

# **SIGNIFICANT FEATURES OF ASYNCHRONOUS LEARNING<sup>(1)</sup>**

J. R. Llanes

University of Texas Pan American

©Copyright 2002 Jose R. Llanes All rights reserved. This is a pre-publication copy, may not be quoted without permission of the author.

## **Introduction**

The development of computer-mediated asynchronous platforms for the delivery of online coursework brings new questions about the features these platforms offer and the degree to which each feature is significant to the achievement of students. Are all features designed in the same way across platforms? Are there some features which are more reliable, easier to operate and more attractive to students who use them? Which of the features can be connected with objective measures of achievement? Is the type of use given to the feature by an instructor a significant element of the feature? This paper relates a pilot study of three courses offered online using three different platforms and in three different campuses in order to explore the range of features in use and their link to student satisfaction and achievement. It also contrasts student outcomes with three onsite courses offered by the same professors. This paper compares some of the characteristics of the courses studied with benchmarks from a monograph on the optimal design of features ([Institute for Higher Education Policy, 2000](#)). The purpose of this study is to discover hypothetically significant features that can then be tested in a larger sample.

## **The Pilot Study**

### The courses and grading policy

Three professors, who teach graduate courses online and also have the option to teach these courses onsite, offer the same course in the two versions. The courses are offered to graduate students of educational administration.

Each student is graded in three areas:

1. Student Participation refers to how often a student speaks in class (on the onsite courses) or posts messages on the Bulletin Board or the listserv (on the online courses). There's also a determination made by the graduate assistant on whether or not the comment or question is on-target. No comments during a week receive a 0, one comment receives a 1 and two or more receives a 2, a 3 is given if the student's comment reflects a high level of analysis of the content matter. There are 15 weeks on each course but the maximum grade is 40, so there is a top limit or "ceiling" to classroom participation.
2. Group Project refers to a cooperative activity in which teams selected by the professor collaborate to obtain a maximum grade of 30. The grade is given for the entire team.
3. A Final Exam is administered containing 15 questions, which can receive a maximum grade of 30.

## Measures

The courses are then compared with each other on the following factors:

1. The grades received by students
2. The participation grade
3. The group project grade
4. The final exam

There are two surveys given to each student, one during the first week and another during the 13<sup>th</sup> week. In addition, university-prepared course evaluations were given to both groups as mandated by university policy. These results are compared.

## Asynchronous Platforms

Three different platforms were used for the online courses. Course 1 used WebCT, Course 2 used Blackboard, and Course 3 used Learning Space.<sup>(2)</sup> These platforms contain essentially the same features but each executes the features in a different way. A feature used by one professor resides outside the platform (such as video on CD-ROM) and none of the platforms offers Instant Messaging (IM), a feature to which two of the three professors in this study subscribe their students.

The following Table 1 lists the various categories of activities that typically take place in a graduate class and classifies the features studied in terms of its asynchronous versus synchronous nature. The synchronous features were measured in any of these online classes.

**Table 1 Classification of Platform Features**

<b>ACTIVITY</b>	<b>ASYNCHRONOUS</b>	<b>SYNCHRONOUS</b>
Delivery of Instructional Content	Web pages, articles online, video streaming, video CD	Videoconferencing
Discussion	e-mail, bulletin boards	Chat, IM
Work in Groups	e-mail, bulletin board, attachments	Chat, IM
Research	Links to servers, tutorials	Field work, library research
Assignments	e-mail attachments, web-page posting	Presentations onsite
Tests	Online	Onsite

In this study we are concentrating on the asynchronous features and ignoring the synchronous features.

## Procedures and Cohort Retention

Students enrolled in the courses as required by their degree plan, without knowing that one of the courses would be held online. At the first meeting, the professor announces the study to those selected to be in the online course. Students could drop the course if they did not

wish to take it online and they were then assigned to the onsite course. Of the 43 students who were given this option by the three professors, 3 decided to change the course at that point leaving 40 students and there were no subsequent drops. In the onsite courses, 45 were originally enrolled, adding the three who opted out of the online course, raised this total to 48, however 6 dropped or withdrew during the course leaving 42. The students on the onsite course were not told about the study or the availability of the online course. The drop-add activity for each course was higher for the onsite course. Table 2 shows student retention.

**Table 2 Student Retention**

<b>Type of Course</b>	<b>First-day Enrollment</b>	<b>After 4 weeks</b>	<b>After 8 weeks</b>	<b>Completed</b>
Online	43 (100%)	40 (93%)	40 (93%)	40 (93%)
OnSite	48 (100%)	45 (90%)	42 (87%)	42 (87%)

Throughout the course the professors use a graduate assistant to make observations about:

1. The level of participation of each student
2. The level of stress manifested by each student
3. The interaction between professor and student and among students.

All three courses are part of a Principal's preparation degree program at their respective institutions and enroll teachers and school administrators who work full-time. All three onsite courses are offered in the evening. Course 1 is offered at the beginning of the graduate sequence for its institution's program, while Course 2 is offered in the middle of the sequence and Course 3 at the end, even though they are essentially identical courses.

Students attending the institution offering Course 1 undergo a moderately rigorous selection process, including GRE scores and GPA from undergraduate transcripts. The students attending the institution offering Course 2 undergo the most rigorous selection process including panel interviews, extensive pre-admission academic paper preparations and must have a 25% higher GRE score than in the first institution. The institution offering Course 3 employs a selection process more similar to that of Course 1 but also includes an admissions test. Students in all courses show nearly identical characteristics in terms of age and gender but they tend to be older than other graduate students in their respective campuses. The predominance of females in Principal preparation programs is a recent phenomenon but consistent with the gender characteristics of students enrolling in graduate programs. Table 3 shows age and gender distribution for all groups.

**Table 3 Age and Gender Characteristics**

<b>Gender</b>	<b>21-30</b>	<b>31-40</b>	<b>41-50</b>	<b>51 and over</b>	<b>Total</b>
online males	3	4	1	1	9
online females	5	15	10	1	31
onsite males	3	5	0	0	8
onsite females	10	17	11	2	40

The courses were offered in institutions with a high Hispanic enrollment and this reflects in the sample characteristics as shown in Table 4.

**Table 4 Ethnic and Racial Characteristics of Student Sample**

<b>Type of course</b>	<b>White Non-Hispanic</b>	<b>Hispanic</b>	<b>African-American</b>	<b>Other</b>
Online	5	33	1	1
Onsite	4	38	4	4

#### Differences between the courses and professors

Each course pair was taught using the same instructional objectives, textbooks and evaluation criteria and these elements were also fairly consistent across the three. The online Course 1 had prepared a 62-minute CD-ROM of lectures and student discussion with the professor. This was not available for either online Course 2 or 3. Both Course 1 and 2 had group projects involving field experiences; Course 3 group projects involved research and planning using school district data given to the students. The final exam on Course 1 was administered onsite on a Saturday, as university policies do not allow for online testing. However, online Courses 2 and 3 administered their exams online.

Course 1 was prepared using three theories of adult learning that the professor had practiced for many years.<sup>(3)</sup> Neither Course 2, nor 3 identified any theoretical guidance for the course design. Online Course 1 was developed in 1999 and had been offered every semester until the Fall 2001 when this study was conducted. Online Course 2 was prepared in the Fall of 2000 and had been offered only once before. Online Course 3 was prepared in the Spring 2001 and had only been tested with a formative evaluation sample.

The professor for Course 1 was a tenured Full Professor with 25 years of teaching experience. The professor for Course 2 was a tenured Associate Professor with 15 years of teaching experience. Course 3 was taught by a non-tenured Assistant Professor with 5 years of experience.

#### **Comparison of Courses to National Benchmarks**

The online courses studied were compared to the courses and institutional practices described in the study "Quality On The Line: Benchmarks for Success in Internet-based Distance Education" conducted by The Institute for Higher Education Policy (IHEP) and supported by one platform provider, Blackboard and the National Education Association. (Institute for Higher Education Policy, 2000). The following Table 5 contains benchmarks considered essential for Quality Internet-based Distance Education (pages25-26) and compares them to the courses studied. All but one of the benchmarks were contained in the courses studied. The nature of this study demanded random assignment of students and this prevented the pre-qualification of students to determine self-motivation and access to technology.

**Table 5 Comparison with Course Development and Structure Benchmarks**

<b>Benchmark</b>	<b>Course 1 Online</b>	<b>Course 2 Online</b>	<b>Course 3 Online</b>
<i>Minimum standards for course development design and delivery based on learning outcomes</i>	Yes.	Yes	Yes
<i>Instructional materials are reviewed periodically</i>	Every year since 1999	Once since 2000	New course
<i>Students are required to engage in analysis, synthesis and evaluation</i>	Yes.	Yes.	Yes.
<i>Students are pre-qualified to determine self-motivation and access to technology</i>	No. Random assignment	No. Random assignment	No. Random assignment
<i>Students are provided with outlines of course objectives, concepts, ideas and learning outcomes</i>	Yes. Very extensive	Yes. Minimally so.	Yes. Moderately so.
<i>Students have access to sufficient library resources including "virtual library."</i>	Yes. Extensive web resources and on-campus library	Yes. Campus library with library resources online	Yes. Campus library, no online resources
<i>Students and faculty agree upon expectations regarding times for student assignment completion and faculty response.</i>	Yes. Signed agreement	Yes. Informal agreement	Yes. Informal agreement

The following benchmarks also are considered essential and pertain to another domain that of the teaching-learning interaction. All benchmarks in this area identified by the report (pg26) were part of the courses studied. See Table 6.

**Table 6 Comparison on Teaching Learning Benchmarks**

<b>.Benchmark</b>	<b>Course 1 online</b>	<b>Course 2 online</b>	<b>Course 3 online</b>
<i>Student interaction with faculty and other students is an essential characteristic</i>	Yes. High faculty-student and student-student interaction	Yes. High faculty-student interaction. Moderate student-student interaction	Yes. High faculty-student interaction. Minimal student-student interaction
<i>Feedback to students is constructive and timely</i>	Yes. Use of Socratic method to increase dialogue	Yes. Use of extensive positive reinforcement	Yes. Response was immediate and informative
<i>Students are instructed in the proper methods of effective research including assessment of the validity of sources</i>	Yes. Provided online tutorial on searching on the Internet and assessing validity of sources	Yes. Modeled behavior through comments on students citing of sources	Yes. Sent published paper on assessing validity of sources

The IHEP report contained other benchmarks to quality in the domains of "Institutional Support", "Student Support", Faculty Support" and "Evaluation and Assessment" but these were outside the control of the professors and pertained to the institutions and their infrastructure, practices and policies. They are key elements in the production and delivery of courses but not critical enough to the outcomes of this study to be considered here.

### **Analysis of Data**

1) The drop-ad activity for each course was higher for the onsite course. This is not typical, dropping online courses is much more prevalent than in onsite courses. This atypical behavior maybe due to the fact that these online students were aware of the research being conducted and were eager to cooperate with it.

2) Females did generally better in final grade across the three course pairs. See Table 7.

**Table 7 Comparison of Females versus Males on Final Grade**

<b>Gender</b>	<b>C1online</b>	<b>C1oniste</b>	<b>C2online</b>	<b>C2onsite</b>	<b>C3online</b>	<b>C3onsite</b>	<b>Average</b>
Females	80.2	78.7	74.7	86.1	78.3	86.1	80.7
Males	76.4	71.9	71.6	84.3	82.3	88.3	79.1
Average	78.9	72.9	72.5	85.7	80.5	87.1	79.9

3) This was not true however in the variable of Participation. In this variable males, both onsite and online received a better Participation grade than females. The reason for the higher overall grade by females seems to come from a higher grade in the Final Exam. Since Group Projects were carried out, in all but two teams, by mixed-gender teams, it was not possible to compare gender outcomes in this variable. Table 8 contains the data on the Participation comparison.

**Table 8 Comparison of Females versus Males on Course Participation**

Gender	C1online	C1oniste	C2online	C2onsite	C3online	C3onsite	Average
Females	25.1	15.2	14.3	33.1	21.4	30.9	23.3
Males	27.8	16.2	18.1	31.8	25.9	37.9	26.3
Average	26.6	17.1	16.8	32.5	23.0	34.6	24.8

4) On the Participation variable we found that online Course 1 had a higher student participation grade than the onsite version. In the other two pairs, the onsite classroom participation is considerably higher. The online participation was obtained by counting and evaluating the postings made by students to their discussion group boards and also including e-mails sent to the listserv. However, the onsite course rating was an interpretation made in-class by student assistants. Since we did not conduct inter-rater reliability research prior to conducting this preliminary study, and three different graduate students were used to rate onsite student participation, we cannot be certain that this difference is not related to different raters' perspectives.

5) A review of the online Bulletin Boards was conducted to determine what kind of behavior on the part of the professor contributed to increasing or decreasing participation on the part of students. Like classroom participation, a professor can have an inhibiting effect by either ridiculing, excessively challenging or refusing to accept as valid, comments made by students. It is also the case that a professor can inhibit discussion on a question when she/he provides a quick answer to a question rather than remaining silent or asking others to voice their opinions regarding the question. The same appears to be true in Bulletin Board discussion. In Course 3 online, which experienced the lowest number of postings on the part of students (393), the professor answered nearly all postings containing questions before any other student had a chance to comment. Only when the professor was "disconnected" from the Bulletin Board, either because of travel or other activity, did students take it upon themselves to provide responses or opinions regarding another student's postings. Conversely, in online Course 1 which experienced the highest number of postings (1,097), student postings were allowed to remain unanswered for at least 48 hours and after the hiatus when the professor intervened, he often responded to questions with other questions which elevated the number of postings per issue raised.

6) This observation led to the development of a formula to estimate student responses to professor's interventions which fits the data from each of the three online courses as follows:

- a. **If** professor waits at least 48 hours to respond, **then** 40-50% of the students post responses or comments on others' comments;
- b. **And if** professor asks questions about a student's posting (whether a question or a statement) **then** 70-90% of the students provide responses; but
- c. **If** a professor provides responses to each question and/or comment without waiting 48 hours, **then** 0-20% additional student postings can be expected.

This formula suggests that the professor's use of the Bulletin Board for classroom discussion is similar to professor's onsite interventions on student discussions in its effect on student participation. Given the higher correlation of Participation to Final Grade in Course 1, this feature and its use appears to be significant to overall student achievement. ([See Table 11 Correlations below](#))

7) We expected that online courses would not be as effective as onsite courses on the variable of Group Projects. We hypothesized that, since the onsite classes had facilitated familiarity among students who met with each other every week; this would pave the way for a more effective teaming in the Group Project. This was true in Course 1 where onsite students averaged 28.8 on their group projects while online students achieved an average of 26.7. But the other two courses reflected the opposite of the expectation. See Table 9.

**Table 9 Comparison of student grades on Group Projects Online versus Onsite Courses**

	<b>C1online</b>	<b>C1oniste</b>	<b>C2online</b>	<b>C2onsite</b>	<b>C3online</b>	<b>C3onsite</b>	<b>Average</b>
Average	26.5	28.8	28.5	26.9	28.8	25.6	27.5

8) All three professors coordinated the preparation of a final exam so that it contained the same questions and was graded by one person, increasing the reliability of the score. Course 1 gave the test onsite to both online and onsite students in one Saturday. Courses 2 and 3 online gave the test using an external server owned by a commercial provider. The onsite versions of Courses 2 and 3 gave their exams onsite the same day the online exam was available to minimize "bleeding" of information from one group to another about the contents of the test. We found that students scored very close to each other when compared within course pairs and across course pairs. See Table 10.

**Table 10 Comparison of student grade on Final Exam Online versus Onsite Courses**

	<b>C1online</b>	<b>C1oniste</b>	<b>C2online</b>	<b>C2onsite</b>	<b>C3online</b>	<b>C3onsite</b>	<b>Average</b>
Average	25.6	26.9	27.8	26.1	27.40	26.7	26.7

### Correlations

We correlated the final grade with the three scored variables, Participation, Group Project and Final Exam. These correlations gave us additional insight on how students construct knowledge using different modalities of delivery.

9) Students Participation scores correlated the highest overall with the Final Grade. In online Course 1, students Participation score correlated 0.944 ( $<.001$ ) with their Final Grade. On Course 2 online, students Participation score correlated 0.870 ( $<.002$ ) with their Final Grade. On Course 3 online, students Participation score correlated 0.682 ( $<.005$ ) with their Final Grade.

10) When Participation scores are compared across online courses, we find that in Course 1 students online contributed 1,097 postings, a much higher number than in Course 2 where students contributed 498 and on Course 3 where students contributed 393. This also coincides with the higher participation score of students in Course 1 online, but it is not even higher as it is limited by the ceiling placed on the grade the students can receive for this activity. (See page 1 of this paper for an explanation of Participation scoring.)

11) The correlation between Participation and the Final Exam in online Course 1 is strong ( $.654<.001$ ) while the Correlation between Participation and Final Exam in Course 2 online is a negative one ( $-0.192<.005$ ) and in Course 3 online is very weak ( $0.063<.001$ ).



12) The correlation between Group Project score and Final Grade were weak or non-existent. We think that the Group Project, intended to practice students in the art of collaborating toward a final product and is not a content objective per-se, therefore contributed less toward the achievement of a higher grade on a content-based exam. Also, since a) groups were organized on the basis of the distance between students' home addresses and not homogenously by previous performance, and b) the group received one grade for all participants; these grouping and grading factors conspired to produce a lower correlation between this factor and the final grade students received. In order to further sustain these hypotheses we ran a correlation between Group Project grade and Final Exam and found weak or no correlations between the two. See Table 11.

**Table 11 Correlations Between Students Final Grade and Study Variables**

	<b>Final Grade and Participation</b>	<b>Final Grade and Group Project</b>	<b>Final Grade and Final Exam</b>	<b>Participation and Exam</b>	<b>Group Project and Exam</b>
<i>C1online</i>	0.944<.001	0.492 <.002	0.774<.005	0.654 <.001	-0.456<.005
<i>C1onsite</i>	0.880<.001	-0.018<.002	0.378<.001	0.012<.001	-0.012<.005
<i>C2online</i>	0.870<.002	0.225<.002	0.250<.001	-0.192<.005	0.013<.002
<i>C2onsite</i>	0.897<.001	0.669<.002	0.258<.001	-0.014<.005	0.023<.002
<i>C3online</i>	0.682<.001	0.549<.001	0.447<.001	0.063<.001	0.167<.005
<i>C3onsite</i>	0.755<.001	0.353<.001	0.128<.005	-0.382<.002	0.239<.005

#### Student Satisfaction

13) The level of overall satisfaction, as measured by the student surveys, were fairly high with the online courses (68% of the comments being positive) but slightly lower than the level of satisfaction with the onsite course (71% of the comments being positive). The following Table 12 details the overall satisfaction scores.

**Table 12 Comparison of Onsite and Online Courses on Overall Satisfaction**

	<b>Course 1</b>	<b>Course 2</b>	<b>Course 3</b>	<b>Average</b>
<i>Online</i>	78%	72%	56%	68%
<i>Onsite</i>	82%	74%	57%	71%

14) The differences between the pre and post surveys are greater for the online course than for the onsite course on the variable of student stress or apprehension. In the pre-course survey 42% of the students expressed High or Very High stress stemming from how they would do in this course, compared to 18% of the students in the onsite course. However in the post-survey the online students apprehension with future course online fell to (15%) more in line with the level of apprehension in the onsite course.

15) The three university-prepared course evaluations cannot be fully compared because each are prepared with different criteria and item construction making them essentially non-equivalent measures. However some of the items are sufficiently similar to allow for some

comparison. The following are some of the variables of interest to this study. The percentages refer to responses at or above the mean in each institution's slightly different Likert scale rating. For example: In Courses 1 and 3 this would include responses in Excellent, Good and Average categories. In Course 2 this would include responses in Excellent, Superior, Average categories. The balance of the responses (when subtracted from 100%) contained in the evaluation forms were either Fair or Poor for Courses 1 and 2 or Below Average and Poor for Course 3. As can be seen the ratings given each professor in the online version of the course is almost always lower than the ratings given each professor on the onsite version of the same course. We noted that, for example, in the item "Clarity of Course Objectives", the identical materials outlining objectives and expectations of the professor were distributed to both the online and onsite course, yet students rated the objectives' "clarity" significantly higher in the onsite versions of the courses. See Table 13.

**Table 13 Comparison of results of university-prepared course evaluation on comparable values across campuses**

	<b>Overall rating as Instructor</b>	<b>Instructor outside availability</b>	<b>Courtesy to students</b>	<b>Clarity of Course Objectives</b>	<b>Encouragement of critical thinking</b>
<i>C1 onsite</i>	100%	100%	100%	100%	100%
<i>C1 online</i>	90%	90%	100%	80%	100%
<i>C2 onsite</i>	85%	90%	100%	100%	90%
<i>C2 online</i>	80%	70%	80%	70%	90%
<i>C3 onsite</i>	78%	80%	80%	80%	85%
<i>C3 online</i>	76%	70%	60%	70%	85%

The differences between the pre- and post survey findings are presented here.

#### Synchronous elements

While not part of this report on asynchronous elements, we noted that some synchronous elements such as chats (conducted in one course and not the other two) still suffer from technical issues, which make their use yield a lower level of student satisfaction. The platform in use for online Course 1 chatting, dropped an average of 30% of the students during the three chats conducted and froze altogether in one chat ending the chat. Students who participated in Course 1 rated the chat with a Low or Very Low rating on 68% of the cases.

#### Differences between platforms

While we measured student satisfaction with each platform, the number of students participating in this preliminary study is not sufficient to make any valid distinctions between them. Our intent here was to validate the measures for a larger study that would

provide the sample size to enable valid distinctions. We did note that the platform maintained by the university in its own web server was less satisfactory than the other two that were maintained by outside contractors. This was due in part to the downtime experienced by students in online Course 1 (a total of 8 days) compared to no downtime for online courses 2 and 3.

There were significant differences in student satisfaction between the platforms, which could possibly be due to the design of their features. For example, one platform requires 9 clicks before the student can construct an e-mail, another requires 7 and another just 4. The students participating in the 9-click platform expressed greater dissatisfaction with the use of e-mail comparing it negatively with their own e-mail program outside of the course, than did students in the other two platforms. We also sampled the level of "actualization" of student's intended transactions. This level of actualization is measured as a percentage of all operations completed successfully. We selected 12 students to keep a record of how often the platform failed to provide them with the operation they sought and again, the sample is so small we caution against drawing conclusions about the platforms from these data. In Course 1 the sample reported 80% of actualization, compared with 65% for Course 2 and 75% for Course 3. Course 2 students expressed the strongest dissatisfaction with the course technology overall and also report a higher level of distress in taking this course.

### **On the Research Questions**

At the beginning of this study we had four research questions which we will repeat here and summarize findings in response to these.

*Are all features designed in the same way across platforms?*

Because different people designed each platform and each is a descendant of platforms designed for differing purposes, the platforms' features are therefore measurably different in design. We lack sufficient data required to make a definitive statement on which design provides the most significant input to student achievement. One might be able to discern differences with large samples over time but not from this small sample. We have become familiar with three platforms, which are essentially effective in enabling the presentation of material. Some are easier to operate by professors unfamiliar with the technology, while others require at least rudimentary knowledge of HTML. Since most professors end up doing their own course design after an all too brief period of institutional support, each platform could use a simpler method for designing and incorporating course materials.

The three professors in this study rated each platform in terms of ease of use for design purposes. We agreed that WebCT while not entirely friendly, was a bit friendlier than the other two and provided more flexibility than Learning Space and a lower learning curve than BlackBoard. Students enrolled in the course being delivered by Learning Space gave it the highest rating for ease of use, while BlackBoard rated the lowest and WebCT was in between the two. [\(4\)](#)

We noted that an earlier version of WebCT (used in this study) provides a more satisfactory Bulletin Board experience than the latest version. In future studies we want to look at version changes and explore their effectiveness independent of other variables.

*Are there some features which are more reliable, easier to operate and more attractive to students who use them?*

Students using WebCT found their internal e-mail facility to be more cumbersome and less effective than their own e-mail programs used with external ISPs. We counted 9 clicks from homepage to e-mail format and this was higher than the other two. Students found the Learning Space software easiest to use to send mail, read attachments and Bulletin Board use. Given the levels of actualization reported earlier it appears as if the features of all three platforms have a long way to go before they are able to give students a trouble-free operation. When compared with the use of listserv to engage in dialog, Bulletin Boards are considered superior by students overall. But when compared with the internal e-mail facility of all platforms tested, external listservs were judged by students to be more effective. Given the speed of connection available to most students, we did not try to include video or audio streaming as part of the course. One course with a CD-ROM of lectures provided a higher level of satisfaction with professor's explanations than the other two. Still, the CD-ROM feature could not be linked with online material in any platform, so the student had to logout of the course and start the CD-ROM before he or she could use the material.

*Which of the features can be connected with objective measures of achievement?*

We were able to correlate the use of Bulletin Board with both Final Grade and performance in Final Exam. Students rated online Course 1 as Very Effective in conveying information through web pages and Courses 2 as Effective and 3 as Moderately Ineffective. The features are hypothetically linked to achievement but the use given to them by individual professors may be even more important than the construction of the feature itself. In summary, there are no other features than correlate to student achievement.

*Is the type of use given to the feature by an instructor a significant element of the feature?*

This seems to be the most important area of findings. The simple answer is, yes.

1. Course 1 uses a format for presenting information, which is different than the other two courses. The author calls it Learning Text and it relies on learning theories on how to organize information for adult learning. Students find this format Very Effective when compared with the other two courses that use the more usual lecture notes format independent of any named theoretical construct. [See Note 3](#)
2. As discussed earlier, the use of Bulletin Boards by different professors reveal that the professor's communication style has an impact upon the amount and breadth of the student's communications online. As is the case in classroom instruction, online instructors must allow time for students to respond to the comments or questions asked by other students. The prescription that emerges is in line with the thinking about Knowledge Construction as a social activity, which demands active, open and often meandering dialog by peers in an effort to create understanding. This is more effective than a two-way dialog between one student and the professor in which the rest of the students are simply passive observers.
3. Higher levels of Bulletin Board use leads to higher correlations between this variable and final grades as well as higher scores on final exams. We also noted that students who are less participatory onsite are more participatory online. This seems to be due to a phenomenon a student discussed this way. "I have to think about something before I want to make a comment. The computer discussion gives me time to read something, go to the kitchen, wonder into the bathroom, come back and then

answer. In the class I have no time to think and so I seldom say anything."

4. The combination of Bulletin Board and video CD-ROM attempts to simulate the complete classroom experience. However, there is no easy way to go from Bulletin Board or Content Pages to CD-ROM and back but the combination of the two—although disconnected at this time—can be linked with student satisfaction. In some cases CD-ROM lectures may be better and are no worse than classroom lectures. Since CD-ROM lectures can be recorded by professors using Teleprompters and the final product edited, this may increase some professor's effectiveness in the delivery of the final product. Six of the students taking Course 1 online had also taken another course from the same professor onsite. He took advantage of that opportunity to ask them if his lectures on the CD-ROM were more or less effective than his lectures in person. Five said they were about the same but one commented that the CD-ROM format allowed her to repeat certain portions she found hard to understand several times until she finally got it.

## References

The Institute for Higher Education Policy (2000) *Quality On the Line: Benchmarks for Success in Internet-based distance education*. <http://www.ihep.com/quality.pdf>

---

## NOTES

### **A Personal Note for Presentation to AERA Annual Conference May 2002**

Some of you in this audience may be considering putting your courses in asynchronous platforms. If I were a junior professor, therefore untenured, I would have second thoughts about taking my courses entirely online. Some students, particularly older students in graduate programs, face puzzling and unfamiliar challenges taking courses online. They have never experienced technical frustrations on the many courses they have taken onsite and invariably they take it out on you when they do. They also have little or no basis for comparing your online course with other online courses, so the inevitable comparison is made with their previous onsite experience, which would not be an appropriate comparison. Our findings indicate that students, who had the greatest number of technical problems working with the course, also gave the professors the lower ratings on their teaching. Some of them were actually hostile; here are some of those comments:

From a person who ranked me "poor" on most items in the official student's evaluation:

- "You are a poor excuse for a professor. How dare you charge me full tuition while you sit at home typing on your computer, I expect to be taught not just allowed to learn."

This one from a person who ranked another professor in this study "unsatisfactory."

- "You need to improve on Professor-student relations. We as a class paid for Instructor leadership — Not a box with a screen. In this class there seems to be a feeling that everyone is on their own. I am lost as to what you want and you don't

explain very well either. This class is a computer class. Way to improve it, get rid of the computer and get back into the classroom."

Even when students see the course as being helpful with some of their learning objectives and learning style, unanticipated problems with the system and the platform can affect how they feel about the course and you as their professor. This one from a student on another professor's evaluation who rated her "poor" overall.

- "I had the "pace of learning" adjusted to my personal schedule and learning style. Even though I am a visual learner, what I liked is that I could still print the material and refer back to it. If it wasn't for minor problems (like viruses) this course would maximize learning."

Some students who find the experience very helpful are only cautiously optimistic about the future of e-learning. Here's a comment from another student:

- "Since this is my first course in my master's program, I did not know what to expect. Having had this course on the computer has been challenging and overwhelming simply because I was not used to using the computer. Since then, I not only do my course work on it, but I find myself using it for other things. I am contemplating whether I will take another course like this right now but I assure you it has been an experience — mostly positive --- for now."

The best approach, in my opinion, if I were to be a junior professor, is not to place the entire course online but to use a web-supported format. You place your syllabus, the papers you will be sharing with students, links to other helpful sites and the like in a format that would be simple and useful for students to navigate. You can start an online group through a facility like Yahoo Groups,[\(S\)](#) which will give you a listserv you can use to contact students and for students to communicate among themselves. You can even schedule a chat once in a while, particularly when you are out of town attending a conference. This will save you and your students time and effort, will give them a reason to use the web for learning and will earn you as much credit with your department as a fully online course, without the downside risk.

But then of course you will be missing comments like these:

- "I know it took a lot of time and effort (and talent!) for you to do this course on the computer and that most people will never recognize all that effort, but for me you were a Godsend. My mother came down with Alzheimer's last year and I had only one course to finish my degree. Her home care person has to go home at 5p.m. and I have to take over, so I decided to postpone my graduation a few years. Then came the announcement of this course and not only have I learned more than from any course I have EVER taken, but I will be graduating this Spring, and I owe it all to you. Thank you. May God Bless You."
-

Note 1 This paper is one of three papers that will be prepared from study data. The other two papers will be prepared by the other two professors that participated and will seize other elements of the study and report on them. This is the first paper to emerge

Note2 For additional information on these platforms you can look at their web pages:

WebCT is located at <http://www.webct.com>

BlackBoard is located at <http://www.blackboard.com> and

Learning Space is located at <http://www.lotus.com/home.nsf/welcome/learnspace>

Note 3 The following link will lead you to a page where the professor explains the use of these theories of learning in his course: <http://llanes.auburn.edu/foundations.pdf>

Note 4 This is exactly the opposite to the "actualization" score reported earlier from a sample of the participants.

Note 5 You can start an online group free of charge by visiting Yahoo Groups and signing up. Go to: <http://www.yahooglegroups.com>