

ASSESSMENT METHODOLOGY FOR THE MOBILE COMPUTING PILOT PROGRAM:

Joni Spurlin And Kathy Mayberry
NC State University

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PROGRAM GOAL AND OBJECTIVES

The goal of the Mobile Computing Pilot Program (commonly referred to as the Laptop Program) is to determine how the use of laptop computers and wireless connectivity can enhance the undergraduate academic experience in engineering. This program is conducted out of the Student Owned Computing program of the College of Engineering.

The Objectives of this program are as follows:

1. To evaluate the impact of teaching with wireless technology in a collaborative setting on student performance, specifically in the areas of writing and problem solving. Beginning fall 2002 – objective was modified to focus on just problem solving.
2. To evaluate the impact of teaching with wireless technology in a collaborative setting on faculty workload, pedagogy and amount of material delivered.
3. To identify the technical challenges using wireless technology in the classroom have for students, faculty, and technical staff.
4. To measure satisfaction of students, faculty and technical staff with the use of this technology in academic settings.
5. To develop software which will provide the technology to conduct electronic classroom assessment. (This was dropped in fall 2002 and objective 6 was added.)
6. To evaluate the impact of the electronic classroom assessment on the modification of faculty pedagogy and material taught (beginning fall 2002).
7. To develop other courses in the engineering curriculum using the wireless mobile computer technology (beginning fall 2002).

From fall 2001 through fall 2004, we have implemented four successive phases of the pilot programs in the fall semesters of 2001, 2002, 2003 and 2004. The first two phases (fall 2001 and fall 2002) were volunteer honor students with 37 and 45 students respectively. The third phase (fall 2003) had 200 student volunteers who were not necessarily honor students. The fourth phase (fall 2004) had 300 student volunteers who were not necessarily honor students.

ASSESSMENT METHODS

Each objective had a number of assessment methods. Below is a listing of all of the methods used, though not each objective used each method.

- Gathered essays from ENG 113H – Composition, Rhetoric, and Reading course, from the course section that was conducted with the laptop pilot program in the fall 2001. Gathered “matching” papers from ENG 113H in the spring 2002, taught as regular, non-laptop course. Both sets of papers were written about a literary subject. An expert in composition developed and used a writing rubric to compare essays and analyzed the length and complexity of the writing.
- The papers from the students in the laptop section of E101 were compared to the papers from students in all other sections of E101. Instructors used a rubric to score each paper.
- Problem-solving on the final term project in GC120 – Foundations of Graphics: The laptop section and the regularly taught section of GC120 used the same rubric for the final term project in this course. The instructors for each section used the rubric to score the students’ final project.
- In Spring 2002, the same instructor who taught the regular sections of CSC 116 taught the laptop section. The instructor gave the same set of problems on the final exam to all sections of CSC 116. Later, each problem was judged using a rubric on dimension of problem-solving. To select students of equivalent backgrounds for comparison purposes, students from the regular section were matched to the laptop section students using “honors” designation, and SAT scores.
- Use of Maple and laptop computer during classtime in Calculus Series MA 141 – Calculus I - MA 241 – Calculus II and MA 242 – Calculus III. To measure students’ ability to do traditional calculus, the instructor, compared his laptop class to another honors (non-laptop) section. He gave four common questions on the final exams.
- Students in the pilot project were given a survey each December. Students not in the laptop sections were also asked to complete a matching survey, to obtain comparison responses. In the years that the laptop students were also honors students, comparisons with honors students not in the laptop program were made.
- At the end of the academic year, the students who participated in the laptop pilot program were asked to write an essay about their experience.
- Faculty who taught a laptop section, whether with the students own laptops or by using the laptop cart, were asked to complete a short survey three times during the semester: after two weeks of the courses, during the middle of the course and the last week of the course. This was conducted each semester from fall 2002 through fall 2004.
- Tony Baumann, Aaron Henderson (during 2001-2002) and Kathy Mayberry, provided the technical support to the students and faculty participating in this program. They kept a log of problems. The technical staff wrote about the issues that were a factor for the laptop cart and for faculty with laptops.

URL for Full Report: <http://www.eos.ncsu.edu/soc/assessment/>