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ELSEVIER

User Interface Design and Evaluation

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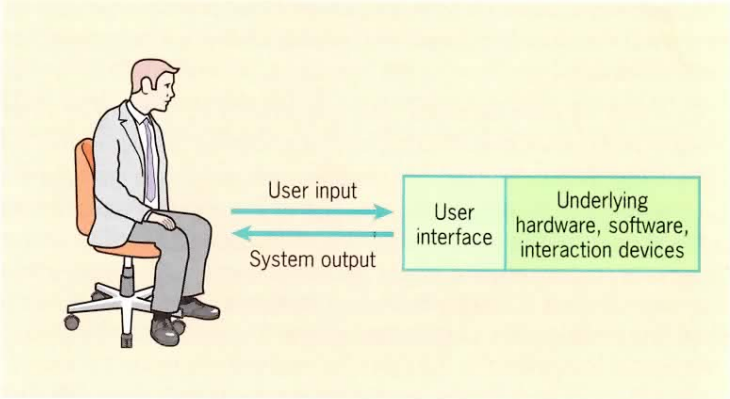

Figure 1.2 To the user, the interface *is* the computer system. (From Constantine and Lockwood, 1999.)

The design of controls, and the selection of interaction devices for input and output, will be discussed further in Chapters 12 through 14.

For example, when you use the controls on the panel of a washing machine, the controls form the interface between you and the machine — you are not concerned with the underlying technology or the software of the washing machine itself. What is important to you is that the controls and their settings are intuitive and easy to understand and use so that you will achieve your goal of laundering clothes. Similarly, when you surf the Internet, the pages of a web site displayed on your PC's monitor form the interface between you and the site. The web page UI may contain controls like scroll bars, clickable hot spots, or links in the form of text or images. These items are all part of the interface.

3 The Importance of Good User Interface Design

You will learn more about command-line interfaces and other interaction styles in Chapter 11.

Good **user interface design** is important because, as we have discussed, computer use permeates everyday life. Early computer systems were expensive and were developed mainly for particular tasks, like advanced number-crunching; as such, these systems were employed only by specialist computer users. Often the systems had command-line interfaces, with obscure commands known only by these specialist users. Thus, the user had to adapt to the system, and learning how to use the system required much effort.

Computing systems, however, are no longer the province of the specialist user. As the price of PCs and computer-based technologies has fallen, the ownership of these types of goods by nonspecialists has widened. In August 2000, 51% of households in the United States had access to one or more home computers, and 42% of households had access to the Internet (U.S. Census Bureau, 2001). In 2002, 54% of households in the United Kingdom had access to some form of home computer, and 44% had access to the Internet (National Statistics, 2004). Therefore, the need for the design and development of user interfaces that support the tasks people want to do and that can be used easily by a variety of people with varying abilities has become

Minimal download time. It is likely that some of the volunteers and some of the people that they help will have older computer equipment and possibly dial-up access to the Internet, so speedy download times are important.

Ease of use. If the web site is difficult to use then it won't be popular, so ease of use is very important here.

If you are designing a web site or web service for a group, it is well worth reading this article before you begin: "A Group Is Its Own Worst Enemy" (Shirky, 2003).

Relevant to user's needs. Volunteers tend to be forthcoming with their views on things that affect their volunteering, so this is a crucial guideline if you want to keep them happy.

Unique to the online medium. It might be just as easy to create a notice board in a local community center. Maybe the group does not really need a web site? Or perhaps it would work just as well if the group replicates the system it already has on its web site? This guideline may not be all that important in this case.

Net-centric corporate culture. It is important to remember that the purpose of this group is to help other people, not to make money or operate web sites. So this guideline doesn't really apply.

4 Designing Web Sites

We are going to look at three specific areas of designing a web site:

- How the web pages are structured in relation to the tasks the users want to carry out and the natural organization of the information
- How to tell users where they are
- How to help users navigate around the site

4.1 Designing the Web Site Structure

You are probably studying this book in a linear manner: you read a bit, try the associated exercises, read the next bit, and so on. An alternative approach would be to study the book in a nonlinear manner, jumping around the text.

The concept of nonlinearity has been implemented in many software systems. It is usually referred to as **hypertext**. Hypertext is a network of nodes (often implemented as separate screens containing text, images, and other screen components) that are linked together. The Web is a hypertext system made up of a huge number of pages that are linked together in a very complex way. This means that you can surf the Web in different ways, visiting sites and then moving on to new ones as you wish.

For more information on hypertext, see Nielsen (1990).

This approach is extremely flexible, but can be confusing for the user. Some web sites are made up of hundreds of pages. Such sites may have developed over a number of years in a chaotic and unplanned manner. This can make it difficult for users to form a mental model of the site structure; hence, it is easy for them to lose track of where they are and become disoriented. For this reason, it is important for the site to be

DISCUSSION

We anticipate that the following elements will be on this interior page:

- The Lovely Rooms logo. This acts as a link to the home page.
- The tagline of the site.
- Details of the particular hotel. This will take up the majority of the page and will look include a photograph of the hotel and a photograph of a typical room at the hotel, with a description of the amenities offered.
- A navigation bar aligned to the navigation bar of the site as a whole.
- Links to the next and previous hotels with availability on the nights chosen. This will allow the user to browse through the hotels.

6 Design Issues for Web Pages

When you are designing web pages, you should remember the principles and guidelines we discussed in earlier chapters, especially Chapters 5 and 9.

There are also a number of additional issues that you need to take into account when designing a web page. We discuss some of the more important ones next.

6.1 Widgets on Web Pages

In Chapter 16, we considered the design of GUIs. Web pages are a form of GUI and increasingly use a similar range of widgets. The issues we introduced in the section on the Lovely Rooms Hotel also need to be considered when you are using widgets on web pages.

6.2 Scrolling

The most important content should be visible without scrolling. Web designers talk about positioning content **above the fold**, a term taken from newspaper design. Broadsheet newspapers are displayed folded in racks, so the stories above the fold are the only ones visible to the potential purchaser. Similarly, the web content above the fold has to sell the site to the visitor. There is a risk that readers will miss content that falls below the fold. Figure 17.16 illustrates a home page that requires scrolling in order to see important information, such as the purpose of the site and the internal links. The text does imply that the user needs to scroll down.

At one time, the phrase "users don't scroll" was frequently quoted as a design guideline, for example, in the 1996 column by Jakob Nielsen located at www.useit.com/alertbox/9606.html. However, since then users have become more adept in using the Web and designers have become more sensitive to the benefits and problems of longer web pages. Recent advice has been more user centered. For example, Koyani, Bailey, and Nall (2003) noted:

> *Guideline: Make page-length decisions that support the primary use of the Web page.*

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