

Using Hybrid Teaching in Undergraduate Statistics Education

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Abstract: Students are exposed to classroom instruction before they come to a lab session by accessing course content via the web or cd. The classroom instruction on the web or cd was recorded in a previous semester. All course materials and the instructor's voice was captured for play back later.

In the Spring Semester of 2004 two introductory statistics classes were taught with each class having about 37 students. The first class, the 8 am class, was taught in the traditional manner i.e. Mondays and Wednesdays were dedicated to lecture material, while lab work was required on Fridays. Lecture material was delivered by presenting and discussing PowerPoint slides, with skeletal slides available for downloading and printing prior to each lecture. The labs were based on the lecture material of the previous two lectures. During each lab, students were asked a series of questions via WebCT which required knowledge of the lecture material and/or the use of the statistical computer program SPSS to summarize and evaluate data sets. To reduce the stress of the labs, students were permitted to repeat each lab with the first attempt graded. Homework was assigned and turned in on a weekly basis. The due date for homework was planned in such a manner so those questions could be asked during the labs. Three "midterm" exams and a final exam were given through WebCT. Previous to each exam, a lecture was dedicated to the review of the corresponding material. Following each exam, the exam questions were evaluated and questions discussed.

The second class met **only** Mondays at 10:20 – 11:10 am. During the first day of class, each student was given a CD which contained the course materials and recorded videos of the lectures of Fall 2003 organized into modules. Labs were held each Monday during the scheduled time and were identical to the Friday labs of the 8 am class. The materials on the CD essentially replaced the other two lecture days each week. With the CD, students could elect to watch (or not watch) any of the class lectures at any time. The recorded videos contained voice and all materials of what could be seen on the instructor's computer screen. This is what the in-class students saw and heard in Fall 2003. Students' questions were repeated when recording in 2003. The students were responsible for turning in the homework, completing the labs and taking exams on dates that corresponded to the 8 am class. Questions about material could be answered by direct email, a WebCT discussion board (with the option of anonymity), or by an office hour visit. Most students elected to ask questions about course material over the internet and about grades in person. Throughout the semester, focus groups were organized to further solicit feedback. Exam questions were not identical for both classes, but were written to be comparable, with perhaps slight changes in the numbers used, available answers, or question wording. A lecture involving the evaluation of exam questions was not held for the Monday only class, except that students were invited to ask questions about the exam in the following lab. Lab attendance gradually decreased toward the end of the semester in both classes. Lab attendance was not required and labs could be completed from any computer with access to WebCT.

Exams results from these two classes will be presented in this session along with the multimedia material.