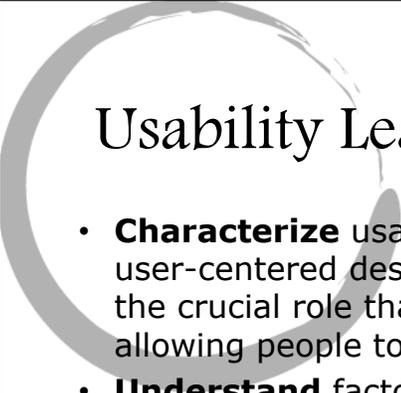
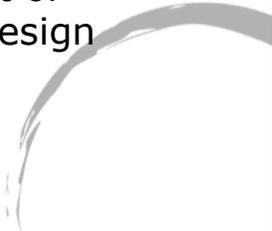




# Teaching Usability

An Important Component of  
User-Centered, Iterative Design



## Usability Learning Objectives

- **Characterize** usability as an iteration of the user-centered design process and understand the crucial role that its principles play in allowing people to accomplish tasks
  - **Understand** factors that characterize usability and usability testing
  - **Differentiate** between user-based testing and other forms of usability examinations
  - **Conduct** a usability test based on user and task analysis
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## User-Centered Design

- **Early focus on users and tasks** that involves understanding the users, the tasks that users perform, and the environment in which users perform these tasks.
- **Empirical measurement** of product usage that involves users providing information about ease of learning, ease of use, and related usability issues.
- **Iterative design** that fixes the problems found by users in usability testing as part of the product development lifecycle.

## Iterative Design

- **Gather** information about users before product development begins
- **Evaluate** the product with users as the product is under development
- Rinse, **repeat**

## User and Task Analysis

- What **users' goals** are, not just the tasks they perform
- What **processes** they use to achieve their goals
- What **characteristics** shape the way they perform tasks and achieve goals
- What **previous experience** shapes users' approaches to tasks
- What impact the **environment** has on their ability to perform tasks

## User/Task Example

Goal: Get Advised

Processes:

- **Identify** appropriate advising and registration period
- **Check** email for information about appointment
- **Print** transcript
- **Locate** campus building and room

## Iterative Design

- **Complete** user and task analysis
- **Create** a prototype
- **Test** prototype
- Rinse, **repeat**

## Usability Principles

- **Learnability:** How easy is it for users to accomplish basic tasks the first time they encounter the design?
- **Efficiency:** Once users have learned the design, how quickly can they perform tasks?
- **Memorability:** When users return to the design after a period of not using it, how easily can they reestablish proficiency?
- **Error Recovery:** How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
- **Satisfaction:** How pleasant is it to use the design?

## Usability Testing

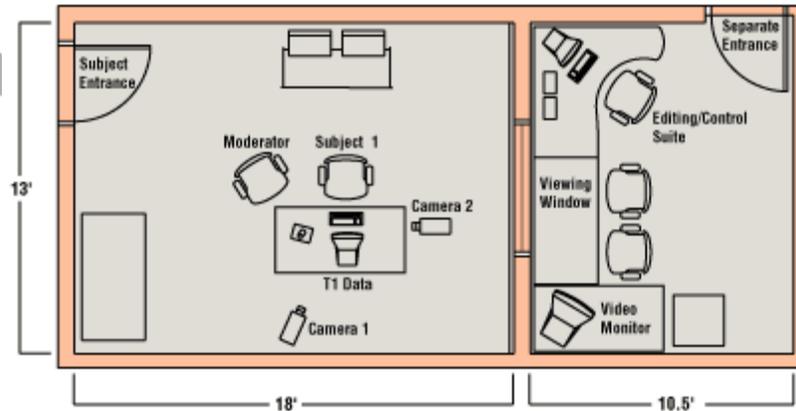
- Participants represent *real* users
- Participants do *real* tasks
- Usability team observes and records what participants do and say
- Usability team analyzes the data, diagnoses the problems, and recommends changes to fix those problems

## Usability Testing Plan

- **Set** goals and measurements for the test
- **Consult** user and task analysis
- **Establish** user profile
- **Select** tasks

## Usability Testing Location

- In the field or in a usability lab



## Other Types of Usability Evaluation

### Expert Feedback:

- Heuristic Evaluation
- Cognitive Walkthrough
- “Read and Locate Test” (Barnum)
- Summary Test

### User Feedback:

- Interviews
- Focus Groups
- Surveys

## Iterative Design

- **Report** test results
- **Continue** product development
- **Test** again
- Rinse, **repeat**

## **Annotated Bibliography: Teaching Usability**

Barnum, Carol M. *Usability Testing and Research*. New York: Longman. 2002.

This book frames usability as a part of a larger concept of “user-centered design,” with its roots in human-computer interaction where the fields of computer science, graphic design, psychology, and technical communication were tied together. The book has a broad approach to the myriad of usability testing practices but also provides research to support underlying principles. A focus on iterative design and testing as well all other phases of usability is provided.

Burnett, Rebecca E. *Technical Communication*. 6th ed. Boston: Thomson Wadsworth, 2005.

This is an excellent introductory text to technical communication or workplace writing because it emphasizes a rhetorical approach: teaching context, content, purpose, audience, organization, visuals, and design as equally important parts to communication. Major sections include “Communicating in the Workplace,” which characterizes workplace culture and communication; “Managing Critical Processes,” on locating and using information, planning, drafting, revising, editing, and ensuring usability; “Shaping Information,” which covers information design and organization; “Understanding the Communicator’s Strategies,” a section on creating definitions and instructions; and “Preparing Professional Communication,” in which specific document genres such as general correspondence, proposals, and reports are explained in greater detail.

Dicks, R. Stanley. "Mis-Usability: On the Uses and Misuses of Usability Testing."

*Proceedings of the Twentieth Annual International Conference on Computer Documentation October 20-23, 2002.* (Toronto: Association for Computing Machinery, 2002) 28 Feb. 2006 <<http://portal.acm.org/citation.cfm?doid=584960>>.

This article covers several misuses of usability: 1) misunderstanding the concept of usability, equating usability tests with empirical tests, 2) misusing statistics or assuming that quantitative statistics originate from usability tests, 3) using usability tests for verification rather than for usability, 4) ensuring valid and reliable results by knowing the limitations of proper testing methods, 5) testing for ease of use but not for usefulness.

Hey, Phil. "Re: RHET 7340 Aaron's Notes." Online posting. 24 Feb. 2006. Class

discussion list for Rhetoric and Writing 7340 Section 01 [rhet734001@ualr.edu].

Dr. Hey, 30-year veteran of teaching and consulting in business communication, addresses the possibility of a supervisor or manager who doesn't understand usability. It's necessary, then, for students to "spend at least a few minutes learning the rhetoric of usability." In the workplace, students should not only know the principles of usability but should also argue for them when need be.

Hughes, Michael. "Rigor in Usability Testing." *Technical Communication* 46. 4

(1999): 488-94.

Krug, Steve. *Don't Make Me Think! A Common Sense Approach to Web Usability.*

Indianapolis: New Riders, 2000.

A fun introduction and "common sense approach" to web usability, perfect for introducing usability concepts to students. Krug is extremely easy to read, and his principles of usability are easy to accept. Written for people "in the trenches."

Mirel, Barbara. "Advancing a Vision of Usability." *Teaching Technical Communication*.

Ed. James M. Dubinsky. Boston: Bedford/St. Martin's, 2004. 218-239.

Nielsen, Jakob. *Designing Web Usability*. Indianapolis: New Riders, 2000.

Nielsen is considered a father of web usability, and this book is a bookshelf requirement for anyone who plans to do or teach usability testing. No thorough text on usability would be complete without sections on page design, content design, and site design (like this text offers). A definition or explanation of usability is not complete without touching on other areas of user experience.

---. "Usability 101: Introduction to Usability." *Jakob Nielsen's Alertbox*. 25 Aug. 2003.

7 March 2006 <<http://www.useit.com/alertbox/20030825.html>>.

Redish, Janice C. "What Is Information Design?" *Teaching Technical Communication*.

Ed. James M. Dubinsky. Boston: Bedford / St. Martin's, 2004. 211-217.

Spool, Jared M., et al. *Web Site Usability: A Designer's Guide*. San Francisco: Morgan Kaufmann, 1999.

This book is one of the first case studies of popular websites which were proven mediocre on a usability scale. The book offers a very limited definition of usability, however, and testing methods have since improved.

Wroblewski, Luke. *Site-Seeing: A Visual Approach to Web Usability*. New York: Hungry Minds, 2002.

Usability tests result in "technical" guidelines or heuristics that are designed to assist in designing the next (web) document. Often those guidelines have a lot to do with text and interaction but little to do with visual or graphical aspects of

usability. If usability is to be used to assess the effectiveness of a site's communication, the visual aspect of the site must also be included in that assessment.

"Usability." Wikipedia, The Free Encyclopedia. 7 Mar 2006. 7 Mar 2006

<<http://en.wikipedia.org/w/index.php?title=Usability&oldid=42564681>>.