Curtin University
School of Design

Internet Usability Design 391

Chapter 1

**Introduction to
Usability Design**

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What is Usability?

Three Possible Definitions:

1. *Usability is Defined as Ease of Use. How easy is it **really** to make something work? (Goto and Cotler, 2001)*

2. *Usability is the broad discipline of applying sound scientific observation, measurement, and design principles to the creation and maintenance of Web sites in order to bring about the greatest ease of use, ease of learnability, amount of usefulness, and least amount of discomfort for the humans who have to use the system. (Pearrow, 2000)*

3. *The Measure of the quality of a user's experience when interacting with a product or system – whether a Web site, a software application, mobile technology, or any other user-operated device. (Nielsen, 1998)*

Neilsen, continued:

Usability is a combination of factors that affect the user's experience with the product or system, including:

Ease of learning	How fast can a user, who has never seen the user interface before, learn it sufficiently well to accomplish basic tasks?
Efficiency of use:	Once an experienced user has learned to use the system, how fast can he or she accomplish tasks? (Is the system still tedious to use?)
Memorability:	If a user has used the system before, can he or she remember enough to use it effectively the next time or does the user have to start over again learning everything? (Jakob would be happy if all sites looked the same: See **Tipping Jakob's Ladder** at http://hotwired.lycos.com/webmonkey/01/26/index1a.html and **Wait for It** at http://hotwired.lycos.com/webmonkey/99/21/index0a.html for opposing points of view…) (Also, Macromedia vs. Adobe).
Error frequency and severity:	How often do users make errors while using the system, how serious are these errors, and how do users recover from these errors?
Subjective satisfaction:	How much does the user *like* using the system?

(**Nielsen, 1998)**

Discussion:

What are your favourite products? Why? VCRs? Mobile Phones? Bell Labs Phone story: sometimes users don't know what they want.

Research by User Interface Engineering, Inc. (http://world.std.com/~uieweb/), shows that people cannot find the information they seek on Web sites about 60% of the time. This can lead to wasted time, reduced productivity, increased frustration, and loss of repeat visits and money.

Other sources report:

- "There are about 43 million Web sites, and no one knows which ones are usable. The best sites we've found are usable only 42 percent of the time, and none that we have studied are usable a majority of the time...."

- Studies by Forrester Research (http://www.forrester.com/) estimate several costs of bad site design. The two most striking are:

    o   Losing approximately 50% of the potential sales from a site as people can't find what they need

    o   Losing repeat visits from 40% of the users who do not return to a site when their first visit resulted in a negative experience

- Site design guru Jakob Nielsen (http://www.useit.com/) reports:

    "Studies of user behaviour on the Web find a low tolerance for difficult designs or slow sites. People don't want to wait. And they don't want to learn how to use a home page. There's no such thing as a training class or a manual for a Web site. People have to be able to grasp the functioning of the site immediately after scanning the home page — for a few seconds at most."

Class Discussion:

Name ten things you hate most about the Web. How could they be improved?

What are five things you love about the Web? Why?

What Is the Difference Between Usability Engineering and Usability Testing?

Usability engineering is a methodical approach to producing a Web site or any user interface. It is a practical and systematic way to deliver a product that works for users. Usability engineering involves several methods, each applied at appropriate times, including gathering requirements, developing and testing prototypes, evaluating design alternatives, analysing usability problems, proposing solutions, and testing a site (or other interface) with users.

Usability testing is part of the process of usability engineering. Usability testing includes a range of methods for having users try out a site (or other system). In a typical usability test, users perform a variety of tasks with a prototype (or other system) while observers record notes on what each user does and says. Typical tests are conducted with one user at a time or two users working together. Testing may include collecting data on the paths users take to do tasks, the errors they make, when and where they are confused or frustrated, how fast they do a task, whether they succeed in doing the task, and how satisfied they are with the experience. The goal of most usability testing is to uncover any problems that users may encounter so those problems can be fixed. (National Cancer Institute, 1998)

Form vs. Function

In reality, the need for beauty and the need for usability can be balanced, much like the yin and the yang of Zen.

Truly great Web sites combine both aspects to make a Web site that is both aesthetically pleasing and truly usable.

The area of Web Usability is currently considered a specialty area, much like that of a Web server administrator, content developer, or Web programmer. (Pearrow, 2000)

Always start with a purpose. What problem are you trying to solve?

What Steps Are Involved in Usability?

• Getting Started — Planning the Web Site

The first step is to understand:

- Why you are developing a site?

- Who should come to your site?

- When and why should those people come?

In answering these questions, you establish your objectives for the site. The specific objectives depend, of course, on your organization and your audience.

You should also think about usability objectives for the site. General usability objectives are that a site must be:

- Easy to learn.

- Efficient to use.

- Easy to remember on subsequent visits.

- Satisfying, with a minimum number of errors as users go through the site.

All the usability objectives are important for most sites, but you may emphasize different ones for different audiences and situations. For example, in a site that is aimed at members of the general public who may only visit once in a while, you should build a site where almost no learning needs to take place to use it efficiently. (National Cancer Institute, 1998)

What isn't usability?

Usability is not Accessibility. Although Accessibility is a Usability issue we will get into later in the semester.

Usability is not Market Research. Although you should perform usability testing on what you consider to be your biggest competitors.

Usability is not about "Crafting the User Experience".   At least, it's not about pure entertainment sites. It has more to do with functionality. (Pearrow, 2000)

Other Terms:

HCI: Human Computer Interaction – Concerns itself with issues such as GUIs, the logic and functionality of the features the software provides, and the way that humans interact with the input and output devices. (Also known as **CHI: Computer Human Interaction**)

> **Ergonomics**: Concerns with the particular hazards that these devices can pose to humans and how we can avoid those hazards.

GUI: Graphical User Interface

UCD: **User Centred Design** – A philosophy and a methodology of product development that, to be done properly, must necessarily permeate the entire infrastructure of an organization or business. The simple idea is that no product, Web site, or software system matters – at all – unless there are users to use it. (Pearrow, 2000)

Usability Testing and other Usability Tools are an integral part of the product development lifecycle.

How things end up unusable:

1. All too often, the **developers** of a Web site focus on the site's features or it's technical implementation while **never pay**ing **attention to the end user**. This defies the first law of UCD: Know your user.

2. The designers of Web sites are often **highly technical people** who possess skills in programming and other analytical areas. Unfortunately the way these people **think and act** is usually **totally different from the way the end user does**. Assumptions these designers make simply do not generalize to the people who will actually be using the site.

3. **People** who are **in charge** of the development of Web sites **often give in to trends**, assuming that **incorporating the latest and greatest technology** will give them the edge over their competitors. In fact, this type of behaviour usually works exactly the opposite: It reduces the actual usability of the Web site, giving less state-of-the-art competition the edge. Remember, just because a feature exists does not mean that you are obligated to use it.

4. **Most people merely assume that good usability results from common-sense reasoning**. Most people don't even think of usability as a discipline. In reality, you'll find that common sense is really quite uncommon. Highly usable Web sites do not happen accidentally: they're the results of iterative and exhaustive testing.

5. Unfortunately, **people with little or no user interface design experience are making critical decisions about the look, feel, and logical model of Web sites**.

Virtually every usability problem (above) can be traced back to one of these five well-known principles of UCD. (Pearrow, 2000)

What is User Centred Design?

User Centered Design (UCD) is both **a technique and philosophy that puts the user's needs ahead of anything else**. UCD is typified by early and frequent interaction with the real user community to solicit feedback and to gain foresight into the future of the design. It is a philosophy because every part of the design process and other processes that touch it are necessarily touched by it.

UCD involves interviewing potential users of your site (or revision of an existing site) before a single line of new HTML has been written. The goal is to determine users' likes and dislikes, hopes and expectations, as well as to find out how they currently interact with existing tools.

Things you need to find out:

- **Minimal Required Functionality**: What, at the very least, does the user need to be able to do with the site? Figure this out first, and add features later.

- **User constraints**: What sorts of limitations do your users have? Bandwidth? Browser limitations? WebTV, PDA, vs. IE and NS? Accessibility?

- **User preferences**: How do your users want your Web site to act? Are they savvy surfers that want lots of bells and whistles or novices that want easy access? Do your users have cookiephobia? (IE 6 has a default configuration that blocks many cookies). Fast downloads with few graphics or lots of streaming audio & video?

- **User habits**: How do users currently carry out tasks? Do they use a competitor's site that they like or hate? Are there actions that they carry out "in their sleep" on existing sites that can be incorporated into your design? Finding out what works well at other sites can save you a lot of time.

- **Existing Systems**: What kinds of systems are users currently using to carry out actions? This does not necessarily mean computer systems.

- **User dislikes**: What do your users hate about the existing site or comparible sites? You'll want to make sure you don't repeat these errors.

- **Personal Data**: Who are your users? How old are they? What's their level of Internet know how? How educated are they? What sites do they use the most? Are they current customers of potential customers? Where do they live? How many computers do they have at home? What platforms do they use?   (Pearrow, 2000)

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