enabling individuals or organizations to jointly create “virtual organizations.” These organizations can exploit opportunities that require a variety of resources or skills not possessed by any individual member. While most MBA programs discuss the growing importance of new organizational forms, our study shows that simulating virtual organizations not only gives students a chance to experience this environment first-hand but can also create new learning opportunities. Students taking introductory MIS classes at two widely separated MBA programs were divided into teams. Each team was assigned to a local organization and asked to examine their process for approving new information system projects. The organizations were selected in pairs, e.g., two electric utility companies, so that each team in one class had a corresponding team studying a similar organization in the other. By comparing their results, both students and participating organizations received a broader perspective of the issue than would have occurred through a purely local study. Overall student reaction was positive, although more so at “East” University than “West.” While technical problems created some early frustrations for West students, there appears to be considerable potential for enhancing virtual links across MBA programs. We offer suggestions for faculty considering incorporating this type of project in the MBA curriculum.

Keywords: Virtual organization, Internet, MBA, curriculum

1. INTRODUCTION

Emerging communications technology is a major contributor to the shift in basic organizational architecture from command-and-control hierarchies to networks. “Virtual” organizations are now emerging, ranging from telecommuting to alliances among

companies [Shao, Liao and Wang 1998]. Our interest is in “temporary consort[ia] of independent member companies coming together to quickly exploit ... opportunities Virtual enterprise companies share costs, skills, and core competencies that collectively enable them to access global markets with world-class solutions their members could not deliver individually”

[Hardwick and Bolton 1997, p.59]. For example, one of the authors of this paper worked with an organization of consultants that sought to replace its outdated "F-style" communication (Fone, Fax and Fly) with a much cheaper and more effective Internet-based system. That organization has no headquarters and makes extensive use of ad hoc task forces to address specific issues.

Business schools can and should talk about these changes, preferably across the curriculum and not just in an MIS class. However, students can better appreciate the opportunities and challenges of working in virtual organizations if the program offers some meaningful experience working in this environment. Despite evolving communication technology and the growth of distance education, the typical MBA program remains built around a single host institution and a traditional classroom mode of delivery [Foster 1997]. In that context, providing useful and realistic exposure to the virtual organization form is a challenge.

2. PROJECT MOTIVATION AND GOALS

For years, many business schools have struggled over whether and how to include information technology literacy components in the MBA curriculum. Until recently, basic literacy tasks, such as sending email, building web pages, or participating in news groups, may have been valuable elements of the curriculum. However, we have moved along the technology adoption curve to a point where most entering MBA students are already familiar with these activities.

We believe technologies should be viewed more broadly as enablers of virtual organizations and other new forms [Hiltz and Wellman 1997; Rockart 1998]. Shifting the focus from the technology to the opportunities and challenges of working collaboratively under conditions of physical and/or temporal separation allows participants to evaluate technology in terms of its capabilities and limitations in supporting underlying virtual organization processes.

3. PROJECT REQUIREMENTS

To realistically simulate a virtual organization, the chosen project must benefit from an exchange of ideas among teams at different locations. Unless students see a real benefit in collaboration, the project is likely to compound the difficulties of working in teams. We chose to have the virtual teams each work with a local organization and then share their findings. The teams learn not only how one (or more) local organizations deal with an issue but how some other remote (and probably otherwise inaccessible) organizations do the

same thing. Both the local investigation and the comparison should enhance the students' understanding of the information systems function in an organization. This structure also provides some protection against the risks of virtual organizations. In a worst-case scenario, where virtual team members offer no value, projects can still be completed based solely on local contacts. This protects both the students and the professors. Learning will still take place, and fair grades can be assigned.

4. PROJECT CONTEXT, DESIGN, AND EXECUTION

The project was a joint undertaking between two similar MIS classes in similar MBA programs, situated several thousand miles apart, referred to here as West and East. Both programs serve largely local students with limited managerial work experience and similar average GMAT scores. Neither program has an MIS major and most students do not enter with strong IT skills or interests. A survey of both classes showed no significant differences in average Internet experience, although West students had slightly more. Both classes were required MIS courses, with a focus on strategic issues rather than computer literacy. Both classes were of approximately the same size, and both were the only required MIS course in each program. Most students were attending full-time, although East had more part-time students than West. One difference is that the West University is situated in a larger city than East, giving the students access to more organizations. We do not view such parallels between programs as essential, but they do increase the likelihood of forming compatible teams.

We chose to have student teams examine the information systems project approval process. Students were encouraged to put themselves in the place of a manager in their organization and find out how to take an idea for a new system and turn it into a funded project. The exercise proved interesting to participating organizations, offering some otherwise unavailable benefits for little risk. The information that organizations provided was not very sensitive and was not being shared with competitors. In return, organizations could receive a relatively objective external perspective on the existence of formal project approval processes as well as the extent to which they are or are not followed in practice. But more importantly, they could also receive a comparison of their situation with that of a similar organization some distance away. This information cannot be readily obtained through local grapevines, so organizations could also see the benefits of the virtual organization approach.

From the students' perspective, the project did not require much technical skill, although they did need to appreciate some of the issues associated with failed development projects. An article [McKeen, Guimaraes, and Wetherbe 1994] was assigned as required course reading that provided a good survey of approval processes and their implications. The empirical research described in that paper found a reasonable variation among organizations. We also hoped the particular project would help students develop critical thinking skills. In a project of this sort, there are ample opportunities to distinguish between carefully written procedures and the reality of many organizations where "those managers and users who 'scream the loudest' (or have the most money to spend) dictate which projects are begun, regardless of the overall impact on the business" [Whitten, Bentley, and Barlow 1994, p.102].

To begin the project, we developed lists of local organizations with sufficient IS activity to be worthy of study. From the lists, we generated pairs of organizations for which a comparison ought to be meaningful, using industry or nature of the business as the primary matching criterion. The final list included city governments, universities, telephone companies, liquor store chains, newspapers, and manufacturing companies.

We divided the students at each university into teams (largely through self-selection) and then assigned each to one of the participating organizations. This was largely a random process, although a few assignments placed part-time students in organizations where they worked. The correspondence between class sizes—19 at West and 20 at East University—made it easy to form teams of roughly the same number of members from each institution. Most teams were able to talk with senior IS personnel and then to some users who had recently been through the approval process.

5. RESULTS

Our primary focus in evaluating the success or failure of the project is the extent to which it contributes to teaching objectives in the course. In addition to looking for evidence of cross-site learning when grading the papers produced from the project, we directly measured student reactions to the project through a questionnaire. However, even the most carefully planned and potentially valuable project will fail if the instructors cannot administer it with reasonable ease. Thus, a second focus in our evaluation is a retrospective analysis of instructor activities. Finally, since our project relied on the cooperation of participating organizations, we evaluate the project from the point of view of participating

organizations.

5.1 Students' Perspective

A post-project survey found students were almost evenly divided on whether the virtual teams improved the quality of the papers or successfully simulated a virtual organization. While we were hoping for stronger support, this result is reasonable for an initial experiment. Support for the project itself was stronger. Only 20% (7 of 37 students) disagreed or strongly disagreed with the statement that, "Joint projects of the type used in this course should be continued." Six of these students were in the West program. But 22 students believed that virtual team projects be continued. Supporters outnumbered detractors five to one on continuing projects with IS departments in local organizations.

Based on both the survey and instructor discussion with students, it is clear that student reaction to the project was quite different at the two universities. Survey results show that East students were significantly more likely to believe that:

1. visits to local IS organizations should be required (0.01 level),
2. the system approval process was an appropriate choice to study (0.04),
3. the exchange was a useful way to experience a virtual organization (0.09), and
4. joint projects should be continued (0.03).

Some students at West University expressed their reservations about both the nature of the project and use of the Internet in the opening classes. This initial reaction was reinforced by a timing problem; the West class met four times before the East class met.

The one clear difference between universities (city population) may also have been a factor. Because West University is in a larger center, some students apparently felt that they or their MBA program was better than the students or program at East University. We have no data to support this, but the issue was raised in the classroom. If present, these preconceived ideas would very likely lead to a more negative or critical experience. However, based on published MBA program ratings at that time and average GMAT scores, there is no evidence of any significance difference in the quality of students or programs. One of the authors has taught at both universities and is of the view that the schools and students are essentially equivalent.

We also expected that the more Internet-literate students would be more supportive of the project. This did not occur. Correlations between pre-class and in-class Internet knowledge and experience measures and

outcome measures were generally low and insignificant. The only significant relationship (0.01 level) showed a 0.47 correlation between support for continuing the project and success in transmitting email to the other university. West students generally reported lower successful transmittal rates (although not statistically significant), and this is consistent with their reservations about the project.

Despite the widespread diffusion of Internet usage and discussions in class, not all students believe they should be using the Internet. One explanation for this unexpected finding is that MBA students may feel they do not need to know how to use the Internet. Alternatively, students may simply feel that, although necessary, such topics are not academic and should not be part of an MBA curriculum. Since these alternatives have implications for curriculum design, further research is needed to identify the reasons for this result as well as to measure its evolution over time.

We suspect that the culture of the MBA program could also affect student reactions. Programs that encourage experimentation, and where students expect some efforts to fail, can probably use this type of project effectively. Students who expect a very controlled environment will be less satisfied. Grading is also an issue. Students who perceive (incorrectly) that random technological events are determining project grades will be frustrated.

5.2 Instructors' Perspective

Coordinating joint projects such as this presents a number of challenges. While the students experienced most of their difficulties in the virtual links, our first challenge was to match local organizations. This proved more difficult than we had expected. We were able to create five "good" matches and one of lower quality. However, this came at the expense of soliciting interest from far more organizations than we needed. In our case, the two cities have quite different economies. Many organizations that have supported our MBA programs in the past, and which were interested in supporting this project, could not be included because no match existed in the other city. To ensure we had enough pairs of organizations, we created over twice the required number of matches and contacted the paired organizations. As a result, we encountered several cases in which one organization expressed a strong interest but had to be excluded later when it became clear that the matching organization in the other city would not be able to participate. To avoid possible loss of goodwill among interested organizations, initial solicitations of interest should make clear that eventual participation will depend on the cooperation of a named matching organization.

A second problem in coordinating such projects is determining how many organizations are needed. Unequal class sizes can be accommodated to some extent by using teams of different sizes at the two universities. But the students must be distributed over the same number of organizations. If several students from one team decide to drop the course, as happened at the West University, something has to be done to keep the team viable. Amalgamating smaller teams is not an option because of the implications for the other university.

A third potential difficulty in implementing such projects is incompatibility in software and/or communication standards between the participating institutions. The MBA programs in our study did not require any particular platform to be used. Some students had to learn software for the first time, while others were reluctant to change from what they had always used in the past. While these problems appear to be less of a concern as time passes, instructors should not assume that the infrastructure will be transparent.

While the instructors in this project were both familiar with the Internet and had corresponded successfully with each other by email for some time, neither used the same network connection and software as the students. Moreover, West University installed new Internet software just prior to the start of the class. The configuration was not adequately tested and some problems did occur. The students also lacked experience with their universities' email environment. While only a third of the students had no email experience prior to the class, 81% had not yet sent or received email as part of their MBA program. Some students continued to use off-campus connections and that also contributed to compatibility issues. Establishing software standards for the MBA program, and choosing compatible partner programs, would address these problems.

A fourth potential difficulty in carrying out such a project is finding a partner and building a working relationship. A clearinghouse could be helpful, but we expect that resolving issues related to project topics, relative weight of the project in a course, and expectations of participating students and organizations will be more challenging for instructors who do not have a preexisting relationship.

Finally, we note that such projects are easier to manage on most of the above dimensions if the number of participating universities is kept small. As the numbers increase, the complexity of coordinating activities grows rapidly, and the potential impact of problems becomes

much more serious. One of the authors of this paper has also been involved in a project involving six universities, in which there were serious difficulties, including a wide variation in the importance attached to the project among instructors and students at different participating institutions.

5.3 Organizational Perspective

Because of the small number of organizations involved, no formal survey was conducted at the conclusion of the project. Our general impression is that organizations were pleased to be involved and would do so again, but that the student reports did not offer substantial value. This is not surprising for a paper in an introductory course, particularly given the students' time constraints. Using more advanced students would help address this concern.

6. CONCLUSIONS

We believe we were successful in our initial objective, to simulate a virtual organization. Perhaps we were even too successful, forcing students to cope with many of the problems that organizations face doing similar work. Nevertheless, considerable potential exists to enrich MBA programs in smaller cities through this type of program. Technological advances, such as Internet video conferencing, will further increase this potential.

While innovative uses of technology in the classroom are often (although certainly not always) introduced in MIS courses, their greatest benefit may come in other areas. Programs in different countries could create links to develop joint business opportunities, study trade disputes, or examine the effects of cultural differences on marketing programs or team behavior. Our study suggests that students do not view a virtual link as sufficient benefit in and of itself.

There must be sufficient benefits from the collaboration to justify the inconvenience and other costs. These benefits could come from the project itself, as we attempted to do, or from overall program goals (e.g., supporting a specialization in international business).

Some programs already have well-established exchange links with one or more other schools. Building on these links could help overcome some of the relationship or trust issues identified earlier, both among instructors and students. As communication technology improves, classes could even meet jointly and interact with both professors (if time zone differences can be resolved).

There are, however, some risks in virtual organization projects. Incompatible technology is a problem that

keeps appearing in different forms. When new versions of software appear, some institutions react quickly and upgrade while others are more cautious or lack funds. This can create temporary communication difficulties. As we write this, email incompatibilities have been greatly reduced, but soon we may have a variety of different Internet video conferencing products. Standards need to be established in advance and tested if there are any concerns.

Finally, our experience also suggests that both virtual organization projects and studies of local organizations require considerable extra work on the part of instructors. Attempting to do both for the first time in a trial project may be unwise.

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Brian Dobing is an assistant professor, Faculty of Management, University of Lethbridge, Lethbridge, AB, Canada. He received his Ph.D. from the University of Minnesota. His research focuses on issues in user-analyst relationships and object-oriented analysis.



Jeff Parsons is an associate professor of Information Systems in the Faculty of Business Administration at Memorial University of Newfoundland. He has a Ph.D. from The University of British Columbia. His research interests include electronic commerce, information modeling, and software engineering. His research has appeared in journals such as *Management Science*, *Communications of the ACM*, and *ACM Transactions on Database Systems*.



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