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ABSTRACT

This study is part of the Flashlight Project, a Web-based system for creating surveys, gathering responses, and analyzing results. The purpose of this study was to assess Web-supported classes (fully and partly online) in 10 community colleges in California. Faculty members coordinated the study on their respective campuses; a total of 710 students were surveyed. Results indicated that students who are newly exposed to electronic communication are more likely to have greater enthusiasm and active participation in classes than if they are in face-to-face classes. Students also reported that e-mail and online discussion enhanced their relationship with the instructors. Students are more likely to articulate suggestions and complaints to the instructors, and they are more likely to receive detailed comments from the instructors in online classes. However, students report that they are less likely to discuss academic goals and career plans with their instructors in online classes than in face-to-face classes. When comparing student responses based on whether they had experienced electronic communication in a fully online or partly online course, the study found that classes that combine both face-to-face and electronic communication may be more useful and exciting to more students than the fully online classes. (GC)

Findings from the California Community College Flashlight Project 1998-99

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Abstract

The project's purpose was for students and faculty to assess web-supported classes (fully and partly online) in the ten participating community colleges. Preliminary indications are that students usually new to classes using electronic communication, say they are more likely to actively participate in classes with these tools than in face-to-face classes. They also indicate a greater willingness to ask clarifying questions when they don't understand something, and they are will more willing to discuss ideas and concepts with others students in the class—when using electronic communication. These students say that email and online discussion has enhanced their relationship to the instructor. They are more likely to receive detailed comments from the instructor more promptly than in a face-to-face course. And they are more likely to tell the instructor that they have a complaint or suggestion than in a face-to-face course. Electronic communication, however, has its limits: students indicated they were less likely to discuss academic goals and career plans with their instructor nor were they likely to discuss ideas and concepts taught in the course with their instructor. The net result was that classes relying fully or partly on electronic communication generated a great deal of student enthusiasm. Comparing student responses based on whether they had enrolled in fully online or partly online classes suggests that the combination of face-to-face and electronic communication may be more useful and exciting for more students than the fully online classes.

Purpose

The project's purpose was for students and faculty to assess web-supported classes (fully and partly online) in the ten participating community colleges.

College Teams

In each college, participating faculty (usually 3 per college) received a stipend of $1,000 for attending two workshops, giving students the cross-college survey, conducting their own course-specific assessment, and submitting a final report. One researcher per college was contributed by the colleges. The selection of the faculty came mostly from the college Chief Instructional Officers. The grant provided for three faculty per college, but some colleges paid stipends for additional faculty where interest was high. See faculty and researcher agreement forms, Appendix G.

Workshops

The national Flashlight Project's director, Steve Ehrmann, with Alec Testa, Western Governor's University (WGU), conducted one-day workshops, one north and one south, in October for planning the assessment activities; Dr. Ehrmann's colleague, Robin Zuniga conducted one-day north and south workshops in May for reviewing survey and project results. Faculty found the spring workshop more useful than the fall workshop. This may be due to the fact that in the spring, faculty looked at concrete survey responses for their own students, their college, and across the colleges (workshop agendas, Appendix G).

Faculty Online Discussion

We had planned for topical conference discussions on the project web site, moderated by Alec Testa, WGU. As it turned out, the faculty preferred a listserv for discussion and announcements. The web site seemed less convenient than finding the news and comments in email. Dan Mitchell at DeAnza provided the listserv.

The Flashlight Student Survey

At the fall workshops, and during the ensuing online conversation, the participants agreed to narrow the focus of the survey to students' uses and perceptions of electronic communication. We included email, online conferences, chat rooms, and news groups—among students or between faculty and students. We contracted to use items from the Current Student Inventory in the extensive Flashlight Handbook, developed and tested by the national group in Washington. The survey was conducted in mid April for semester courses and in late May for quarter system courses. We surveyed 710 students.

We beta tested the Flashlight-Silhouette program from Washington State University; the program allows students to submit responses directly from their class web site. Gary Brown and his excellent staff returned aggregate data (within and across colleges) and individual class data to

each project participant. Rio Hondo's Mike Martinez and Peg Collins at WSU solved program glitches quickly and helped faculty remedy problems on their web site.

Key Survey Results

(Datasets from the survey are available by request. Contact Dr. Robert Gabriner: rgabrine@ccsf.org)

SECTION I: Findings Across All Students

1. Among the 710 students who responded to the survey, over half indicated that the use of electronic communication helped them participate in the course;
   - 50% said they actively participate in scheduled discussions about course material,
   - 60% said they asked for clarification when they did not understand something,
   - 50% said they discussed ideas and concepts taught in the class with other students.
2. Students said that using electronic communication enhanced their relationship to their instructor;
   - 58% said they were more like to receive detailed comments on assignments from their instructor in the course using electronic communication rather than a face-to-face course,
   - 56% said they were more likely to receive comments from the instructor more quickly than in a face-to-face course,
   - 50% said they were more likely to tell the instructor that they had a complaint or a suggestion about the course than in a face-to-face course.
3. Students also indicated they were less likely to discuss their academic goals and career plans with their instructor in fully online or partially online classes; nor were they as likely to discuss the ideas and concepts taught in the course with the instructor.
4. Students were more likely to be more autonomous in classes using electronic communication than in face-to-face classes;
   - 56% said that they were more likely to search for answers to their questions rather than ask the instructor or other students in classes using electronic communication.
5. Classes using electronic communication appeared to generate a significant level of student enthusiasm;
   - 81% said that they put more thought in their comments,
   - 72% said they were more comfortable asking awkward questions,
   - less than 30% said they had difficulty relating to other students in the class,
   - 61% said they spent more time studying,
   - 74% said they were more confident that they would be able to reach their academic goals.
6. Students expressed a great deal of satisfaction with the way technology was used in their classes; that is,
   - 90% said they found the technology appropriate for performing tasks in the course,
   - Over 90% said they would recommend both the course and the instructor to other students,
   - 91% said they would recommend that other students take classes with electronic communications,
   - 84% expressed overall satisfaction with the classes they took using electronic communications.

7. Students participating in this survey rated themselves high in ability to use electronic technology; that is,
   - 78% said they could send and receive email,
   - 70% said they could search for information on the Internet,
   - 56% said they knew how to send and receive electronic files by way of a computer.

SECTION II: Comparing Students in Fully Online Classes to Partly Online Classes

1. When comparing student responses based on whether they had experienced electronic communication in a fully online or partly online or web-enhanced course, we found some significant differences:
   - Students in partly web-enhanced or partly online classes were more likely to ask for clarification from the instructor when they didn't understand something.
   - They were also more likely to work on assignments with other students than those who were fully online.
   - Students in fully online classes, however, said they were less likely to miss comments made during a discussion about the ideas and concepts taught in the course.
   - Students in partly online classes were more likely to discuss academic goals and course concepts with their instructor than students in fully online classes.
   - Students in fully online classes reported a greater likelihood of finding answers independently, than ask by asking the instructor or other students for help.
   - Students in fully online classes said they were more likely to put more thought into their comments as well as to ask awkward questions and spend more time studying than students in partly online classes.
   - Students in partly online classes said they had less difficulty relating to students in their class than students in fully online classes.
   - Students in fully online classes tended to give higher ratings to the technology than students in partly online classes.
   - Students in partly online classes were more likely to say that their instructor was excited about using the technology than students in fully online classes.
   - Both groups of students indicated they were either satisfied or very satisfied with their classes and would recommend the course and the instructor to other students. They also agreed that they would recommend that other students take classes with electronic communication.
2. As may be expected, the students in the fully online classes rated their technical knowledge slightly higher than those in the partly online classes:
   - 86% of fully online (vs. 71% of the partly online) rated their ability as expert or near expert to send and receive email,
   - 75% of fully online (vs. 68%) rated their ability to search the Internet as expert or near expert,
   - 65% of the fully online students said they were expert or near expert in sending and receiving electronic files (vs. 45% of students in partly online classes).

SECTION III: Other Findings Comparing Specific Cohorts

1. We examined how specific groups of students responded to the survey to see if there were any significant differences from the all-student survey results. We found a few differences:
   - Students enrolled in CIS classes indicated that they were more likely to apply what they learned to "real world" problems than the all student group.
   - CIS online students also had more confidence in the technologies they were using than the all student group.
2. Gender differences, among students and faculty, may be significant:
   - Male students were more likely than female students to discuss ideas and concepts from the course with other students as well as work on assignments with other students.
   - Male students were more likely to ask other students for comments on their course work than female students.
   - Males appeared to be more willing to discuss ideas and concepts taught in the course with the instructor than females.
   - Males also said they had less difficulty relating to other students in the class and expressed greater levels of confidence that they could reach their academic goals.
   - Males rated themselves higher than females in their ability to search the Internet and to send and receive electronic files.
3. Differences between male and female instructors also may be significant for some students:
   - Students were more likely to receive more detailed comments on their work from female instructors than male instructors (Q. 7, cross-tabs available).
   - Female instructors were also more likely to discuss academic goals with their students than male instructors (39% vs. 21% on Q. 10), and also more likely to discuss ideas and concepts with female rather than male instructors (48% vs. 34%, Q.11).
   - Students said they are more likely to apply real world problems when they have female instructors than with male instructors (53% vs. 44%, Q.13).

Discussion of Findings

Our findings are preliminary and must be replicated if they are to have substantial credibility. Preliminary indications are that students usually new to classes using electronic communication, say they are more likely to actively participate in classes with these tools than in face-to-face classes. They also indicate a greater willingness to ask clarifying questions when they don't understand something, and they are more willing to discuss ideas and concepts with other students in the class—when using electronic communication. These students say that email and online discussion has enhanced their relationship to the instructor. They are more likely to receive detailed comments from the instructor more promptly than in a face-to-face course. And they are more likely to tell the instructor that they have a complaint or suggestion than in a face-to-face course. Electronic communication, however, has its limits: students indicated they were less likely to discuss academic goals and career plans with their instructor and were less likely to discuss ideas and concepts taught in the course with their instructor. Students seem to be more autonomous, more willing search to search out their own answers to questions rather than rely upon the instructor.

The net result was that classes relying fully or partly on electronic communication generated a great deal of student enthusiasm. Significant majorities said they had put more thought into their comments, were willing to ask awkward questions, spent more time studying and three quarters said they were more confident that they would be able to reach their academic goals. Over ninety percent said they would recommend both the course and the instructor to other students. Ninety one percent said they would recommend that other students take classes with electronic communication.

Comparing student responses based on whether they had enrolled in fully online or partly online classes suggests that the combination of face-to-face and electronic communication may be more useful and exciting for more students than the fully online classes. There is not enough data to make a strong case for this yet, but more study may yield some significant differences between the two modes of electronic delivery: fully online and combinations of online and class meetings.

Discussion of Patterns in Open-Ended Comments

The next two pages categorize the patterns in student responses to the open-ended questions, #32-34. The categorized comments compare students in fully online classes with those in partly online classes. Students often made more than one comment per question. The categories are entirely ours, based upon a thorough review of over 2,800 responses from 710 students. The categories with the *highest number of responses* suggest the following:

Question 32: *Imagine a course without electronic communication: how would it differ?*

- Students in fully online classes reported that without electronic communication, it would be less convenient or they would miss classes; they also might be unable to take the class, miss the information, Web research, and the discussions.
- Students in partly online classes reported that without electronic communication they would miss the discussion, learn less and the course would be "a lot" different; it would be inconvenient and their attendance would be lower.

Question 33: *Greatest barriers to using various types of electronic communication*

- Students in fully online classes suggested that the primary barriers were unreliable servers, hardware/software problems, inexperience with computers, and slow instructor response time. It should be noted, however, that 70 students "could not think of any barriers" and 30 students made such vague comments about barriers that they may have been unable to think of any.
- Comments from those in partly online classes suggested that the primary barriers also included technical problems: access to computers, inexperience, and the inevitable "time."

Question 34: *What else would you like us to know?*

- Students in fully online classes made positive comments on the whole; 209 comments were very positive. Some noted the technical and software problems that other survey questions cover.

- From the partly online classes, positive comments appeared to a lesser extent than from fully online students; however, many comments noted that these tools provided a convenient opportunity to get an education

Fully Online Classes: N = 362 (of 710)

NOTE: On some questions, students made more than one comment.

Question 32: *Imagine you do not have access to the electronic communications that were made available in this course, how would that change your educational experience?*

Comment Category	Frequency
Less convenient and/or I'd have lower attendance	134
Would not have been able to take this course and/or others	69
Miss key information, learn less, miss Web discussion, electronic communication	67
"Stuck with books" or have to use the library	42
No change or Don't know	18
A lot different	16
Less student contact	15
Miscellaneous/Other/Vague responses	12
Less instructor contact	7
Not as much fun	7

Question 33: *List below the three things that are the greatest barriers to your successful use of email, listservs and electronic bulletin boards used in this course (please list in order of priority).*

Comment Category	Frequency
Server down, slow, unreliable, course management software down	75
No barriers, none, no problems, can't think of any	70
Technical problems: software programs, difficulty, low reliability	37
Time: work, home, other courses limit involvement	32
Inexperience with computers, limited skills, typing, attachments	30
Miscellaneous/Other/Vague responses	30
Limitations of instructor: slow turn-around response	21
Low interest or dislike: anonymity, isolation, email itself, monitor weary	20
Limited home equipment or ISP (Internet Service Provider) too costly	19
Lack of self discipline or time management	15
No home computer (or have to use one at work)	11
Not applicable	11
Limited access to computers at school: labs full	6

Question 34: *What else would you like us to know about your experience with the technologies used in this course?*

Comment Category	Frequency
Enjoyed class, positive response	91
Convenient; provided greater opportunity to obtain an education	59
Great educational tool	32
Learned new computer technology skills	27
Nothing or Not applicable	25
Technical problems, glitches: server, TopClass, automatic quiz grader	20
Misc./Other/Vague response	14
Too much to learn in too little time	12
Would like to see more courses offered online	12
Recommends online courses to others	10
Slow response from or not enough communication with instructor	10
Disliked online format, was confused	8
Not enough communication with other students	4
The technology was not used to its fullest potential	2

Partly Online Classes: N = 348 (of 710)

NOTE: Students often made more than one comment per question.

Question 32: *Imagine you do not have access to the electronic communications that were made available in this course, how would that change your educational experience?*

Comment Category	Frequency
Miss key information, learn less; miss Web, discussion, electronic communication	88
Less convenient or I'd have lower attendance	77
No change or Don't know	55
Misc. and/or vague response	30
A lot different	22
"Stuck with books" or have to use library	20
Not as much fun	16
Would not have been able to take the course	16
Less student contact	11
Less instructor contact	8

Question 33: *List below the three things that are the greatest barriers to your successful use of email, listservs and electronic bulletin boards used in this course (please list in order of priority).*

Comment Category	Frequency
No barriers, none, no problems, can't think of any	58
Time: work, home, other courses limit involvement	45
Inexperience with computers, limited skills, typing, attachments, etc.	39
Misc. and/or vague response	35
No home computer (or have to use one at work)	22
Limited home equipment or ISP (Internet Service Provider) too costly	19
"Not applicable"	17
Limitations of instructor: slow turn-around responses, etc.	16
Server down, slow, unreliable, course management software down	16
Technical problems: software programs, difficulty, low reliability	14
Low interest or dislike: anonymity, isolation, email itself, monitor weary	14
Lack of self discipline or time management	10
Limited access to computers at school: labs full	8

Question 34: *What else would you like us to know about your experience with the technologies used in this course?*

Comment Category	Frequency
Convenient; provided greater opportunity to obtain an education	45
Nothing or Not applicable	45
Enjoyed class, positive response	44
Miscellaneous and/or vague response	41
Great educational tool	26
Learned new computer technology skills	23
Too much to learn in too little time	9
Technical problems, glitches: server, TopClass, automatic quiz grader	7
Disliked online format, was confused	6
Would like to see more courses offered online	5
Recommends online courses to others	5
Not enough communication with other students	5
The technology was not used to its fullest potential	4
Slow response from or not enough communication with instructor	4

Implications

We will need at least a second year of work to confirm these survey findings. To some extent, the project was a field test for finding out what we need to know. After thoroughly reviewing the data, the methodology, and the faculty reports, we have made some tentative conclusions about what subsequent project leaders should consider:

1. There is clear support by students for both online and web enhanced classes.
2. The survey questions should be used again with perhaps some additions. It might include a comparison of student progress or success in face-to-face classes vs. online or web-enhanced classes (same curricula but different modes of delivery).
3. The Project needs to capture the views of more students who drop out of the classes in the early part of the term; therefore, students should be surveyed both early and late in the term.
4. The role of the college researchers was not made clear enough; some researchers on college teams were at a loss as how to help faculty thing through their assessment of learning little.
5. More specific roles and responsibilities for the researchers would help them with one of our goals: "to engage faculty more in research and researchers more in teaching and learning."
6. We recommend strengthening the online exchange in any replication of the project. Faculty interest might have been higher if we had provided more provocative topics more consistently.
7. Future projects might benefit from a finer distinction among classes as to amounts of web use and numbers of class meetings expected of students. While we separated "fully online" from all others in the data sets, drawing conclusions was a little tricky with this range. We suggest, however, that further studies should include this range, if only to make comparisons.
8. All participating faculty must require students to fill out the Flashlight survey; uneven proportions of pilot class students limited validity of the results.
9. The faculty recommended expanding workshops to two full days for both North and South in the Fall. Alternatively, one summit conference in the spring could discuss the data if the original faculty used the same survey items with a new group of students.

10. This project included a wide range of disciplines and programs; a few faculty suggested that we focus on a specific programs or disciplines next time.
11. Many faculty final reports and individual class assessments were submitted electronically; in the future we might require electronic reporting so that all reports and student responses (outside the survey) could be posted on the web site. (NOTE: To review an individual faculty report, request a copy through the faculty participant listed in the roster in Appendix H. Rio Hondo will provide a copy if permission is granted in writing. Contact Susan Obler at sobler@rh.cc.ca.us.
12. While we asked participating faculty to choose a pilot course that had been taught at least once before, a few instructors were teaching in this delivery mode for the first time. In a future project, we may need to be more prescriptive about this expectation. In this project, however, the range of faculty experience was a benefit; it adds to the limitations of the survey and its results.
13. Another project should require that the colleges have the technical capacity to support online or web-enhanced courses—at whatever degree of use—in order to reduce the frustration some students and faculty experienced during this project.

Appreciation

We want to thank the faculty and researchers for their hard work and dedication to the project. All participants were helpful, patient, and supportive throughout this important pilot. Faculty were especially resilient: they were asked to tolerate ambiguity, survive beta testing, and wait for their stipends. Our special thanks go to our consultants Steve Ehrmann, Alec Testa, and Robin Zuniga.

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