

There Is No Substitute For Face-to-Face Learning: Or Is There?

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In spring of 2000, the Department of Organizational Leadership and Supervision (Purdue School of Engineering and Technology, Indiana University Purdue University Indianapolis) offered students the option to take a sophomore level survey course fully online. The course, titled "Human Behavior in Organizations," was also offered in traditional, classroom-based sections. The challenge the authors faced as instructors went beyond the usual tasks of presenting content online. The plan was to organize students into learning groups within a "virtual classroom" (VC) and provide them with the same sort of structured learning experiences that characterize the methodology used in traditional sections of the same class. Although individual lesson plans were changed substantially to fit the online format, the intention was to retain the methodology of group discussion and group problem solving.

A primary objective of this course is the formation of productive, cohesive, learning groups. The content of "Human Behavior in Organizations" includes extensive study of the behavior of groups within organizations. In classroom-based sections of this course, instructors require students to form learning groups that remain stable over the semester. The groups are given structured exercises to encourage them to interact with textbook⁵ content. Instructors also assign learning projects that require cooperation within the classroom groups over several class sessions. The intention is to provide an intense experience in group interaction so that students can examine textbook concepts about group process in the context of their own experience in the classroom groups. Can the same experiential approach to teaching group dynamics be applied successfully to a "virtual classroom"? The authors believe that their VC groups have shown that it can.

ABET requires that engineering graduates learn effective team skills. The information in this article will interest professors who desire to teach team dynamic skills within the context of one of their existing courses. Most programs do not have the flexibility to offer a team dynamic course and integrating team experiences into existing classes seems the most likely approach.

Format of Instructional Delivery

The VC sections of "Human Behavior in Organizations" included both synchronous and asynchronous instructional modes. Software developed by Indiana University at the Indianapolis campus provided the necessary interface for both modes.

Synchronous Mode

To meet the objective of developing productive, cohesive learning groups, all participants were required to meet online once each week at specified times for 60-90 minutes in one of several virtual "chat" rooms. Each student chose one of the available chat room groups according to convenience of the individual's schedule. Several days before the beginning of each assignment week, the instructor posted a detailed schedule of structured activities. Each group was asked to assign a discussion leader to guide the group through the schedule of activities. The position of discussion leader rotated week-by-week among group members. The discussion leader was asked to use the schedule of activities as the group's agenda for that week and to use group facilitation techniques provided by the instructor. The instructor was present in many of the chat sessions either as observer or participant, but the instructor did not serve as discussion leader. The software provides complete archives for each chat session. The instructor and all class members may review the archives at any time.

Asynchronous mode

Students were required to complete online quizzes for each of 14 textbook chapters. The syllabus provided a week-by-week list of textbook readings, and the quizzes were available to students during the week of the assigned reading and for a few days afterwards. The requirement was to complete the reading and the quiz anytime during the assignment week. The quizzes were self-scoring and were intended as an open-book study guide that students would use to check their own reading comprehension.

For each textbook chapter, a study question was posted to an online bulletin board. Students were required to complete the study question any time during the assignment week. The study questions asked students to connect content of the textbook chapter to personal experience or to connect the content with an online article linked to the question. The study questions typically required answers of 1 to 3 paragraphs in length. With the bulletin board format, students were able to see the responses of other class members.

Measuring Participant Response

The data used in this report draw from the experience of 14 VC groups, representing students who enrolled in the class either in fall semester 2000, spring semester 2001, or fall semester 2001. The total of 61 respondents were asked to rate their responses to a list of 13 questions using a five-point Likert scale (Strongly agree = 1; strongly disagree = 5). Furthermore, students were regularly asked for their reactions to class procedures through questions posted to the bulletin board and questions placed among the schedule of activities for chat sessions. From time to time, students also sent unsolicited comments about the class via the internal email system. All of these responses were archived by the software.

Student Attitudes Toward the Course

What were the overall impressions of participants about the online class? Two results on the end of semester survey indicate generally favorable impressions. Using the 5-point Likert scale, the mean among 61 respondents was 1.90 in response to the statement, "Overall this course was

equal to or better than a classroom-based course." A sample of students' comments in other formats (bulletin board, email, posts to the chat room) confirm the overall positive impression:

- I think I learned a lot from this class. I probably learned more from this virtual class than I would (have) in a traditional class.
- I thought this class would be somewhat of a "blow-off" class, but it has turned out to be just the opposite. It requires a lot of time and involvement, but at the same time I'm really learning a lot!
- I think about the group between classes and I usually don't do that in a conventional class.
- I think it was great experience; I had to get more involved with the class.
- ... I couldn't believe that we could do a group project report. I was thinking that we knew each other barely and were just learning how to do our assignments within "virtual classroom". Today I think differently. Not only we got to know each other as the time passed, but also we learned to work together and do a project together.

Social Rapport and Attention to Task

The authors were intrigued in the planning stages by a quote about virtual teams reported by Stephen Robbins ²:

"Virtual teams often suffer from less social rapport and less direct interaction among members... Especially where members haven't personally met, virtual teams tend to be more task oriented and exchange less social-emotional information. Not surprisingly, virtual team members report less satisfaction with the group interaction process than do face-to-face teams..."

The authors assumed that the VC groups fall under this category of "virtual teams." How then would the groups rate their satisfaction and their attention to task? The question, asked of 61 respondents on the end of semester survey, provided mixed results. The mean of 3.37 on the 5-point Likert scale indicates only slight disagreement with the statement, "There was too much attention to task in my virtual classroom group. We did not have enough opportunity to relax and talk about general subjects."

The question was also asked as part of the schedule of activities for a chat room sessions connected to the textbook chapter concerning group behavior. Students' replies in that format also showed that some did report less satisfaction and perhaps too much attention to task:

- I guess it depends on the satisfaction. If you are satisfied by just getting the job done, then they are great. If you want to get to know people, in-person groups are much more satisfying.
- The VC is hard for me because I'm a very physical talker; the VC takes my best element out of it...
- I am good at reading people in face to face meetings.... my powers are useless here!
- It is much more difficult for me to prove a point with just keys ...
- Less. I miss the face-to-face stuff as well but the convenience of being able to do this from home outweighs that for me.

- I agree 100% with the statement on virtual groups. We are very task oriented and not very social.
- I think that having class online is a good process for learning when you can't be on campus, but it's still not a substitution for the learning while being in a classroom.
- If I could and had the time.... I would definitely take this class in a classroom setting.
- Well I know personally that I don't exchange a lot of social emotional information however I am satisfied with the group interaction.
- I think we are more task oriented but if given more social time I definitely think we would interact more.
- I'm ok with this set up, too, it's just that sometimes it is difficult to convey full meaning without facial expressions and gestures.
- If we were social we would never get the tasks done each week and that sometimes happens in a regular classroom setting.

On the other hand, some students did indicate satisfaction with the social rapport and the level of attention to task:

- I don't think we suffer, although it would be nice to meet face to face as a group. I am very satisfied and I think we are very lucky to have a cohesive group.
- I think we get to know each other somewhat here because we all share our feelings on specific issues, which probably wouldn't happen in a classroom setting.
- I'm less afraid to state my opinion as well.
- I certainly know all of you better than I know anyone in any of my other classes.
- We have less face-to-face interaction. But I have had many classes where there is no interaction between students at all!
- My satisfaction level is fine; I feel I am learning more from this web course.
- In classrooms, I tend to focus on the work and not interact with others.
- I am usually a reserved person, but I feel comfortable behind this screen.
- Give me a keyboard and I can write, put me in front of a podium and watch me clam up
- I wouldn't say it's less satisfying... it's just different.
- I think that our group is pretty cool; I don't feel I need to see you all to interact effectively.
- This group has definitely worked better than in the classroom.

Quality of Student Learning Compared to the Traditional Classroom

In general, students agreed that the quality and quantity of learning was about the same as what they had experienced in traditional classes.

Using the 5-point Likert scale, the mean among 61 respondents was 2.07 in response to the statement, "The content of this course was about equal to a classroom-based course." Showing a mean of 4.31, the respondents disagreed with the statement that, "In terms of learning, I got less from the online class than I normally do in a traditional class."

Students also rated the workload to be about the same as they had experienced in traditional classes. The mean was 2.59 in response to the statement that, "The workload for the online class was about the same as it is for a traditional class." The mean of 3.31 in response to the statement, "The workload for this class was more difficult, compared to a traditional class," indicates a similar reaction. Finally, 61 replies fell almost directly center on the statement, "The amount of time I spent on this class was greater than the amount of time that I spend with a traditional class, with the mean being 2.95. In general, some students found the class to involve more work, while others rated the class as having less work. The resulting average is close enough to center to satisfy the authors desire to approximate the rigor of a traditional section of the same class.

Although there are no lectures and no face-to-face interaction, students reported an acceptable level of interaction with the instructor, compared to a traditional classroom. The statement, "Compared to a traditional class, I had less interaction with the instructor," resulted in a mean of 3.79 for 61 respondents. The instructor participated in many of the chat sessions and engaged most students in email dialogue by responding to the bulletin board posts with comments specific to the individual posts. Evidently, this level of interaction was viewed by many students as roughly equivalent to the experience of a traditional classroom.

Productivity of Groups

Another measure of the success of the VC was each group's self-evaluation of their development. Midway through the semester, each VC group was asked to read a description of group development as proposed by Tuckman^{3,4}. Groups were given a survey¹ with questions about group interaction and a resulting score that assessed their development according to the Tuckman model. Among 14 VC groups studied, 13 rated themselves in the "performing" stage. A sample of comments from participants affirms the rating:

- It is ironic that we are studying the stages in group development while we are currently developing our own group. Though we are in the performing stage, we are still adapting to one another.
- The group really seems like we are starting to understand how to make decisions online. Well, we are making them in a much shorter time frame than before.
- The chapter over cohesiveness has really brought us to be more focused on the project and such. We have once again defined our roles and I feel that a certain shot of enthusiasm has been (instilled) in our group.
- We are working better every class. We are really starting to loosen up and joke with each other etc. We talked about the other groups and how they might be doing developmentally compared to us. We have a certain sense of pride that our group operates the best...

Term Project

During fall semester 2001 and spring semester 2002, VC groups were offered the option of a group project or a term paper. All groups selected the project. The assignment was to, "Build a Web page, Web site, or multi-media presentation that identifies, describes, and/or represents your VC group."

The assignment was intended as measure of group cooperation and communication. Schedule conflicts among group members made face-to-face meetings impractical in all but one group. As a result, almost all communication was restricted to email and online chat sessions arranged by the groups themselves. A further constraint was the range of skills among group members. Successful groups were required to assign tasks so that members coordinated communication, technical skills, and creative contributions.

The resulting group projects met the requirements of the task in 7 of 9 groups. The authors regard the group project as a challenging assignment for virtual classroom groups and count it a measure of the success of the format that most groups turned in impressive projects that showed a cooperative effort among VC group members.

The response to survey questions about the overall success of the group affirms the success of the group project. Among 40 respondents who completed the group project, the mean on the Likert scale was 1.50 in response to the statement, "My virtual classroom group was successful in meeting learning objectives." There was also agreement with the statement, "My virtual classroom group was productive." In response to that statement, the mean among 40 respondents was 1.53.

Student Participation

One finding that the authors find surprising is the rating that students gave to their level of participation in the VC. In response to the statement, "I participated more actively in this class than I normally do in a traditional class," the mean was 1.87 on the Likert scale. Students tended to disagree with the statement, "Compared to a traditional class, I had less interaction with other students" (Mean of 3.76 among the 61 respondents). Following is a sample of comments about participation in the VC:

- I think I've already participated more in this class than I ever have in other classes...
- ...the chat environment encouraged much more participation than normally present in an ordinary classroom.
- The forced interaction (required chat room participation) has taught me much more than either the traditional classroom experience and the typical online class.
- ...It is amazing how many good ideas we have that go to waste in a regular class.
- I particularly enjoy this "classroom" environment because it provides much more feedback than a normal classroom and it is much more interactive...no one can hide at the back of the room. I admit I had my doubts at first--about the setup, about the inconvenience I thought it would be... but I've completely changed my mind.
- It's a lot of effort that we had to have put towards this class compared to a traditional, due to us having to show up and participate rather than in a traditional class you can just go and do nothing.

The authors cannot speculate on why some students would tend to participate more actively in a virtual classroom compared to a traditional classroom. Further research might explore

differences in personality as a determinant of who might more readily participate in a virtual classroom compared to a traditional classroom.

Conclusion

For some students, the virtual classroom provides an educational experience that is roughly equivalent to the traditional classroom. Indiana University Purdue University Indianapolis is an urban campus with a large number of older students who work at least part time. The convenience of an online class is attractive to students who must balance work and study or whose work requires frequent travel. Comments from participants illustrate the advantages for students who balance work, school, and family life:

- I was able to connect to this virtual chat group all the way from Florida, which is what makes distance learning cool.
- This is my first class this way (online) and I really enjoy it ... I can manage school and family.
- I had my second child in the middle of the semester and I was able to take this class.

The university will continue to offer online classes to accommodate the growing number of students who favor this option. The authors are not prepared to argue that an online class is in any way superior to the traditional class, but the authors would maintain that it is possible to offer a creditable, rigorous class online even in courses where interaction among students is an established methodology.

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