
AC 2011-267: EXPERIENCE WITH THE COLLEGE-WIDE TRANSITION FROM PAPER TO ON-LINE COURSE EVALUATIONS

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Experience with the College-Wide Transition from Paper to On-Line Course Evaluations

Abstract

In 2006, the college made a transition from the use of paper to on-line course evaluations. The reasons for this change related to confidentiality, flexibility in questionnaire content, the ability to evaluate different types of courses and costs. Since questions were raised by faculty about the consequences of an expected reduction in the response rate and the number and length of responses to open-ended questions, a careful study of the transition was made and is reported here. While the response rate did drop as expected, little evidence can be found to support the hypothesis that it has a significant effect on overall averages of student responses as long as the response rate is above a commonly achieved threshold. There remain, however, several concerns. These include a recently declining response rate and concern over the number of smaller courses with unreliable data due to less than the minimum number of student responses. Nevertheless, overall experience has been positive and the transition has been mostly successful.

Background

For many years colleges and universities have conducted student evaluations of courses and instructors as one measure for assessing the performance of its faculty and the effectiveness of their course offerings. In the earlier years, these evaluations were almost universally conducted using paper-based surveys although computer technology was often used to analyze the results. As more computer technology has become more widely available, many schools have transitioned from the use of paper to on-line surveys. This trend was noted in the literature as early as 2003¹. More recently, reports of experience with the transition from paper to electronic surveys have appeared and the following conclusions summarizing the experience at 12 different institutions have been made²:

- Initially, response rates are lower for electronic than for paper systems ..., but rates tend to increase over time as institutions continue to use electronic student evaluations.
- The two most common strategies for improving electronic response rates are sending e-mail reminders and informing students about the importance of their evaluations.
- Online evaluations may be less susceptible to non-response bias than are paper evaluations.
- Overall course and instructor ratings do not differ significantly between paper and electronic forms.

History

Prior to 2006, the Washington State University (WSU) College of Engineering and Architecture (CEA) evaluated all of its classes using “bubble sheet” paper surveys that were handed out in class, filled out by the students and returned by one student (selected by the faculty member) to the Dean’s office. These returned surveys prepared for machine analysis by Dean’s office staff and analyzed by the university’s central computing services. Final results were returned to faculty and administrators several weeks (if all went well) after the survey was sent out for

analysis. Concerns about surveys that were lost or never returned and student confidentiality (among others) prompted investigation of alternative survey methods. In 2006, the WSU CEA changed its procedure to the use of an on-line survey system (using a survey instrument that was then under development at WSU). This was done for several reasons including previous problems with breaches of confidentiality and loss of data, future flexibility for separating instructor evaluations in team-taught classes, future ability to change questions easily or to tailor questions for individual classes, reduction of costs, ease of offering midterm surveys and assistance from a central university resource.

In the semester prior to initiating the use of on-line surveys, the response rate for paper surveys was found to be approximately 70% due to class absence and non-participation. This is comparable to reports from other institutions² and was used as a goal for the on-line survey response rate. Experience from another college at WSU suggested a 50% response rate for on-line surveys. This difference created anxiety among some faculty, especially non-tenured faculty who depended on the results of these surveys for their annual review and/or tenure packages. The concern was that, since response to on-line surveys was voluntary, only disgruntled students would respond and faculty ratings would decrease simply due to the change in assessment instrument. There is some warrant for this fear but, this conclusion has not been supported by all studies².

Research Questions

Given the faculty concern mentioned above, it was decided to investigate the following questions.

- Does a change in the instrument (i.e., paper in-class surveys vs. on-line out-of-class surveys) used to perform course evaluations and/or the rate at which students respond to these surveys result in a significantly different measurement of student attitudes toward either courses or instructors?
- Is it possible to learn anything about response rates by comparing the response rates for different programs within the CEA?

Methods

It was decided that the same questions used in the paper survey would be used for the first administrations of the on-line survey so that comparisons could be made between responses to individual questions using paper and on-line survey instruments. In addition, faculty members were given the option to conduct paper surveys during the transition period although only approximately 15% did so and this number decreased with time. After four semesters, the paper option was no longer offered. Since responding to the survey now required students to spend out-of class time on the survey and hence is more voluntary, an extensive web notice, e-mail and poster advertising “complete-the-survey” campaign was directed at students and faculty were asked to encourage students to respond. In order to assure that the survey was completely confidential, no extra credit was granted for participation. However, students who completed the survey had the option to enter a lottery for gift certificates at a local bookstore. To ensure

confidentiality, their e-mail addresses were only available to administrators of the survey who were not affiliated with the WSU CEA. Finally, in order to increase the number of participants, the survey was opened two weeks before the semester ended and did not close until just before grades were released.

Faculty have access to the response rates (but not any other results) before the survey was completed so that they can encourage students to participate both in class and via e-mails. The results of the survey were available to faculty on-line (for their own courses) immediately after the deadline for grades to be submitted. More formal results to program chairs/directors (including departmental averages) are made available within about a week after the survey ended. Reports were not generated for classes with three or less responses.

There were numerous advantages to this new method that were not options with the previous paper survey. These include the following:

- In courses that have labs associated with them, it is now possible to evaluate lecture and lab instructor separately using separate, but linked, questions, and other demographic distinctions can be addressed automatically
- It is easy to separate out students who are at branch campuses if desired
- Evaluations are no longer “lost” or “misplaced” during distribution/circulation
- Survey questions can be (and have been) easily changed. Custom surveys or parts of surveys for different needs can be accommodated.

Results and Discussion

The following assessments were made: 1) an analysis of overall response rate trends for the college, 2) an analysis of response rates by program, 3) a question by question comparison between paper and on-line numerical responses to questions over two semesters for each type of survey, and 4) a comparison of the total number and length of narrative responses to open ended questions.

As expected the response rate did change. Initially, the overall response rate dropped to 45%, then increased to nearly 60%, but recently has been decreasing slowly. The most recent result is 43%. A graph of the history of overall response rates is given in Fig. 1. This reduction is of concern.

In addition to the overall response rate for the CEA, important information can be gleaned from the response rate by school or department. Results for these are shown in Fig. 2 where data are ordered so that larger departments are to the left and smaller ones to the right. As a general rule, smaller departments have noticeably higher response rates than larger ones. It is believed that this might be due to smaller class sizes and hence more engagement between students and faculty. It is also interesting to note that the faculty in the largest department (with a relatively high response rate) worked especially hard to reduce class size and have a reputation for more consistent engagement between faculty and students. In two other larger programs with higher response rates, the school director strongly encouraged faculty to promote the survey with students.

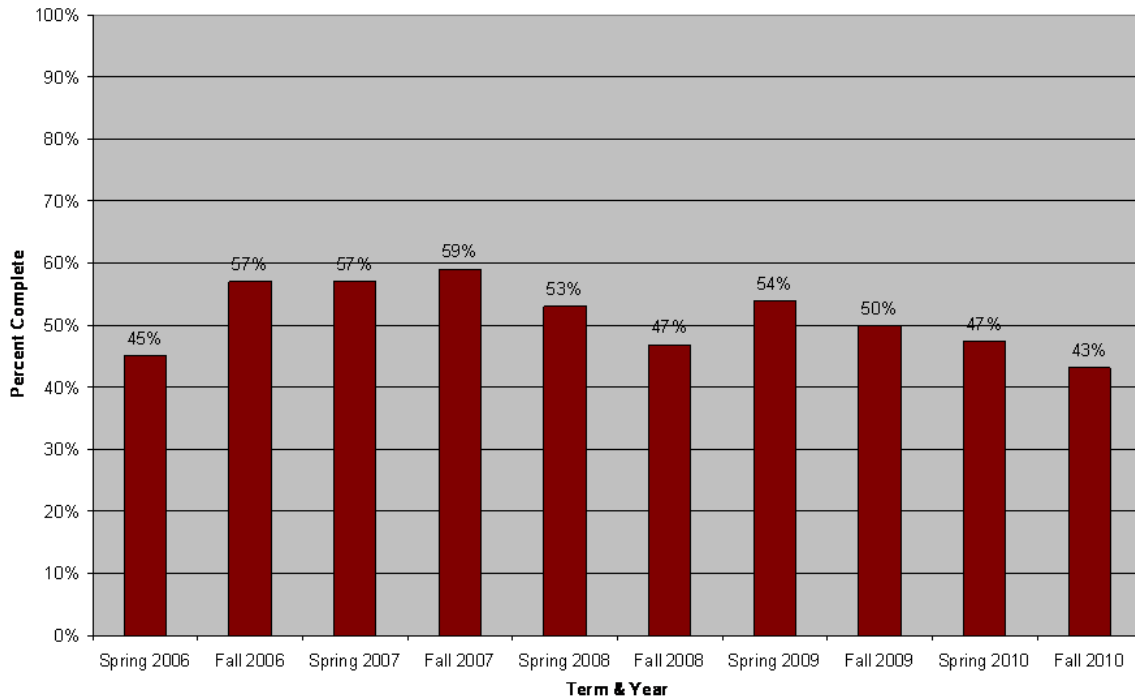


Fig. 1. History of Response Rates for the CEA

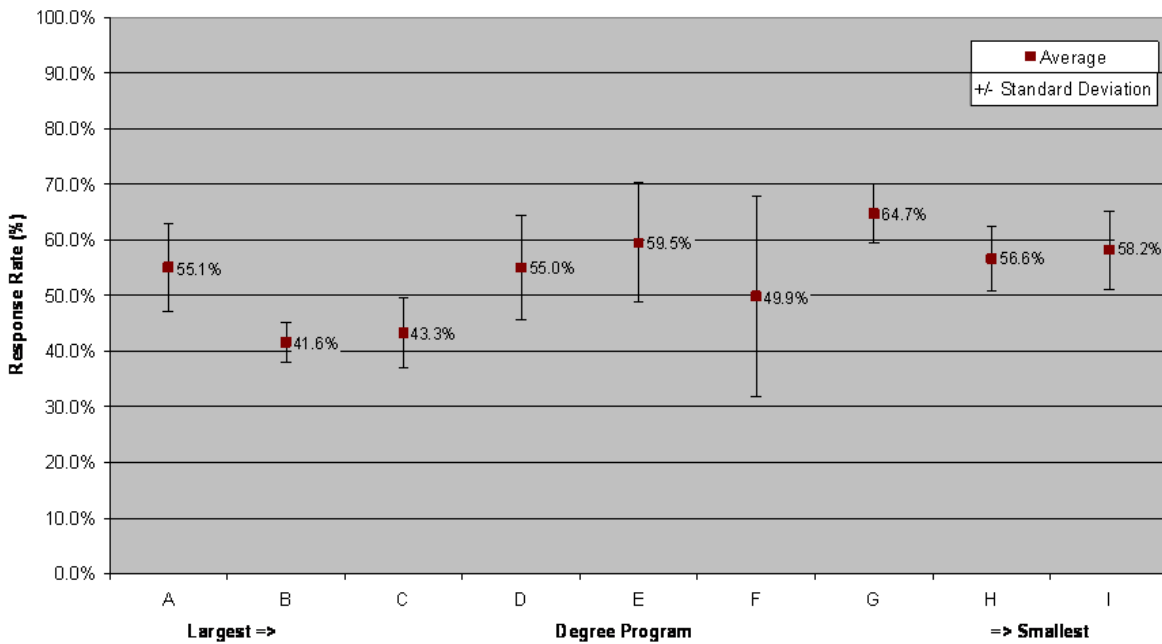


Fig. 2. Average response rate by program over the history of the on-line survey program.

For many years the CEA used the same 26 questions for its course evaluations surveys to which students responded with an integer score between 1 (very bad) and 5 (very good). Some questions were:

- Instructor feedback was prompt and beneficial?
- Instructor was able to answer pertinent questions?
- Instructor was well prepared for class?
- Instructor's Overall effectiveness.

Since it was decided to use the same questions (at least initially) for the on-line survey, it was possible to do a question by question comparison to determine whether the difference in response rate caused a quantitative change in the overall ratings (i.e., was it possible to determine that “only the disgruntled responded to the surveys”). Note that these results were based on approximately 4000 student responses per semester.

The results of this study are shown in Fig. 3. On this figure, the responses to each question averaged over all courses in the CEA were plotted for the last two times that paper surveys were used and the first two times that on-line surveys were used. No attempt was made to determine the statistical significance of the difference between these results because only averages were available for the paper surveys. It does not appear possible to identify any persistent and perceptible effect on the student responses that would indicate a collectively different attitude among students who respond to voluntary on-line surveys. More specifically, a question-by-question comparison of the student numerical responses to identical questions showed no perceptible change despite the reduction in response rate.

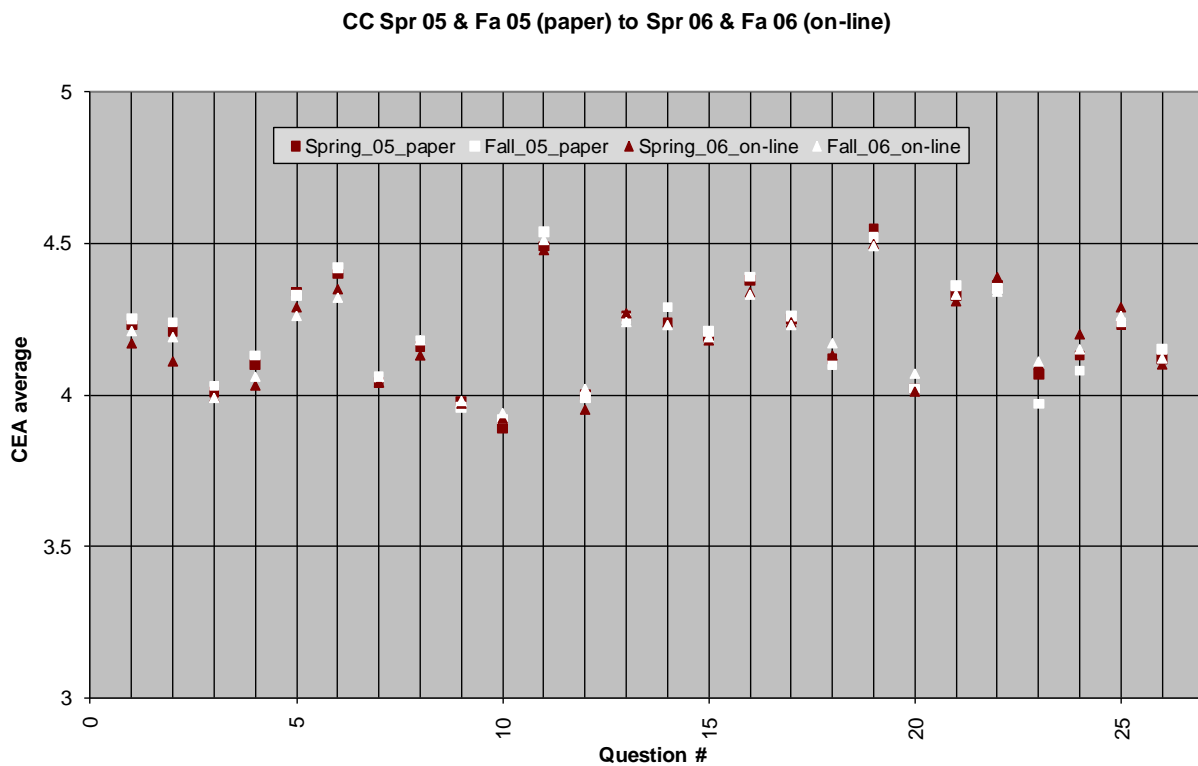


Fig. 3. Comparison of student responses to identical questions vis either paper or on-line surveys that had significantly different response rates.

To study this further, the questions that resulted in the greatest differences between paper and on-line surveys were plotted separately. The results of this analysis are shown in Fig. 4.

Although it is tempting to elicit meaning from these results, it appears difficult to do so. In some cases (i.e., questions 2, 4 and 6) the average response value decreased with the advent of on-line surveys (albeit less than 0.1 out of 5), while in other cases (i.e., questions 23 and 24) the average response value increased. The differences were all small and no obvious interpretation can be found for these results. Thus, it appears unlikely that there is a systematic reason for believing that the transition to on-line surveys resulted in measurable differences in average response values.

Another question that has been raised by faculty is whether there is any difference between the number and length of comments written by students in response to on-line vs. paper survey instruments. To study this, the Center for Teaching Learning and Technology (CTLT) examined comments for the on-line surveys in Fall 2006 and compared them to the results of Fall 2006 paper surveys for faculty who had opted out of the on-line instrument. This report can be summarized by saying that there was no discernable difference in the number or length of comments when averaged over the CEA. It was noted, however, that any particular instructor might see a difference (more or less).

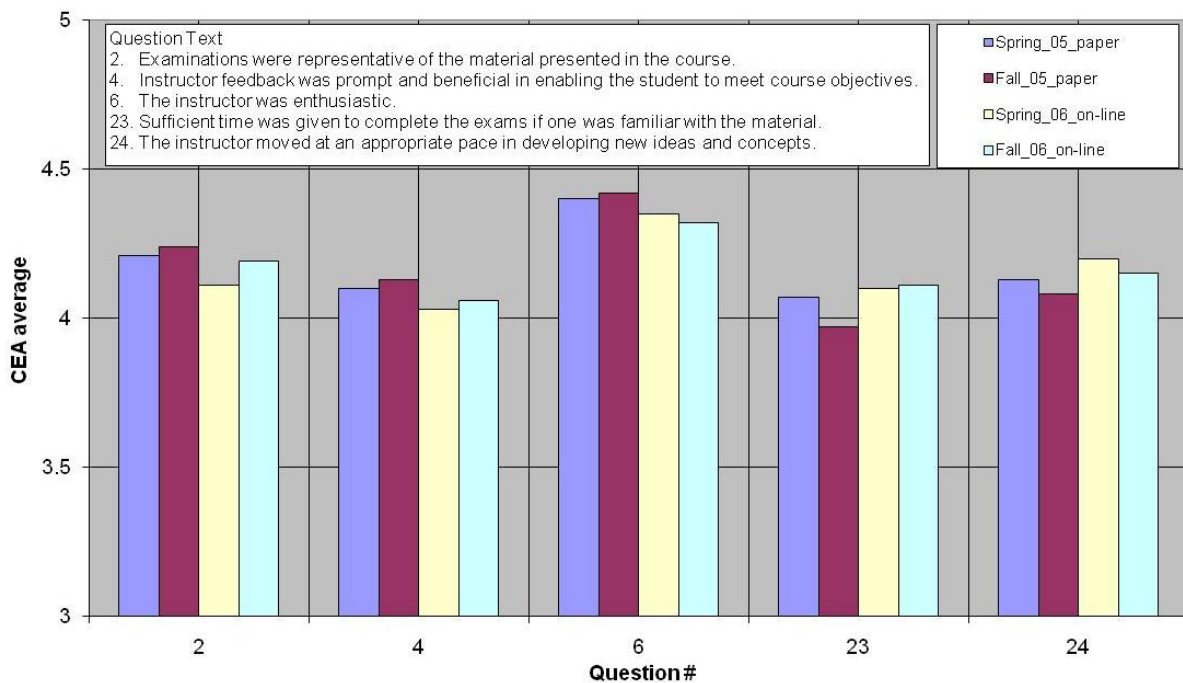


Fig. 4 A closer look at the results for questions with the most significant differences between paper results and on-line results.

Conclusions

The analysis presented here does not provide any support for the assertion that the transition to on-line course evaluations with its associated reduction in student response rate would cause a

significant change in course evaluation responses. There is some support for the assertion that response rates in smaller programs are greater possibly because faculty in these programs are more engaged with students. But this effect is not strong and can be overcome with some effort by larger programs. Overall, the transition was judged to be mostly successful given no evidence of a significant decline in the quality of student evaluation data.

Remaining Concerns

The recent trend towards lower response rates is disturbing and while there are plans to increase this rate, it is not clear that these will succeed. One specific consequence of lower response rates is an increase in the number of classes with three or fewer responses. Since results for these classes are not reported to faculty, in effect, these classes are not being evaluated. It is not clear why some classes are not generating enough responses to be reported, but there is concern that it might be related to the lack of faculty engagement.

Plans for Future Improvements

Several measures to improve the response rate will be taken in the next survey offering including increasing the number of e-mails and notices on the "myWSU" user centric website until more complaints from irritated students are generated and possible reinstatement of the lottery program. The lottery program was eliminated after four semesters because less than half of student winners claimed their awards. However, it is also believed that part of the recent reduction in response rate may be because this incentive was eliminated. Finally, as the number of departments that require laptop computers increases, the possibility of using class time to complete surveys improves and may be recommended.

Acknowledgements

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References

1. Hoffman, K. (2003). Online course evaluation and reporting in higher education," *New Directions for Teaching and Learning*, 2003(96), 26.
2. Kucsera, J. V., and D. M. Zimmaro, "Electronic Course Instructor Survey (eCIS) Report ", Technical Report, The University of Texas at Austin, August 2008, available at <http://www.utexas.edu/academic/mec/publication/pdf/fulltext/eCIS.pdf>