BLENDED LEARNING PILOT PROJECT

FINAL REPORT FOR THE ACADEMIC YEAR 2003-2004

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EXECUTIVE SUMMARY

Blended Learning aims to join the best of classroom teaching and learning with the best of online teaching and learning. Interest in Blended Learning is growing, as more and more universities get accustomed to using a courseware management system, and as academic leaders increasingly endorse active learning and the effective use of instructional technology. Consequently, more and more universities are making Blended Learning (also known as hybrid, mixed-mode, or distributed learning) a regular option for teaching and taking courses.

Alert to these early national trends, and prepared to build upon 25 years of experience in Distance Learning, RIT's Online Learning Department initiated a Blended Learning Pilot Project in fall 2003. In its first year, the Blended Pilot included 26 courses taught by 25 faculty members; approximately 550 students were enrolled in these courses. All courses used the myCourses course management system. Major findings include the following:

- 1. Nearly 75% of all students in the pilot indicate they like the Blended Learning format and feel just as strongly that other students should be able to take a Blended course.
- 2. Course completion is excellent—less than 5% withdrew or failed the courses.
- 3. Students perceive they have both a greater amount of interaction and a greater quality of interaction with other students.
- 4. Survey comments reveal that students were excited by the relatively large number of instructional strategies used in Blended courses.
- 5. Faculty participants say they are energized, even renewed, by the creative process of redesigning and teaching their courses in a new format.
- 6. Students would like to know ahead of time that a course is being offered as a Blended course.

In sum, findings from the 2003-2004 Blended Pilot strongly suggest that Blended Learning is a viable alternative delivery method for the majority of RIT courses. In supporting the Blended Pilot, RIT remains both a national leader in the effective use of technology for teaching and learning, and a pioneer in identifying the right mix of face-to-face and online communication practices that will enhance learning effectiveness.

In light of the above findings, we offer the following recommendations:

- 1. The Pilot should be continued and also enlarged for 2004-2005, with the goal of recruiting 50 new faculty participants. As in the first year, faculty should be offered a one-time stipend of \$500 for participating in the Pilot.
- 2. Faculty from the first-year Pilot should be invited to participate in the 2004-2005 Pilot and receive full instructional design and research support.
- 3. Additional guides for Blended faculty and students should be developed.
- 4. A formal process for identifying and tagging Blended courses should be developed and disseminated to colleges, scheduling officers, and faculty.

OVERVIEW OF THE BLENDED INSTRUCTIONAL MODEL

Introduction

In 2002, under a directive from the Provost of RIT, the Online Learning Department commenced offering new technologies and services to encourage campus-based faculty to use a greater number and a wider range of instructional strategies. It was only natural for Online Learning to assume this broader role, as the Department has a long and successful history of working with faculty to design, develop, and teach Distance Learning courses. The introduction of Blended Learning by the Department simply extends these services to faculty teaching campus courses. As an added benefit, Blended Learning leverages the full capacity of myCourses, the courseware management system that is currently associated with every RIT course.

The Department developed a Blended instructional model during the spring and summer of 2003. As illustrated in the figure below, our instructional model defines a Blended course as any course in which approximately 25% to 50% of classroom lectures and other seat time are replaced by instructor-guided online learning activities, such as online quizzes, virtual team projects, synchronous chat sessions, and asynchronous discussions. The model shows how the best practices of Distance Learning can be combined with the best practices of classroom learning. Early results from the Blended Pilot suggest that our instructional model is indeed a sound one.

 $R \cdot I \cdot T$ nline Blended Classroom Distance A blended course is any Face-to-Face Online Activities course in which Activities Discussion approximately Lectures 25% to 50% of the face--Whole Class on New Material to-face classroom -Small Group Guest Lectures activities Group Work are replaced by Demonstrations -Team Projects instructor-guided online •Field Trips -Study Groups learning activities. Presentations Presentations Assessment ·Assessment Media Traditional •Video Discourse mvCourses Audio ·Class •Gradebook PowerPoint Discussion Tutorials •Messages ·Class Group •Outline Work ·Syllabus Courseware Management Systems

Figure 1. Blended Learning Instructional Model

Sample Blended Course-Design Strategies

In the 2003-2004 Pilot, the instructional design team and participating faculty developed a number of successful Blended instructional strategies; these include: online journals, pre-testing of content before arriving in class, small group and team project activities, whole-group activities, self-assessment tools for students, and case studies. Returning faculty will be refining these strategies. Two of the first-year faculty wrote narrative accounts of their Blended course objectives and outcomes; these accounts are included in Appendix A. Two representative Blended courses are described below.

Communications scholar and Associate Professor Susan Barnes was drawn to Blended Learning in part because she believes that every RIT student should develop strong computer-mediated communication skills, and in part because she believes that teachers ought to attend to the form, as well as the content of their courses. To that end, Professor Barnes developed the online portion of her winter course, Interpersonal Communication, to "model" computer-mediated interpersonal communication. In other words, she wanted students not only to think and write about this new type of communication, but to experience it as well. For example, she asked everyone in the class to write and post, in online discussion boards, "fictional" online profiles of themselves. Most discussion and team activities were conducted both in the classroom and in online discussion boards, and many of the written assignments involved direct comparisons between traditional and computer-mediated communication genres. In short, Professor Barnes's Blended course both replicates and examines the contemporary communication practices that inform our workplaces and everyday lives.

James Revell offers a History of Modern America course that meets from 6:00-10:00 p.m. each week. Most of the people who take the course are commuter students or working adults. When asked, many students say they are taking this course mainly or only because it satisfies an elective in the College of Liberal Arts. Faced with such a challenge, Dr. Revell looked to Blended Learning for new ideas. Here is the "Blended strategy" that he ultimately developed and implemented for both the fall and spring sections of History of Modern America:

- Supplement textbook readings with paired readings from a *Taking Sides* anthology to stimulate debate and discussion.
- Replace two hours of classroom lectures and seat time each week with online discussion that extends across the entire week.
- Organize the 25+ students into 3-6 online discussion "sections"; each student in each section will address the same weekly discussion topic.
- Use online quizzes to: (1) insure that students keep up with textbook readings and (2) provide the instructor with diagnostic information on which topics to highlight in classroom lectures and discussions.

COURSE AND FACULTY OVERVIEW

Introduction

There were a total of 26 courses in the Pilot. All colleges had at least one course in the Pilot except the College of Science. The Colleges of Liberal Arts and Applied Science and Technology offered the most courses in the Pilot, while the other five colleges offered a lower but similar numbers of courses. The faculty also varied in teaching and technology experience, ranging from full professors to assistant professors, from tenured to adjuncts, from technologically savvy to simply computer literate. While participating faculty were motivated by a variety of factors, most said they wanted to either improve something about how their course was currently being run, or to incorporate more learning-centered activities.

Courses ranged from general education courses to graduate-level courses. There was a two-section course at NTID that was team-taught by two instructors. A language and literature course was also team-taught by two instructors. One instructor taught the same history course in the fall and again in spring. An information technology professor taught the same ethics of IT course in both the fall and winter quarters.

How Faculty Were Selected

Twenty-five RIT faculty participated in the 2003-2004 Pilot. Participants were recruited in three different ways:

- 1. FITL workshop on Blended Learning in May 2003. This 90-minute workshop by four staff members from Online Learning formally introduced Blended Learning to the RIT community and showcased a carefully-designed instructional model for developing Blended courses. Workshop attendees were invited to submit an online application to participate in the Blended Pilot.
- 2. Invitation to myCourses "heavy hitters." A myCourses heavy hitter is a greater-than-average activator and user of myCourses' many instructional tools (email messages, groups, discussions, and so forth). The Online Learning Department identified and invited more than 50 such heavy hitters to apply to the Pilot.
- 3. Invitations to RIT faculty who were teaching or have taught Distance courses. Approximately half of the Pilot participants were recruited in this fashion.

Student Demographics

In the 26 courses from the Pilot, 553 students were enrolled. Students ranged from freshman to graduate students, although most were fourth year and above. Every college had at least one student with a major from their college enrolled in a Blended course. The

students were enrolled in major or required courses, general education courses, and/or electives. Fourteen out of the twenty-six courses had hearing-impaired or deaf students.

Course Completion and Grades in Pilot Courses

According to a review of all individual course grades in the Pilot, the overwhelming majority of the students did well in a Blended course. If the measure of course success is defined as completion for those receiving "Cs or above" grades, then 95% of the students in the Pilot succeeded. If "Ds" are excluded, then 96% of all students succeeded. A total of 87% of all students received "As" and "Bs." Students in the Blended courses received more "As" than students in Distance courses. The students in Blended courses received the same percentage of "Bs" and a lower number of "Cs", "Ds," and "Fs."

Previous work on retention in Distance Learning for the 1997- 2001 period showed an average of reported "Fs" and withdrawals at around 5%. Our most recent statistics for 2002-2003 show a similar failure pattern, though a much higher withdrawal rate. Thus, while comparisons between the two populations are limited, our analysis shows that students in Blended courses are succeeding better in their grade performance and completion of the course than students in Distance courses.

CUMULATIVE SURVEY RESULTS

Introduction

Online Learning surveyed students in Blended courses twice during the quarter—once during Week Three and again on the last class session in either Week Ten or Week Eleven. Most surveys were handed out in the classroom and entered manually into Clipboard, Online Learning's online survey system. Hard copies were used in an effort to obtain a response rate at or near 100%. However, to reach students who were not in class when surveys were administered, Online Learning emailed students the hyperlink to the online survey form for their respective Blended course.

Week-Three Survey

The Week-Three Survey (see Table 1 below) was a technical and computer skills survey to see if students felt they had access to the technical support and had the computer skills necessary to successfully engage in the online portion of the course. Essentially the results reveal students are prepared technically for using the myCourses environment. No doubt the biggest issue for students is that the courseware does not always perform as well as one would expect. In fact, the most vocal comments came from students who had problems using myCourses. Despite these problems, students feel they are computer savvy and as though they are receiving adequate information. As a result of the answers supplied, and the diversity of students involved in the Pilot, there is no longer a need for this survey.

Table 1. Week-Three Survey

Questions		Cumulative		
		Agree	Undecided	Disagree
1	I am at a disadvantage because I do not possess adequate computer and technical skills to use myCourses effectively.	1%	3%	92%
2	I received adequate information about access and using myCourses.	72%	12%	12%
3	I have not had any problems using myCourses.	66%	7%	24%

The End-of-Course Survey

The End-of-Course Survey was a far more important survey instrument (see Table 2 on page 9). The purpose of these questions was to investigate how students felt about their Blended Learning experience. It was also designed to gage student opinions on interaction and community. The questions developed for the survey were generally questions used before by Online Learning and/or adapted from the Flashlight Teaching & Learning with Technology survey instruments. The last set of questions in the survey were the ones used by the University of Central Florida (UCF), which has used this question set for more than six years and have had well over 150,000 students respond to these questions. For a complete summary of each response set, see Appendix B.

There are four questions that showed a very clear student preference. Two of the questions, one and five, were essentially about whether Blended Learning—as defined as having part of the class online and part of it in the classroom—was a good idea. The first asked about it from their individual perspective and the second from whether other students should have the opportunity to take a course like this in the future. Surprisingly, the answers were nearly the same on the agreement side. For question one, 72% agreed they would like to have a Blended course; for question five, 71% agreed that other students should have the opportunity to take a Blended course.

The next two questions, which also garnered high levels of support, are question 10 and question nine. These two questions had to do with whether the students perceived that the faculty was doing anything different in a Blended course. Students agreed that faculty were using a greater variety of instructional strategies in their Blended courses. Students also felt that professors used a greater variety of teaching resources in their Blended courses. An argument could be made that students only perceive a difference, since part of the class is online. Yet, the evidence in the rest of the survey seems to indicate that students are not that easy to impress. By simply putting part of the course online, students did not feel that it was better organized, or that they interacted more frequently, or that they had better interaction with their professors.

Some data that seems very promising is in Part II of the survey. In two questions students were asked whether they perceived the quality and quantity of interaction with other students to have changed. On both questions students answered that they perceived an increase in interaction. While the increase is not overwhelming, it more than doubles those who answered that they perceived a decrease. These two questions deserve further attention in the future, for they seem to indicate that by moving part of the course online, students believe they have more interactions with other students. Clearly, as RIT continues to explore the idea of learning communities, Blended Learning may be a simple and effective option of doing just that.

Table 2. End-of-Course Survey

Questions		Cumulative		
	Part I	Disagree	Neutral	Agree
1	I liked having part of the course online and part of it in the classroom.	17%	11%	72%
2	The time I spent online would have been better spent in the classroom.	50%	23%	27%
3	I was more likely to participate in the discussions because part of this course was online.	29%	24%	47%
4	I had to work harder in this course than I would have if the course had been held only in the classroom.	40%	32%	28%
5	Other students should have the opportunity to take a class like this in the future.	8%	21%	71%
6	As a result of this course I felt more comfortable interacting with other students regardless of whether they were from a different racial, cultural or international background.	24%	40%	36%
7	I felt more comfortable interacting with other students who are deaf or hard of hearing (if you are hearing), or hearing (if you are deaf or hard of hearing) as a result of part of this course being online.	17%	46%	37%
8	This course was better organized than most other courses I have taken.	28%	38%	35%
9	The professor used a greater variety of teaching resources (e.g. web, print, video) because part of this course was online.	23%	24%	53%
10	The professor used a greater variety of teaching strategies (e.g. group work, discussion, projects, and testing) because part of this course was online.	16%	16%	68%
11	I more actively participated in the entire course because part of the course was held online.	27%	23%	50%
12	I feel I learned more because part of this course was online.	33%	33%	35%
Part II		Decreased	No Difference	Increased
13	The amount of your interaction with other students.	19%	30%	51%
14	The quality of your interaction with other students.	15%	37%	49%
15	The amount of your interaction with the professor.	23%	45%	32%
16	The quality of your interaction with the professor.	17%	49%	34%

Impact on Deaf and Hard of Hearing Students

The RIT commitment to deaf and hard of hearing students having equal access to all forms of learning remains a constant goal for Online Learning. With the equal access issue in mind, we continue to make sure all audio content is transcribed and available to students. For the Blended Learning Pilot, no audio components were added. Moreover, classroom discussions were moved online where it was expected that classes with higher percentages of deaf and hard of hearing students would be positively impacted. The results were slightly positive for the survey question that asked if students were more comfortable interacting with other students who are deaf, or vice versa if they were deaf (see Table 3 below). We broke down the data to see if the pattern varied when the number of deaf students was grouped by less than 10% in the course, between 11% and 25%, and more than 25%. The results show only a slight variation: in particular, that the impact is greater when the number of deaf students in the course is between 11% and 25%.

Table 3. Percent of Deaf or Hard of Hearing in the Course

Percent of Deaf or Hard of Hearing in the Course	I felt more comfortable interacting with other students who are deaf or hard of hearing (if you are hearing), or hearing (if you are deaf or hard of hearing) as a result of part of this		
	course being online.		
	Average response	Median response	
More than 25%	3.6	4	
10 to 25%	3.75	4	
Less than 10%	3.5	3.5	

Student Comments About Blended Learning

There were two open-ended questions in the survey. One question was designed to ask students for what changes would they recommend if the Blended format was used again; the other requested what did they like best about Blended Learning. In order to provide some context to the comments, the comments were divided into two categories: who the comment was targeted to; and second, whether the comment regarded an instructional or technical comment, or contained both instructional and technical comments. From the standpoint of asking what students liked about the course, it was striking that students liked the alternate instructional strategies. Over and over again students remarked positively about how they learned the material in a different and positive way.

The review of the negative comments made it very clear that most student issues/concerns could be grouped into five categories:

1. Faculty did not clearly explain the purpose of the instructional activity or strategy they were attempting to use.

- 2. The myCourses software did not work as well as they expected or hindered their learning.
- 3. That Online Learning and faculty both help students to better understand the instructional purposes of the Blended format.
- 4. Students would prefer, at the time of registration, to know that a course was going to be taught as a Blended course.
- 5. A myriad of miscellaneous issues.

While coding the comments offers a way to break down the comments, reviewing actual comments remains an insightful process. For that reason, some of the most descriptive comments are included in Appendix C.

RECOMMENDATIONS FOR THE 2004-2005 PILOT

We offer the following recommendations for the second year of the Blended Learning Pilot Project:

- 1. The Pilot should be continued and also enlarged for 2004-2005, with the goal of recruiting 50 new faculty participants. As in the first year, faculty should be offered a one-time stipend of \$500 for participating in the Pilot.
- 2. Faculty from the first-year Pilot should be invited to participate in the 2004-2005 Pilot and receive full instructional design and research.
- 3. Additional guides for Blended faculty and students should be developed.
- 4. A formal process for identifying and tagging Blended courses should be developed and disseminated to colleges, scheduling officers, and faculty.

APPENDIX A

Faculty Summaries of the Blended Learning Experience

"Blending Writing and Literature I"

Richard Santana Assistant Professor, Language and Literature Department

Objectives

In blending this Writing and Literature course one of the objectives was to get students to write in a lower-stakes setting. Writing Across the Curriculum (WAC) and Writing to Learn (WTL) strategies advise that students' engagement with writing can be deepened through protocols that ask students to write for purposes other than strictly for evaluation. Since half of the course was to be done online, which, for this class, meant a text-based environment, students were required to write under these conditions more often. Another objective of blending the course was to increase interaction between students, and in effect, reducing the face-to-face time would represent an increase in "real writing" interaction among students. Students would have to communicate with each other and thus the purpose of their writing was to come to an understanding of the material rather than to achieve a high grade.

Method

I equally divided my course into online and classroom components. We spent the first two weeks in a traditional face-to-face setting; we did some "practice" myCourses exercises to establish some familiarity with the technology and methods. From the third week on we met once a week in the classroom and had an online activity in lieu of the other day. I was always available in chat sessions online on the days the class would have met. Students were encouraged though not required to "attend" the chat sessions. The purpose of the chat sessions was mainly to maintain interaction with the students and to answer questions about assignments. In general, about fifty to sixty percent of the students would be in the general chat sessions.

The class was broken up into six permanent groups of four students. The online activities always involved some group work. Students would read an assigned text and write to a prompt and post their response to the group. The members of the group would then respond to their group mates and finally write a summary of the online discussion in their group, which they would hand in at the following classroom meeting. In each case, I would monitor the online discussions. In addition to these structured online assignments each group had the opportunity to get extra credit by "meeting" online and coming to a consensus on an assigned question about the text. For these "meetings," I established individual chat rooms for each group. To get credit, the group would have to log their discussion of the topic and come to an agreement. The extra credit questions were posted the day of the online "meeting" of the class. Students were thus encouraged to finish their assigned task before moving to the extra credit.

Results

The students responded really well to this method of instruction. Since I had just taught this same course with the same materials the previous quarter, I had a good opportunity for comparison. Part of what I wanted to accomplish was not to lose some of the impetus of the full time face-to-face model while creating more opportunities for writing and student interaction. This was successful in that students wrote about twice as much as they would have in an all face-to-face arrangement and interacted much more with their groups.

In these online discussions, I did not grade for grammar or language accuracy. The point of the exercise was for effective communication and engagement with ideas. As according to WAC and WTL protocols, students were encouraged to exchange ideas freely without being penalized for language "errors." In the higher-stakes assignments, however, students were corrected and graded according to language rules and accuracy. In a certain sense this created two levels of "blendedness" in this course. In their online activities, students were free to use language without correction. While this may seem counter-intuitive in a writing class, this exchange simulates what occurs in the traditional face-to-face classroom. However, there is the added bonus that the discussion takes place in writing rather than verbally. The discussions are written down and so form a record. Since the discussions were tied to the assigned (graded/ corrected/ high stakes) writing this written record helps students develop their ideas more fully. In comparison with their face-to-face cohorts the papers in this course were more fully engaged with the ideas and ultimately more grammatically correct. Final grades in this course as compared with my previous traditional course were generally higher (there were 11 "As" as opposed to six in the previous course).

Finally, in this course students wrote more, were more interactive with their classmates and ultimately wrote more engaged and more grammatically accurate papers, thus receiving higher grades overall.

"A Journey to Blended Learning"

Bob Chung Professor, School of Print Media

Motivation

I teach color imaging aspects of digital media as it applies to print and publishing. Using digital media, myCourses and the Internet, to support my teaching makes perfect sense. I taught on-line courses for more than four years. I was able to convert much of my course materials in the form of digital media, e.g., PDFs of PowerPoint handouts, streamed video of lectures and lab demos, self-quizzes with questions randomly pulled from a test bank, etc. Utilizing these digital resources in campus courses seemed to be the next step. An immediate benefit is that it did not make face-to-face interaction a requirement for learning. Therefore I signed up for the Blended Learning Pilot in winter quarter.

The Blending

I offered Tone and Color Analysis to 15 graduate students in blended format on campus.

Process

This was a required four-credit course with nine international students and one deaf student attending. A simple goal of a Blended course is to replace some face-to-face instruction with online student-to-student interactions. In this instance, the instructor becomes a facilitator and myCourses becomes the virtual meeting place with bulletin boards posting and organizing various student-generated notes. Effective blending requires a different strategy than teaching as usual. I received assistance from Online Learning before the beginning of the quarter. I was coached to set up heterogeneous groups at the beginning of the quarter. Training sessions on myCourses plus warm-up exercises were provided.

The class met for two three-hour blocks a week. I decided to lecture only three hours a week and used streamed video to pick up the slack. The other three hours were allotted to the lab component of this course. I divided the class into five groups of three and asked each group to approach each lab assignment as a group project. I would meet with the class and gave unannounced quizzes at the beginning of the lab session to assure good attendance. I then answered questions pertaining to specifics of a lab assignment. The class was dismissed to allow small groups to interact afterwards. Students were grade conscious. There were two closed-book tests accounting for 50% of the grade; four lab assignments accounting for 40% of the grade, and 10% for unannounced quizzes. Having small group interaction was not an easy task. Having small group interaction documented with the use of myCourses was harder for my students. I had to introduce new rules, e.g., minimum postings per week per person, for lab grading in order to increase the number of hits that Online Learning was monitoring.

Results

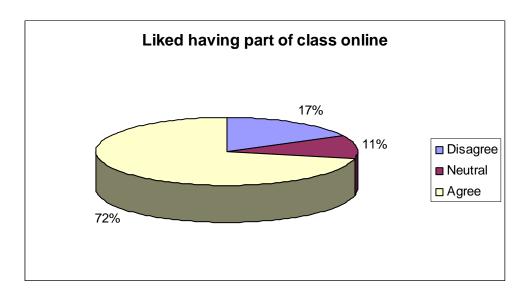
As my course was part of the Blended Pilot, there were plenty of surveys to probe the attitudes of the students toward the use of digital media to either substitute or

complement face-to-face instruction. While there are statistics out there, I trust my insights and the experiences shared by my students. Blended Learning was a success for me and my students. Instead of procrastinating on lab assignments, small lab groups tackled the project head on without delay. The lab report submitted as a group produced higher quality than individual reports. Students who were more capable would lead. The group that produced the best report for an assignment was recognized in front of their peers and their work, in the form of a PDF file, made available to the entire class. I was viewed more like an advisor or a coach as opposed to an adversary. There were more "As" in the class than previously.

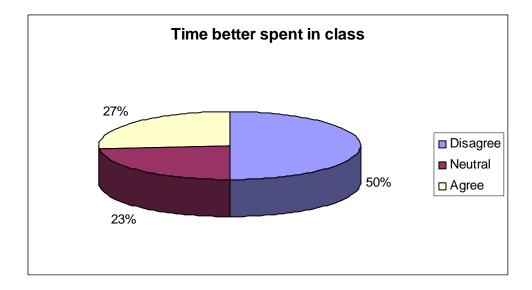
Speaking from a larger context, Apple computer is celebrating its 20th birthday in 2004. It suggests that microcomputers and instructional computing have come a long way. With sufficient supports and services, achieving instructional success via Blended Learning, especially in a technological-preeminent institution such as RIT, is very sure. In hind sight, a number of factors made my Blended Learning journey a very positive experience: (1) readiness of coursework in digital media (not sure if it works equally well for a junior faculty member), (2) maturity of graduate students (not sure if it works for undergraduate students who are much younger), (3) course contents are imaging and computing intensive and the class size is small (I am not sure if it would work for liberal arts class with large number of students). From what I can see, the future of Blended Learning at RIT looks good. Students may adopt Blended Learning easier than faculty members. Getting faculty involved with the Pilot Project is recommended as we continue on the journey toward Blended Learning.

APPENDIX B

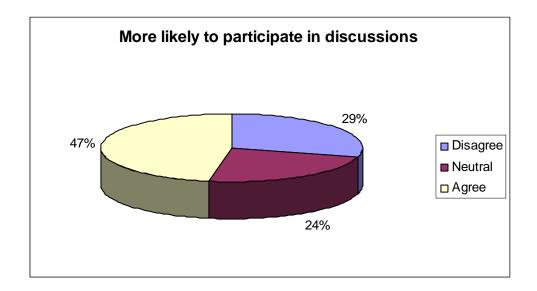
Question 1: I liked having part of the course online and part of it in the classroom.



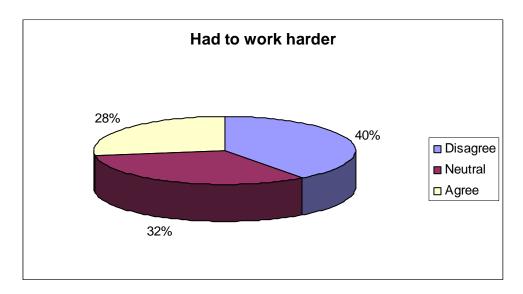
Question 2: The time I spent online would have been better spent in the classroom.



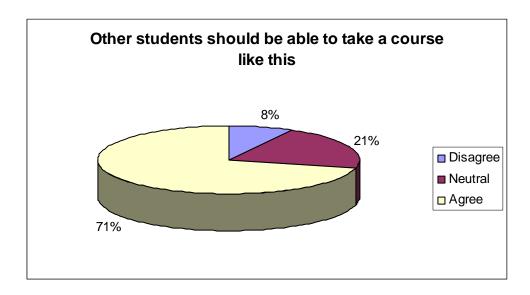
Question 3: I was more likely to participate in the discussions because part of this course was online.



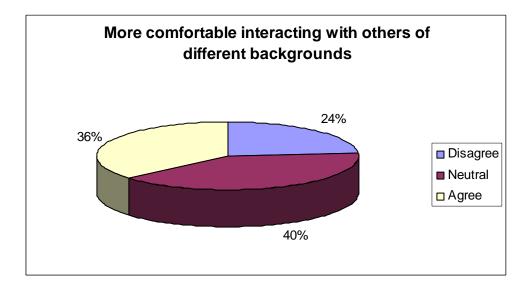
Question 4: I had to work harder in this course than I would have if the course had been held only in the classroom.



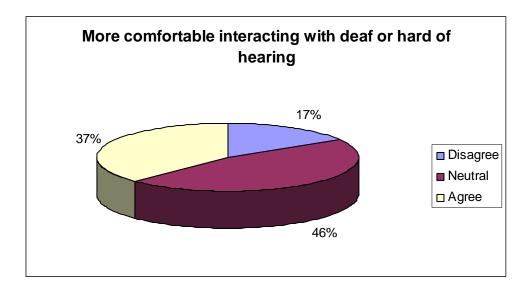
Question 5: Other students should have the opportunity to take a class like this in the future.



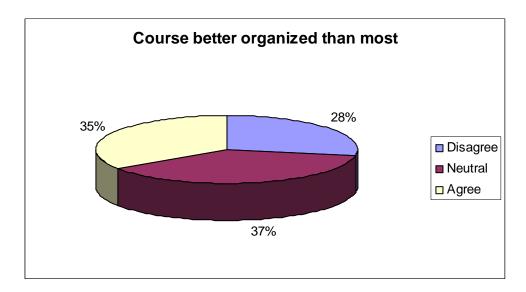
Question 6: As a result of this course I felt more comfortable interacting with other students regardless of whether they were from a different racial, cultural or international background.



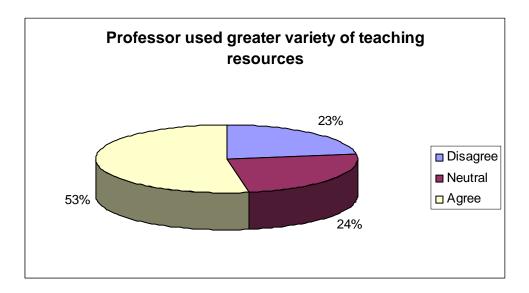
Question 7: I felt more comfortable interacting with other students who are deaf or hard of hearing (if you are hearing), or hearing (if you are deaf or hard of hearing) as a result of part of this course being online.



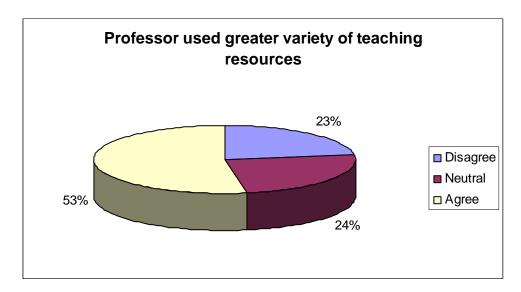
Question 8: This course was better organized that most other courses I have taken.



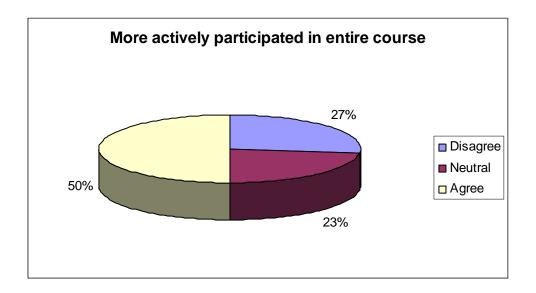
Question 9: The professor used a greater variety of teaching resources (e.g. web, print, video) because part of this course was online.



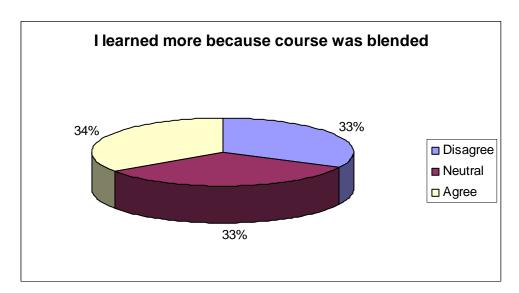
Question 10: The professor used a greater variety of teaching strategies (e.g. group work, discussion, projects, and testing) because part of this course was online.



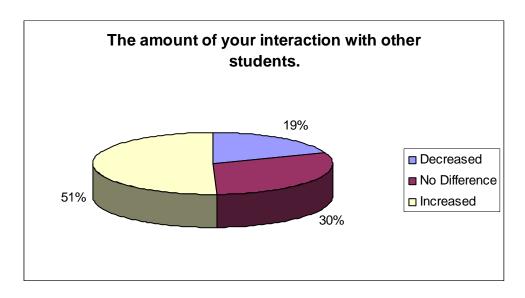
Question 11: I more actively participated in the entire course because part of the course was held online.



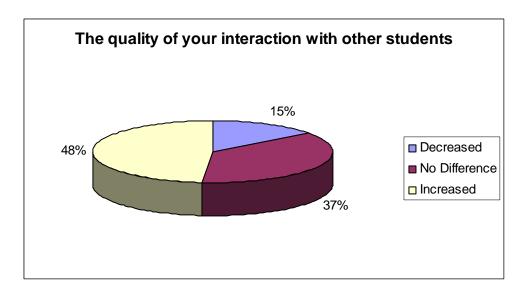
Question 12: I feel I learned more because part of this course was online



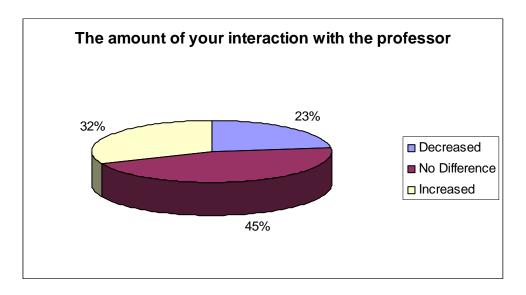
Question 13: The amount of your interaction with other students.



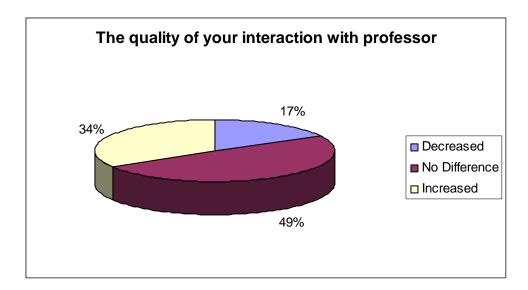
Question 14: The quality of your interaction with other students.



Question 15: The amount of your interaction with the professor.



Question 16: The quality of your interaction with the professor.



APPENDIX C

Selected Student Comments from the End-of-Course Survey

Survey Question 17: If more courses were offered like this (ones that meet in the classroom and online), what changes would you recommend?

- "I feel it is better to stay in class instead of using myCourses. The time required in discussions, etc. is more than the time that would be required to sit in class."
- "The discussion portion of myCourses is helpful for homework. Beyond that, I don't really think this is effective. The absolute last thing I want to have to worry about after classes are all done is having a quiz submitted by Saturday at noon. Also, being required to participate is a slight inconvenience."
- "I like having the quizzes and course notes online. I don't like the discussion section. For this type of class, it is easier for me to talk to someone about my questions. It takes too long to type in any equations."
- "I think myCourses is good for augmenting the classroom, but the classroom should remain the focal point of learning, since the classroom doesn't disappear when the server goes down."

Survey Question 18: What did you like best about this course?

- "I feel a 'blended' course is beneficial to my overall schedule because it allows for more flexibility and free time, and in turn, helps cut down on my stress level."
- "I appreciate the online portion of the class as people tend to comment more openly online than in class."
- "This experience will help me prepare for the working world after I have graduated, as it is becoming very technical out there."
- "To be honest, I thought I would hate it. But, I found I really like the in-class time combined with the online discussions. It makes it easier for dialoging with other students in the class who normally don't say anything."
- "It makes the class seem to go smoother. You have an online site to go to for information and to keep your written assignments. Blended Leaning allows us to have class interaction also. Love it."
- "The discussions that were held online were great learning experiences. I liked the opportunity to learn out of the classroom and away from the textbook."

APPENDIX D

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