

PARALLEL CLASSROOMS: A CASE STUDY OF THE INTERACTION BETWEEN ON-LINE AND FACE-TO-FACE TEACHING

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ABSTRACT

When I first taught on-line, my goal was to be sure the on-line section was the same as the face-to-face sections of my class. What I learned was that teaching on-line would cause me to change my face-to-face sections, improving them. The interactions continue to flow both ways.

INTRODUCTION

During the spring semester about four years ago, I was told I would be teaching an on-line section of my graduate Management Science class the following fall semester. The College of Business was spearheading a drive at our university to provide distance education classes and several colleagues were already teaching using this format with the entire MBA program soon to follow. Thus the instructions were not surprising, even if they weren't overwhelmingly welcome. The instructions were simple: provide the same quality of instruction in the on-line section of the class as in the face-to-face section. Our administrators were adamant that any indication of a "diploma-mill" was to be strictly avoided.

This paper describes the changes that have occurred in my class, under both teaching formats (face-to-face and on-line) since then. It has been fortunate that our administrators insisted that anyone teaching an on-line section had to teach a face-to-face section of the same class. This has provided a quality control check while learning how to teach on-line.

THE FACE-TO-FACE CLASS

I initially organized my class around a mentor's syllabus and a textbook. Twenty years ago, teaching management science had not changed much from thirty years ago, when I studied it as an undergraduate. Thick textbooks (costing considerably less than they do now) provided any number of topics, and computers, though plentiful, had not yet changed how the class was taught, though the prevalence of computer labs for our students was starting to do so. Lectures centered on working through increasingly complex examples of applications of the tools, and the most students were expected to do was memorize the calculations.

As computers made the calculations less relevant (and calculators made the students less able to grasp the calculations), the focus of the class shifted to showing the students how to input the data into an application software package, and how to interpret the outputs. A few diehards (like me) continued to insist the students learn to understand the algorithms (without learning the calculations), but the class had become about using the tools as a black box rather than knowing how to perform the calculations. A possible remedy for this was case-based teaching.

Case-based teaching requires the students to read the case (anywhere from a few paragraphs to many pages), extract the important data, perform an analysis and make recommendations or reach a conclusion based on the analysis. In a management science class, the analyses are performed by running the data through whichever tool is being taught and the output is used to reach a conclusion. The difficulty of the material, though, meant that I needed all the class time just to cover the management science tools, leaving little time to cover the cases. While this dilemma was on-going, on-line teaching arrived.

FIRST INTERACTION

My deans have always been very cognizant (unusually so, according to my colleagues at other schools) of the work needed to set up an on-line class. They let me know almost a year in advance that I would be teaching on-line, and they offered a stipend to cover the work of creating materials for the on-line students that would replace the traditional face-to-face lectures. The understanding, however, was that the work would be completed, and on time (I nearly made it). Two stipulations were that the on-line course was to be asynchronous and the on-line course had to cover the same material as the face-to-face section. The asynchronous nature of the classes was important. The original market for the on-line courses was students who knew about our school, but whose work schedules made it difficult for them to attend classes even one night a week. The content requirement was in reply to the concerns expressed by nearly every faculty member about the college turning into simply another “correspondence-school diploma mill.” Whatever our reputation might be, we wanted to keep it, not tarnish it. A further requirement was that at least 50% of the final grade had to come from work that could be verified as having been done by the student registered. For most of us, that translated into arranging for proctors to supervise our students during testing.

Besides the e-mail system that already connected us to all our students, the university had a license for the Blackboard system, which provided a central location and consistent interface for posting course documents, announcements, assignments, and grades, as well as discussion boards and chat rooms. We had access to applications such as Camtasia, for creating mini-movies of lectures for whatever topics we wanted to cover and the university also provided each professor with a web site, while the college provided a variety of technicians to help us use all these wonderful tools.

Not knowing what else to do (and most of the advice I could get would fall under the heading of the blind leading the blind), I spent the spring semester typing up my lectures immediately after giving them. I used a “question-and-answer” format, posing question from the professor to the students or from the students to the professor, followed by an answer and discussion, if needed. These were to replace the face-to-face lectures, so they literally contained every line of my lectures. This was done in preference to creating PowerPoint slides and using Camtasia to add the voice-over, because I had been warned that using Camtasia was very time intense and that segments longer than 15 minutes were too large to easily download. Since my lectures tended to run almost an hour, this didn’t seem worthwhile. With these notes, the on-line section was intended to be a carbon copy of the face-to-face section.

The original intent was to provide these notes to the on-line students, most likely posting them on Blackboard. As they were written, it became clear (it probably should have been obvious) that they would be equally valuable to the face-to-face students. This was the first time I realized that the on-line section would inform the face-to-face section. I had expected the face-to-face section to inform the on-line one, after all, the on-line section was based on the face-to-face section. I didn't realize, yet, how far it would go, though. Having decided to make the lecture notes available to the face-to-face students, I realized they didn't have access to Blackboard. For that reason, I posted them to my web page, creating a class web site that all the students, on-line or face-to-face, could access. A significant advantage to this, at least in the first years, was that the web site was up a lot more than Blackboard was, making the material much more available.

SECOND INTERACTION

The first semester teaching both on-line and face-to-face delivered a few lessons of its own. First, the savings in lecture time does not nearly make up for the time spent trying to communicate to the on-line students. Everything that was said to the face-to-face students during a lecture had to be typed and sent out to the on-line students, either via e-mail or posted to a discussion board. Second, keeping on-line students involved required a lot of work. Face-to-face students would see me at least a couple of times a week, during lectures. On-line students, however, simply sat in their rooms reading the posted lecture notes. I have heard this called a "lack of community," but I simply referred to these students as "ghosts," because they tended to disappear. Continual work was needed, posting questions for them to answer, pushing assignments, whatever was possible to keep them involved in the class and up-to-date on the work.

The requirements for the two formats had to stay the same – the same papers, the same assignments, the same cases, and the same tests. What I found, though, was that my face-to-face students received a lot of guidance by asking questions, or at least by listening to me respond to the questions of other students. On-line students seemed less willing to ask questions, whether by e-mail or by discussion board, resulting in generally poorer results on papers and cases.

At this point, I noticed the second, and most significant, interaction between the two formats, again, flowing from the on-line section to the face-to-face section. Having provided the face-to-face students with the lecture notes, I found my lectures to be increasingly unimportant. The lecture notes appeared to be very complete, because all the face-to-face students did was highlight them as I talked. Inadvertently, I had created the time needed to work on the cases during the class, because the lecture notes provided the students with all they needed to know about using the management science tools. By midway through the semester, I had begun to use the class time almost exclusively for working on the case assignments. Even further, the time was available for the students, in groups, to present the case results.

This created a whole new set of problems for the on-line students. If the face-to-face students were doing presentations, then the on-line students would have to do them as well. The advantages, however, were all with the face-to-face students. The groups of face-to-face students could meet outside of class to work together, could come by my office to meet with me, and finally could stand in front of their colleagues to gain experience in presenting, as well as in

responding to questions “under fire,” i.e. – live in front of me and their classmates. All I could provide to the on-line students was a pale simulacrum of all this.

Using Blackboard, I could set up discussion boards/chat rooms where the on-line groups could meet, but this had the impediment of requiring the on-line students to type in everything they wanted to say – a serious interruption to free-flowing communication. The on-line students could send me their partially completed analyses and presentations for my comments, but those comments would be typed, again limiting the effectiveness of the responses. Finally, the on-line groups would send me the finished presentation, which I would then send out to the other on-line students, but there was no vocal portion of the presentation and questions were posted to a Blackboard discussion board and answers were created much more leisurely. Not only was the interaction lost, but also the “thinking on your feet” aspect of case presentations was gone as well. Still, it seemed the best I could do.

The class limped along this way for a couple of semesters. Minor changes were incorporated within the on-line section, minor improvements were made to the lecture notes, but overall I was dissatisfied with the on-line sections – students in them did not seem to be receiving the same rigorous education. Generally speaking, the grades on the case write-ups and the exams tended to lag the face-to-face students by half a letter-grade or more. I attributed this to the lack of available on-going interaction among students and their limited access to other students and to me. As more software applications became available, they were investigated until finally one application seemed to have the ability to handle many of the challenges the on-line sections were facing.

THIRD INTERACTION

The application was called Centra, and it is a VOIP (Voice Over the Internet Protocol) application. As the name implies, it allows audio communication over the internet, but like most packages, it does more. The software allows the sharing of any type of application software as if everyone were in the same room. As usual, I was a little slow to see the vast possibilities of this package, but it started out by removing one of the biggest advantages face-to-face students had over on-line students – the ability to consult with me while working on their case presentations.

The face-to-face presenting groups (each student was assigned to one group and each group presented one case) met with me twice, once not long after a case was assigned, to see how they were doing, and a second time just before the presentation, to review the actual slides. Now, the on-line groups could do exactly the same thing. Once a date and time were agreed upon, we could all log in to the VOIP web site and talk as if we were all in the same room. If the students were having trouble with a spreadsheet (all management science tools in the course are solved on spreadsheets), they could show it to me and I could help them correct it. I could review any documents they had typed up and once they had displayed a PowerPoint presentation, I could control it and make comments or corrections. The best part is that the application records everything, so the students can review it at a later time.

Almost immediately, the on-line students requested a second way to use the application – they wanted to use it to hold their group meetings. This removed a second advantage for the face-to-

face students, for now the on-line students could meet in an on-line room, to talk and to show each other what work each had done.

It quickly became clear that the on-line students could use the VOIP website for their presentations as well, so I started that the following semester (I dislike having one group do something that an earlier group was not required to do). Something I could (and did) add right away were “lectures.” Rather than trying to remember (and type) everything said to the face-to-face section, sessions were scheduled when the on-line students could listen to me or ask me questions.

The final step was to schedule VOIP sessions concurrently with the face-to-face lectures. While the times are not always (or even often) convenient for the on-line students, the sessions are recorded for the review of the on-line students at a later time. This was the next effect on the face-to-face section from the on-line section. Once the face-to-face students realized the on-line students could play back the lectures (and that didn’t take long), they asked for access to the VOIP sessions as well, so they can listen to sessions when they need to.

CONCLUSIONS

The assignment to teach on-line began with the instruction that the on-line section be asynchronous and the same as the face-to-face section. At that time, I had envisioned a research paper comparing the results of teaching the material on-line compared to teaching it face-to-face, using the historical classes as a baseline. As noted, teaching on-line has made the face-to-face section so different from what it was, no comparison to the historical classes is relevant.

The initial goal implied that the on-line section was to be as good as the face-to-face section had been. That goal is now obsolete, as the on-line section has made the face-to-face section a much better course. The need to teach on-line created a resource (the web-based lecture notes) that allowed time during the semester for cases. Instead of grading the face-to-face students to see how well they have learned some calculations, or how well they can read computer printouts, they are now graded on how well they analyze data, communicate that through reports, present it in front of a group and answer questions as part of the presentation – all skills that they will need in the business world.

The on-line students have the same requirements. The VOIP application gives the on-line students the same access to the professor as the face-to-face students have when preparing the cases, and provides a forum where they present “in front” of a group. One thing that has been lost is that the class is no longer fully asynchronous. The presenting group must be present for the presentation. This is as flexible as possible, as group assignments are made early in the semester and students can switch between groups if the assigned presentation day is one on which they cannot meet. The non-presenting students are allowed to miss the presentation (they listen to the recording and post questions to a discussion board) if they get permission from the professor to do so in advance. Most, however, manage to attend and so far I have not received any complaints about this minor degree of synchronicity (to borrow a term).

To a greater degree than I had hoped, the information given to the on-line sections is the same as that given to the face-to-face sections; in reality, it is exactly the same. Everything said to the

face-to-face sections is recorded, so if the on-line students cannot participate by asking questions, they can learn by listening to the questions asked by other students. They are ghosts no longer, joining the community of students that has always existed in the face-to-face sections.

The sections are not perfectly the same, as there is some difference between presenting face-to-face and presenting to a computer monitor, but the students seem to find both modes equally stressful, to gauge from their reactions to completing a presentation. A few on-line students have told me they make presentations like this in the business world – no doubt to save on travel costs. I could make the sections identical by having the face-to-face students present via the VOIP software as well, but I am not trying to reduce the face-to-face section to the lowest common denominator of the on-line section; I am trying to raise the on-line section to the level of the face-to-face. When video streaming becomes practical, allowing fast downloads of 90-minute videos, then it will be possible to have the on-line students “face” each other via web cameras.

On-line teaching begins with the belief that the face-to-face section must be duplicated in an on-line mode. What has become clear is that the interactions move both ways. The face-to-face section establishes the baseline for material to be covered and provides a quality control check for the development of the on-line course, so it appears to be vital that an on-line teacher also teach the class face-to-face, at least initially. As materials stored for asynchronous on-line access are made available to face-to-face students, lecturing, in a traditional sense, is no longer needed. Rather, students are given the responsibility of learning the material on their own and applying it. This is simply the case-based teaching model, but on-line teaching has made it much more practical. Long ago, lecturing was necessary, as only the teacher had the knowledge, and later on, only the teacher had a book. Making books commonly available did not make lecturing obsolete, but it is beginning to look like on-line teaching will.

Earlier, the inherent distrust of professors for on-line (correspondence) teaching was noted. I have heard professors complain that they don't understand the technology, or that they are concerned about who is really doing the work, or that the substitutions for lectures can never replace the interaction of a professor and a student. All these complaints are valid, but I can't help but wonder how much the complaints are fueled by an underlying fear of losing our jobs. If lectures are recorded and permanently posted to the web, why should the university need that professor the following semester?

My experience in on-line teaching has led me to realize there is both some truth to that fear, and that it is completely wrong. Certainly, the basic material can be posted and students can learn from that material on without sitting for hours listening to live lectures (I once heard lecturing defined as moving information from the notes of the professor to the notes of the students without using the mind of either person). If this is all a professor is doing, then, yes, there is reason to fear being replaced. If, however, a professor is engaging the students directly, evaluating understanding rather than memorization, then our jobs are secure. The amount of work required to teach my class has increased dramatically since I started teaching on-line as well as face-to-face, but all sections have become a lot more fun.