

Encouraging Student Collaboration in Biomechanics using a Tablet PC

Renee D. Rogge, Ph.D.

Proposal Overview

The use of the Tablet PC as a lecture aid appears to provide the best of both teaching worlds – the opportunity to present a well-prepared lecture with complex figures and diagrams and the ability to annotate and develop this same lecture in real-time just as one might in a ‘traditional’ classroom.

I have identified an opportunity to enhance the learning experience of my students in Research Methods in Biomechanics (BE550) through utilization of the Tablet PC technology. This elective course is offered to Biomedical Engineering students who are specializing in biomechanics. Research Methods was last offered during the Winter term of 2005-06 to fifteen students and is anticipated to be offered next Winter term (2007-08). The class was an exciting opportunity to introduce students to cutting edge theory and advances in technology in the biomechanics research world. We conducted advanced problem solving sessions, reviewed current literature, and discussed the advantages and disadvantages of a variety of current research techniques.

For many of the lectures in Research Methods, I prepared PowerPoint™ slides and distributed them to the students. This was necessary in many cases to ‘set the stage’ for the problems we were discussing since there were often complex figures or diagrams to discuss. For problem solving sessions, one of the main objectives of the class was for students to identify several appropriate solution methods for a problem. I typically used the problem as an opportunity for brainstorming and discussion among the members of the class. Taking this approach meant that I could not prepare the solution to the problem on the slides before class because I did not necessarily know which approach the students would bring up first. Therefore, I was continuously transitioning from the PowerPoint slides to the whiteboard in order to incorporate the input from the class in real-time, as opposed to ‘forcing’ them down a predetermined solution technique (particularly since I already knew the easiest and most appropriate approach to implement). It would be ideal

to use the Tablet PC to brainstorm solution techniques and work the problems *with* the students, instead of just working examples *for* them.

I also envision a different approach to literature reviews using the Tablet PC. Students struggled with taking comprehensive notes and participating in the discussion during our literature reviews. Proper incorporation of the Tablet PC may simplify this process by allowing collaborative note-taking and removing the emphasis from mindless note-taking and, instead, focusing their attention on meaningful discussions and interactions with their peers.

While the Tablet PC is not a substitute for effective teaching, it might serve as a useful tool for students in Research Methods in Biomechanics to simplify their note-taking strategy and encourage more interactions between members of the learning environment. I am eager to learn from other faculty who have implemented the Tablet PC into their courses and to find other opportunities for active and student-centered learning in the classroom.