



July 25, 2001

Summary

The HCI lab at SIU-E succeeds as a facility for project teams to work together and to observe users interacting with their designs. The facility works extremely well in accommodating multiple teams, more so than most HCI labs. No other room I have seen allows for teams to so quickly set up and take down valuable materials used in collaborative design.

From a practical standpoint, this facility lacks nothing of major significance. Most of the opportunities for improvement described in this report exist as well for other HCI labs.

Observation

The lab serves the essential needs for a team to remotely observe a user without high cost. In the observation room, one TV monitor offers an over-the-shoulder view of the computer screen. A separate computer monitor in the observation is slaved to the user's computer, thus providing almost exactly the same view to observers that the user has.

Considering that the project teams consist of college students, and not dedicated HCI specialists, the ease of use of the facility itself matters greatly. Teams have little to do to prepare the cameras for a usability test. Framing the camera views before testing is easy. The lavalier microphones require little or no preparation. During the test, students have little difficulty zooming in to specific areas of the screen or to the hands of the user.

Purchasing the cameras from a security firm made sense from an economic and a practical perspective. One of these cameras has a swiveled base. This allows teams to use the camera both for the over-the-shoulder view in usability tests and for the overhead view in paper prototyping.

Areas for improvement

The camera providing a view of the user's face and upper body does not show the user's face clearly enough. Although the students themselves don't seem to mind this, better observation of users' emotional response provides valuable data. Emotion conveyed by facial expressions often provides good context for the users' interaction difficulties.

The TV monitor shows two video images, one being the "over-the-shoulder" view of the user's computer screen, the smaller one being the user's face and hands. While the size and position of these views can be modified, they cannot be easily changed quickly while a test is in progress. The fact that the size and position cannot be modified easily "on-the-fly" poses a minor problem. At other HCI facilities, project teams have a small picture-in-picture view of the user's face against a large view of the computer screen. If, for example, the picture-in-picture view were shown at the bottom right, the team could move it elsewhere when the user is working on that part of the computer screen. However, it should be noted that the views on the TV monitor in the SIU-E HCI lab can be switched easily with the current controls, and that observers can always view the entire computer screen.

Ability to configure rooms

Team can quickly configure rooms for paper prototyping or for usability testing. For usability testing, the computer and the desk for the user remain in place and require no setup. For paper prototyping, a round table is already roughly in place. Teams simply need to move the table, position the chairs around the table, and position the overhead camera, which is on a swiveled base. Tape on the floor of the room marks the suitable position for the furniture and helps teams to configure the room quickly.

Teams have a great deal of flexibility in configuring the observation room. The tables in that room are long, narrow, and easily movable. During observation, tables and chairs are spread apart and face the monitors. During team collaboration, tables are put together to offer a larger common working space and to provide easy access to the walls. This access to the walls matters when teams are writing and drawing design notes.

The students that are software developers said that they definitely like the collaborative environment that the observation room. Known as the “Design War Room,” this space was praised by software developers because it allowed them to place all of their relevant design notes on the walls. Everyone seeing everything that mattered at one time proved to be invaluable.

The magnetic white boards are very innovative and highly effective. Because teams can quickly put up and take down sheets of easel paper using magnets, they in fact do so. Teams went through more sheets and more markers than expected. Occasionally, they even wanted more wall space.

The magnetic white boards excel at making this single HCI facility useful for multiple project teams. The facility has filing space particularly suited for the quick storage and retrieval of rolls of large paper sheets. These innovations are lacking in most, if not all, HCI facilities.

On a general note concerning organizational communication, the quality of meetings in most companies suffers because clear, effective visualizations are not used. Large sheets of paper on walls offer the most effective means to do this. However, most organizations have rooms booked for multiple teams. In practice, most people won't carry large sheets of paper from place to place. The SIU-E HCI facility addresses these roadblocks more effectively than any other I have seen.

Experience of tester

The person performing the tests has a comfortable room in which to work. The desk, computer, and chair provide the space and tools to work effectively. The décor of the room, which includes a mirror, paintings, and soft colors, helps to calm users.

The soundproofing in the room has proved to be effective. This was a point of some concern before the lab was constructed, since the budget for the lab only allowed for a conservative amount of sound insulation.

Areas for improvement

Though no one has mentioned this as a problem, one possible area for improvement has to do with the fact that the user is not isolated completely from the team when that person enters and exits the HCI facility. This only poses a small risk of bothering a tester, but the risk does exist, especially if the tester is timid to begin with.

The facility lacks isolation because there is only one entrance to the HCI facility. Testers enter what is basically the observation area, meet the facilitator, and then enter the user room. Once in the user room, the testers are well isolated. In the observation area, a wall partition, similar to

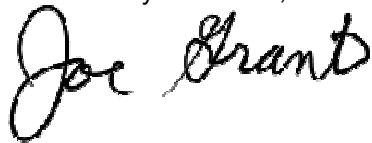
those used in office cubicles, shields testers from seeing observers during entry and exit. However, the wall does not isolate the user from sound. The wall includes a swiveled section for observer egress, which the facilitator needs to keep closed when the user is present. This situation also poses a small risk that the user, especially a tall person, might look over the partition and see a note in the team area that could bias the user's experience during the test.

Cost effectiveness

The SIU-E HCI facility succeeds with respect to cost effectiveness. While many HCI facility labs require one hundred thousand dollars or more to be built, this facility required less than \$25,000.

Organizations that choose to rent a suitable usability lab or market research facility will spend at least \$2000 for each study. If an organization were to spend \$25,000 to build a facility per the SIU-E design, the facility would pay for itself in terms of rental costs after only thirteen studies. And the organization would have an invaluable meeting facility to use whenever they wanted.

Submitted by Joe Grant, Grant Consulting, Inc.

A handwritten signature in black ink that reads "Joe Grant". The signature is written in a cursive, flowing style.