

## CHI 02 Tutorial Proposal

Practical Usability Evaluation  
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### **Duration:**

1 full day

### **Attendee Background:**

There are no prerequisites for this introductory tutorial.

### **Learning objectives:**

- Introduce participants to practical cost-effective methods of user interface evaluation:
  1. Inspection methods – evaluating usability without users
  2. Observational skills and video – evaluating usability with user
  3. Questionnaires – gather structured feedback from users
  4. Program instrumentation – gathers usage data for ongoing analysis
- Provide participants with enough experience with the methods to be able to apply the methods on their own

### **Material to be covered:**

The tutorial begins with coverage of a set-by-step method to collecting valid feedback on system usability. It goes on to a series of evaluation methods. For all methods except program instrumentation, participants will have hands-on exercises with discussion of results.

#### Introduction To General Concepts

- User Interface Acceptability
- Problems of Interactive System Development
- Goals for Interactive System Evaluation
- Cost-Benefit Analysis of Usability Testing
- Evaluating before Costly Implementation

#### System Evaluation Steps

- Which and How Many Users to Test?
- Benchmark Tasks
- Before the User Arrives
- When the User Arrives
- Data Collection
- After The User is Done
- Interpreting Data

#### Practical Evaluation Methods

- Choosing an Evaluation Method
- Inspection Methods
- Observation and Video
- Questionnaires
- Program Instrumentation

#### Summary and Conclusions

#### Reference Materials

- Societies and Conferences
- Journals and Publishers
- Usability Evaluation Bibliography

**Justification for a CHI audience:**

This material is obviously relevant to the CHI audience.

Despite the great effort involved in developing user interfaces and the large potential costs of bad ones, many user interfaces are not evaluated for their usability or acceptability to users, thus risking failure in the field. Bad user interfaces can contribute to human error, possibly resulting in personal and financial damages. The ACM SIGCHI 1992 Report '*Curricula in HCI*' cites the importance of usability evaluation: "someone will evaluate usability even if not the developer, and, in some cases, not evaluating constitutes professional misconduct." Even though not all members of a software development team may be involved directly in the evaluation of usability, it is useful for all to have an appreciation of the methods for evaluating usability, particularly practical methods that can be applied with limited skills and resources. The methods covered here: **Inspections, Observation, Questionnaires, and Instrumentation**, can all be used by evaluators with a wide range of skills and with minimal equipment requirements. They are introduced in a series of step-by-step procedures and reinforced with hands-on exercises.

**How the tutorial will be conducted:**

The tutorial is mostly lecture with video examples, interspersed with exercises and discussion.

**Schedule of events and times:**

Topic	Time
Introduction	90
Inspection Methods	90
Observation and Video	90
Questionnaires	60
Program Instrumentation	30

**Samples of materials in notes:**

For review, I have placed an incomplete set of PowerPoint slides on:

<http://www1.acm.org/~perlman/useval/pue.ppt>

Some of the more interesting/useful are noted below:

- Choosing an evaluation method (38-39)
- Heuristics merged from several sources (48-51)
- Heuristic evaluation reporting form (54)
- Video setup (63-67)
- Observational Do's and Don'ts (68-70)
- Observer's recording form (72)
- Example questionnaires (not converted yet, but I'll be making use of online Web versions from my site: <http://www.acm.org/~perlman/question.html>)
- Annotated usability bibliography (75 items)

**Tutorial history:**

The tutorial has been offered at several conferences including 4 HCI conferences with excellent reviews. It has always been full (increasing attendance each year), and attracts many *first-timers* at the conference, so it should be full again.

The tutorial has been on hiatus while my kids grew up.

**Modification of tutorial:**

Although the material is *classic* and does not change much over time, I have updated the materials in several ways:

- I have converted the presentation slides to PowerPoint
- I am updating the exercises, which were based on a 1989 HyperCard prototype to a Web-based application (basically, an HCI portal site with search capabilities)
- I have started to gather resource materials on the Web, leveraging the HCI Bibliography, and participants will have access to those materials after the tutorial. It will include resource materials such as sample questionnaires, consent forms, and the annotated bibliography with hot links to more information (abstracts, tables of contents, links to purchase, etc). For example:
  - A consent form: <http://www1.acm.org/~perlman/useval/consent.html>
  - Questionnaire site: <http://www.acm.org/~perlman/question.html>
- Although there will be a lot of resources available online, the tutorial notes will be completely self-contained.

## Description for the Advance Program

Title	Practical Usability Evaluation
Instructor	Gary Perlman, OCLC Online Computer Library Center
Benefits	You will learn when and how to apply four distinct methods for evaluating system usability. You will get practical experience with each and you will leave able to apply the methods in your work.
Origins	This tutorial was first presented at OZCHI in 1992, Hypertext'93, and has been presented at CHI conferences in 1994, 1995, 1996, 1997, and at HFES'97, where it has received uniformly high ratings. The classic material has been updated with current examples from the Web, but the methods are not limited to the Web.
Features	<p>This tutorial will focus on four methods for evaluating systems:</p> <ul style="list-style-type: none"> <li>• <b>Inspection methods</b> – evaluating usability without users with evaluation checklists, heuristics, and walkthroughs</li> <li>• <b>Observational skills and video</b> – evaluating usability with users as they work with prototypes or complete systems</li> <li>• <b>Questionnaires</b> – gather structured feedback from users to allow users to help evaluators generate solutions</li> <li>• <b>Program instrumentation</b> – gathers usage data for ongoing analysis, information useful for isolating high and low usage and effort</li> </ul> <p>A broad base of evaluators, minimizing skill and equipment requirements, can use all the methods. Exercises provide experience gathering and interpreting each kind of evaluation information.</p>
Audience	<ul style="list-style-type: none"> <li>• <b>Managers</b> interested in increasing their knowledge of usability evaluation so they can increase usability testing in their operations.</li> <li>• <b>Software engineers</b> interested in practical methods they can use to evaluate usability during the development process and not just as an afterthought.</li> <li>• <b>Human Factors Specialists</b> who want to learn more about the method covered</li> </ul>
Presentation	Interactive presentation with hands-on exercises
Instructor background	Gary Perlman has had teaching and/or research positions at the University of California in San Diego, Bell Laboratories in Murray Hill, The Wang Institute, The Massachusetts Institute of Technology, The Software Engineering Institute at Carnegie-Mellon University, The Ohio State University, and OCLC Online Computer Library Center. He has served as a consultant and lectured internationally on software engineering and user interfaces for over 20 years and has published over 70 articles. He is well known as the author of statistical and hypertext software used extensively for user interface evaluation. He the creator of the HCI Bibliography project, the largest free-access bibliography on Human-Computer Interaction. He has held elected offices in SIGCHI both internationally and in Ohio, and has received the SIGCHI Distinguished Service Award.

**Requirements List**

Supplies and A/V support:

PowerPoint Presentation

Room lighting and sound amplification:

I'll need a microphone if enrollment is over 60

Restriction on offering:

None

Seating arrangements:

Classroom format with rows of tables. For exercises, participants can turn around, meet new people, and form groups of four.

Tutorial notes

The notes will print the slides in handout format, with any additional information (e.g., consent form, annotated bibliography) appended.