
A Satisfying Way to Teach HCI: Outreach through Usability Reports

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Abstract

I teach a required HCI course at Penn State in an information school. I have student groups do an analysis of a real system (typically a web site) as the course project. Many of these projects have led to changes in real-world systems. The students' reports perform a type of outreach helping local companies, non-profits, and university units, and ground the students' education throughout the semester. While this idea has been presented as a book chapter [1], presentation here allows another audience to use and importantly comment on this approach.

Author Keywords

HCI education, outreach, HCI evaluations

ACM Classification Keywords

K.3.0. [Computers in Education]: General; K.3.2 [Computer and Information Science Education], Curriculum; K.4.0 [Computers and society]: General

Introduction

In this position paper I (a) describe my experience in HCI education, (b) define a living curriculum related to having students examine web sites, and (c) note what a contribution to a living curriculum based on students creating usability reports, and how this approach benefits the community.

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PSU recreational sports program
VirtualTrials.com, a web site to help cancer patients and clinical trials find each other
Centre County Transit Authority
National Eating Disorders Association
ACLU of Pennsylvania
Centre County Library and Historic Museum
a local restaurant
PSU IT support
PSU Clubs

Table 1. Example web sites examined by students in Fall 2013 with reports worth recommending to the site's contact.

Experience in HCI education

I taught HCI and related courses at the University of Nottingham (93-99), at Penn State (since 99), and also as a Fulbright Senior Scholar at the Technical University/Chemnitz in former East Germany (2005). I co-founded the tutorial program at the Cognitive Science Conference, which has grown to include HCI topics, and I have run the tutorial program at the International Cognitive Modeling Conference for several years, which has often included HCI topics.

My teaching in this area has led to two books. One on the foundations of user-centered design, what psychology designers need to know [2], and one on what you need to know to run psychology studies [3]. The second book is also available in a shorter, free, tech report version [4]. Both of these have been given internationally as industrial and academic seminars and the running studies book as a conference tutorial several times.

At Penn State I have taught a course most years on HCI, IST 331, called "the User", although its formal title is much longer. I currently chair the committee to support this course across the Penn State system; about 10 campuses teach this course, and the World Campus, Penn State's online education portal, has used our book [2].

How I would define a "living curriculum"

A living curriculum can be "live" in two ways. It can be live in that it changes over time to respond to new knowledge or uses, and it can be live in that it interacts with a wider area than just a classroom—that it is applied.

I would like to present the case that usability reports included as a capstone project in an HCI course provides a way for HCI curriculum to live in both of these ways.

Usability reports as a way to teach HCI and give it way

I've prepared an invited book chapter [1] on the use of usability reports as a way to teach HCI (a draft is available online). The College of IST has featured the results of student projects in two press releases. Briefly, student groups prepare a 10 to 30 page report noting 2 to 10 concrete suggestions about how a web site or other interface could be improved based on theory taught in class or data they gather. The groups may get inspiration from their own insights, but are required to support the suggestions with theories taught in the class or small studies or website logs. Student groups are generally able to learn to use this approach and to write the reports. They have to have a contact for the web site, which keeps them from examining web sites that are too large or complex for a first course. Table 1 provides, for example, a list of the successful reports from Fall 2013, a particularly good year. The course web site provides 36 example reports.

This approach has also been used in a graduate course, and the projects are more substantial, and have led to or contributed to two publications [5, 6].

The range of theories that can be used is probably the breadth of all HCI methods, but some may work better. Some teams find that they wish to learn a new method or need to modify an existing method. Teams that fail seem to do so because of scheduling and motivational issues, not because of the approach. That is, it is a

doable project that a broad range of students can complete, which provides a way to provide outreach to commercial, non-profits, and university sites.

This project and how to coach it, and what to require and how to manage the process has evolved since 2001. Table 2 notes some of the features that may contribute to the success of this approach. A discussion with a larger audience might lead to expanding this list and understanding it better.

- a. Group-based
- b. Lots of low hanging fruit to improve interfaces
- c. Contact information for the system analyzed
- d. Teaching assistants helped coach the groups
- e. Reuse and revision of class exercises into the final report
- f. Motivation from their parents, colleagues, family, work associates to do a good job
- g. A submission form with the project including website contact & permission to share (or not)

Table 2. Some of the features (unordered) that may help lead to success when teaching this project, taken from [1].

Summary

Performing usability evaluations of web sites as a final course project provides a useful way to teach HCI. Applying HCI methods to sites they care about is motivating to students and teachers. It also helps keep the material current—the reports are driven both by current web site design and what is taught.

Some aspects to supporting this project have been previously noted, but being available and interacting at the workshop will make the idea both more accessible and applied by other teachers, and I may learn more about how to support it in a wider range of contexts or how to improve the results or the process.

References

- [1] Ritter, F.E., Semester projects on human-computer interaction as service and outreach, in *Innovative practices in teaching information sciences*, J.M. Carroll, Editor. 133-142. 2014, Springer: London.
- [2] Ritter, F.E., G.D. Baxter, and E.F. Churchill, *Foundations of designing user-centered systems: What system designers need to know about people*. 2014, in press, London, UK: Springer.
- [3] Ritter, F.E., Kim, J., Morgan, J.H., & Carlson, R.A., *Running behavioral studies with human participants: A practical guide*. 2013, Thousand Oaks, CA: Sage.
- [4] Ritter, F.E., J.W. Kim, and J.H. Morgan, Running behavioral experiments with human participants: A practical guide. 2009: (Tech. Report No. 2009-1): ACS Lab, College of IST, Penn State.
- [5] Yeh, K.-C., J.P. Gregory, and F.E. Ritter, One Laptop per Child: Polishing up the XO Laptop user experience. *Ergonomics in Design*, 2010. 18(3): 8-13.
- [6] Morgan, J.H., et al., A design, tests, and considerations for improving keystroke and mouse loggers. *Interacting with Computers*, 2013. 25(3): 242-258.