

Cultivating Engagement and Collaboration in IT 430: Human-Computer Interaction

Annette Tetmeyer, Electrical Engineering and Computer Science

BACKGROUND

Human-Computer Interaction (IT 430) is a required course for those pursuing a BS in Information Technology, and students typically enroll in their senior year. This class seeks to fulfill the following learning outcomes:

- 1) Describing the relationship between cognitive principles and computing systems product design
- 2) Discussing conceptual terms for analyzing human interactions with computing products such as “affordance,” “conceptual model,” and “feedback”
- 3) Explaining the importance of user abilities and characteristics in the usability of a computing product
- 4) Designing user interfaces for domain-specific applications
- 5) Performing a usability evaluation for an existing software application
- 6) Describing ways in which users’ characteristics (e.g., age, education, cultural differences, etc.) require adaptation of a user interface to increase effectiveness.

THE CHALLENGE

- 1) This course meets once a week for three hours in the evening. Most of my students work full-time jobs, then attend one of the two sections offered for my class, 4:00-7:00 or 7:00-10:00. A three-hour lecture will not work for these students.
- 2) My students are used to working one-on-one with technology and typically have very little interest in or experience with the essential life skill of group collaboration.

THE REDESIGN GOALS

To cultivate the best educational environment for this unique class, I set out to:

- 1) Create a more interactive, engaged learning space
- 2) Provide opportunities for communication and collaboration between students
- 3) Cater to the broad range in ages and backgrounds of students enrolled
- 4) Find ways to transform activities into online counterparts.

ENGAGED LEARNING ACTIVITIES (ELAs)

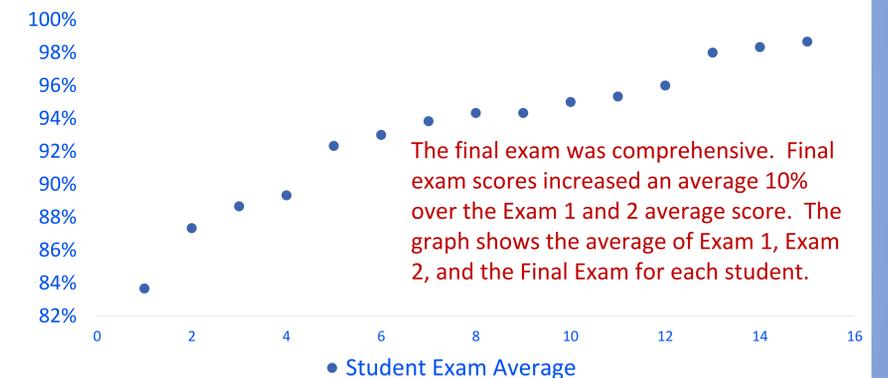
I implemented activities I called Engaged Learning Activities (ELAs) to get students out of their seats and promote hands-on engagement with course material. Sometimes I had small groups of students explore objects in our classroom or buildings, while other times I invited them to experiment with the interactive tool VoiceThread.

In one of the most successful activities, the “3, 2, 1 Drill,” I put questions that engage that class period’s readings on different sections of the board; then, groups of students collaborated to answer these questions, and each group interacted with the responses generated by other groups. The “3,2,1” corresponds to the amount of time (minutes) that students collaborated before moving on to the next question. Generating the first ideas took longer, with successively shorter times needed to add to the previous collaboration. These exercises proved to be an active way to provoke engagement and review material.

STUDENT WORK

- Students frequently referenced concepts from the ELAs which indicated that these were useful activities. For example, all students were given a physical object or “prop” during the first session, and they related concepts to their “prop” in writing and discussion throughout the semester.
- They seemed to use terminology with greater ease, have a better grasp of the course concepts, and a more well-rounded view of HCI. Their semester group projects document some of this understanding, earning an average score of 93%.
- I moved to a less traditional, essay-style format on exams in order to elicit richer answers. For example, in the final exam, students assessed the VoiceThread application from an HCI viewpoint and submitted an initial assessment. I compiled the assessments into a summary and students then submitted a final analysis of the results. *This was the most insightful and useful final exam I have ever given! The answers were rich, unique, and demonstrated that they had fulfilled many of the learning outcomes set out at the start of the semester. Reading the “ah-ha” moments that many of them had while writing the final was very rewarding.*

Average Exam Score By Student



REFLECTIONS



- One of the challenges of teaching this way was time management. It’s important to try different things, but predicting the time required is difficult, and flexibility is essential.
- At the same time, these interactive activities worked well in my class, because they prompted active collaboration. Students were moving around, putting their ideas into language (both written and verbal), and working with each other. Their discussion or “answers” during ELAs really highlighted their level of understanding. Instead of being met with a lot of blank stares to “are there any questions?”, I could clearly see the areas that needed more discussion.