

How Usable Is This Web Site?

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Users want their Web experience to be simple and fast, but many Web sites still don't deliver what users are looking for. Usable Web sites are what customers want. Why are so many Web sites obvious candidates for an overhaul?

INTRODUCTION

Web users vote with their mouse-clicks; but will they vote for or against your Web site? Usable Web design combines art and engineering to give users what they want. Inspired by usability gurus Jakob Nielsen, Ben Shneiderman, and others, usable Web design concepts for page design are presented. Concepts such as content design, site design, intranet design, access for disabled users, and globalization are discussed. Guidelines for homepages are discussed.

What is Usability?

DEFINITION OF USABILITY

The term usability, defined as the “extent to which code is reliable, efficient, and human-engineered”¹ has been around since 1977 or earlier. When computer users ask for software to be “intuitive”, they aren’t asking for a piece of software that can think, intuit or read their mind. They are asking for software to be “usable”.

APPLYING USABILITY TO SOFTWARE

Applying the concept of usability to the development of software is thorny for several reasons. For some, usability historically was an afterthought in the software development life cycle. Usability was considered by some to be an optional project cost of uncertain value, perhaps as important as, say, inline documentation.

1. Boehm, B.W., J.R. Brown and M. Lipow, Quantitative evaluation of software quality, Software Phenomenology Working Papers of the Software Lifecycle Management Workshop, (August 1977), 81-94.

What is Usability?

USABILITY AND THE DEVELOPMENT PROCESS

Usability engineers were often called in late in the development life cycle, when a development team had gotten themselves into a tight spot design-wise. Sometimes a usability professional was added to a design team as an insurance policy, someone to get the team out of a design “jam” or to share the responsibility (or blame).

THE IMPORTANCE OF GROUP PROCESSES

Sometimes the reasons for ignoring usability that had to do with the personalities of the developers writing the code. Dr. Ben Shneiderman observed decades ago that “the image of the introverted, isolated programmer...is becoming only a wild caricature of reality. Although individual accomplishments will always be critical, the importance of group processes is increasing.”¹ This statement is no less true today. In the 1970’s, Dr. Ben Shneiderman and numerous other researchers and developers were actively involved in usability research and in promoting user advocacy, long before many of today’s Web users were born. As Dr. Shneiderman said in 1980, “Systems designers are increasingly aware that ad hoc design processes, based on intuiting and limited experience, may have been adequate for early programming languages and applications, but are insufficient for interactive systems which will be used by millions of people.”²

EARLY USER ADVOCACY

Before the widespread use of the Internet, user advocacy sometimes translated into usability research or testing, competing for other resources. Those writing the “code” viewed users sometimes as less sophisticated or less analytical. Often, software products were developed in-house for a captive audience of employees. The case for usability, ROI and gains in productivity, had not been adequately demonstrated in some instances. Managers were reluctant to involve users in the development life cycle, perhaps not understanding their critical role in the development effort. To their credit, users have had a long history of getting software, even bad software, to work, of finding new ways of using existing software, and of discovering ways to work around even really bad software. So long as there were so few computer users, the concept of empowering users often got lost somewhere in the project life cycle.

USABILITY AND THE INFORMATION SUPERHIGHWAY

In 1985, when fax machines were the new office machine, and 1200 baud was considered fast, research on groupware was predicting the future of the Internet. Award-winning author and researcher Dr. Starr Roxanne Hiltz wrote that “computer-mediated communication systems appear to be the ‘cheapest and fastest’ route to the ‘office of the future.’ But like the truck-filled routes of an eight-lane superhighway, they may not be the easiest route to negotiate for those who are used to the more leisurely pace of rambling two lane roads.”³ Note Dr. Hiltz’s early use of the term “superhighway” as applied to information.

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1. Shneiderman, Ben, *Software Psychology*, Little, Brown and Company, Boston, Toronto, 1980, 124.
 2. IBID, 248.
 3. Hiltz, Starr Roxanne, *Online Communities*, Ablex Publishing Company, Norwood, New Jersey, 1985, 191.

What's All This Fuss About Web Site Usability?

**THE EMERGENCE OF THE
WORLD WIDE WEB**

Where did the interest in and demand for Web site usability come from? What's different? Several factors have emerged since the usability research of three decades ago.

**INCREASED
COMMUNICATIONS AND
AWARENESS**

In the 1980's researchers wondered whether "this new channel of communication...[would] foster the fruitful exchange of alternative viewpoints."¹ Today the typical Internet user can answer in the affirmative based on personal experience. "Perhaps the increased communication that occurs...has effects like those of a political campaign. One becomes more aware of the issues on which there is disagreement, and of the divisions within the...society."² The Web accelerated communications to new levels.

**INCREASED QUALITY AND
COMMUNITY**

Users have always sought quality in the systems they used. But "in the long run what may be important is the *texture* of a system. By texture, we mean the *quality* the system has to evoke in users and participants a feeling that the system increasing the kinship between men."³ If your Web site design appears cold, unforgiving, stingy, or isolating, what sort of experience of it will your customers have? Will they come back? Are you listening to what your customers are telling you?

**DEMOCRATIZATION OF
COMMUNICATIONS**

As computer-mediated systems became more widespread, they offered, to those who could access them, a more level playing field. Online communications serve as a democratizing force in society. For example, online systems can eliminate the traditional visual, non-verbal cues associated with "tall, dark, and handsome" leaders. Equal access to information empowers individuals using the Internet in unprecedented ways.

SHIFTING PARADIGMS

As far back as 1985, users reported that "use of the system has changed their view of how their own work relates to that of others in the specialty."⁴ When users of computer-mediated systems had a chance to communicate at length, their view of their own role and the "big picture" irrevocably shifted. A paradigm shift occurred. As more and more people learned how to use computers, and learned from each other, the number of computer users grew astronomically. It seems clear that such technologies can speed the development of a societal paradigm or the process of a paradigm change, as Dr. Hiltz proposed years ago it might. In fact, the Internet, as it gains momentum, continues to speed the development of its own paradigm change.

**THE INFORMATION
PLENUM**

According to Dr. Edmund H. Weiss, the new paradigm is the Information Plenum⁵ (the opposite of a vacuum) which affirms that the "universe is already absolutely filled with information, including the answers to every conceivable question."⁶ In the 1980s, Weiss

1. IBID, 9.

2. IBID, 162.

3. Sterling, Theodor, Guidelines for Humanizing Computerized Information Systems: A Report from Stanley House, Communications of the ACM, 17, 11 (November 1974), 609-613.

4. IBID, 157.

says, the view of the world was that we had a vacuum of information (about computers), while today, we seem to be drowning in an ocean of information that is difficult to navigate. Weiss suggests that the Internet is a large part of the Plenum.

THE ONLY CONSTANT IS CHANGE

The Internet of 10 years ago is not the Internet of today--its users are increasingly demanding consumers of information, goods, and services. According to usability guru Dr. Jakob Nielsen, the current Web "just scratches the surface relative to what's possible once everybody in the rich world is connected through a single network."¹ He predicts that "When the Web grows from 10 million sites to 200 million sites and from 200 million users to one billion users, the result is not just going to be more of the same."²

THE NOOSPHERE

About 50 years ago, Pierre Teilhard de Chardin, an obscure Jesuit priest, "set down the philosophical framework for planetary, Net-based consciousness. The name he gave to the mind of this evolving consciousness was the Noosphere (from the Greek noo, for mind)."³ According to instructional design consultant Robert Grody, "small numbers of (very-large-sized) machines and their conscientious owners established and maintained inventories of data, which began to interact and converse over electronic networks...very much in the image of a biological nervous system."⁴ Today, we are participating in the emergence of the Noosphere that Chardin envisioned a half century ago.

THE BROWSER

As barriers to entry were removed during its initial democratization, a "dumbing down" of the computer communications media occurred. During the same years, "the Internet consisted of a small but growing quantity of flexible and highly interactive functions: email, listservs, newsgroups, file sharing via FTP, and others..."⁵ Grody views the emergence of powerful, easy to use browsers as key to its integration with these other features. Certainly, it seems to be one of the key challenges to the Internet as we know it today. And Nielsen indicated in 2000 that "The current web browsers are an abomination and have not improved significantly since 1993."⁶ Access to usable, powerful browsers continues to provide one upper limit on what users can do on the Net.

5. Edmund H. Weiss, From Technical Communicator to Knowledge Manager: The Next Epoch, PMC STC Career Day Workshop, 2002, p. 3.

6. IBID.

1. Jakob Nielsen, Designing Web Usability, New Riders Publishing, Indianapolis, IN, 2000, 376.

2. IBID.

3. Robert Grody, personal communication, November 28th, 2001.

4. IBID.

5. IBID.

6. IBID.

Designing Usable Web Content

WHAT'S IN IT FOR THE USER?

Users judge content by asking the question “What’s in it for me?” When you write content for the Web, quality content means solving the user’s problem. So you must understand in advance what problem the user is attempting to solve in order to know what content to provide. Content must be written toward providing answers quickly and towards being immediately useful.

Content must be brief and have “personality” without being fluffy, compared to print media. Content should be scannable and spell-checked. Apply plain language and rules of chunking. Page titles should be optimized for quick scanning. The rules that apply to online documentation apply to Web content. The use of multimedia requires discipline on the part of the site development team, with attention to its impact on response times, as does video and graphics. Nielsen’s site www.useit.com has no graphics, to provide fast page-loading times. Make special provisions for supporting disabled users who wish to view your multimedia content.

Designing Usable Sites

Your site consists of your homepage and other pages at your site, your navigation design and how your user controls navigation, your searching capabilities, your URL, the content your users contribute, and the navigation of applets. As long as information architecture is getting lip service in organizations, and designers and writers do not work actively as unified teams with a single purpose, websites will not look and feel like a single object. The importance of offering “one face” to the customer cannot be overemphasized.

Design is a process. Design is not a haphazard meandering of growth of web pages, but the conscious selection of design structures that support your users’ requirements. The design process requires planning, prioritizing, strategizing, scheduling, implementing, testing, and working with the resources that you have, not the ones you wish you had. Design means making trade-offs based on proven methods. If you focus on the internal thinking of your organization, rather than the needs of your customers, you will be wasting your money and their time. Nielsen said in 2000 that “the dominating web user experience is that on the average, you are on the wrong page.”¹ If users continue to expect trouble finding what they want on the Web, they will stop using the sites that waste their time.

1. Jakob Nielsen, *Designing Web Usability*, New Riders Publishing, Indianapolis, IN, 2000, 260.

Designing Usable Intranets

Nielsen points out correctly that “the usability impact of bad intranet designs translates directly to the bottom line of a company because any usability problems mean an immediate loss of employee productivity.”¹ Those who have used poor intranet designs can attest to the above losses. Intranets can pay off in terms of increased productivity when content, design, and usability are properly attended to, with white-collar employees as the target population. You must create minimum design conventions and navigation standards for your intranet site. It is important that efforts to communicate the importance of these conventions and standards occur to ensure a seamless intranet within your organization.

Designing Web Access for Disabled Users

It is important to consider the special requirements of your disabled user population. Your goal should be to balance access and other factors in a pragmatic fashion to craft a solution that satisfies design requirements, unless your organization has unlimited resources. Many of the accessibility features that support the disabled are inexpensive to implement. It’s important to include as many of these features as possible; in fact, you have the responsibility to do so. Nielsen suggests that you access your website in a text-only browser to check for access problems. You might try the Lynx browser. Another easy test is to ask a color-blind person to take a look at your graphics. Alternatively, you can view them yourself in greyscale. Ideally, you would systematically conduct usability tests with users who are disabled in a variety of ways. However, it may not always be pragmatic to test your site in this fashion, unless your site caters to the disabled user population.

Designing for Globalization

Nielsen offers design guidelines for international users, as do other authors. He expects the Web to reach a billion users by the year 2010 or so. Did you know that the term “billion” has two different meanings, depending on which user population is reading the term? Americans use billion to refer to the number 1,000,000,000, and the British use the same term to refer to the number 1,000,000 (what Americans call million.)

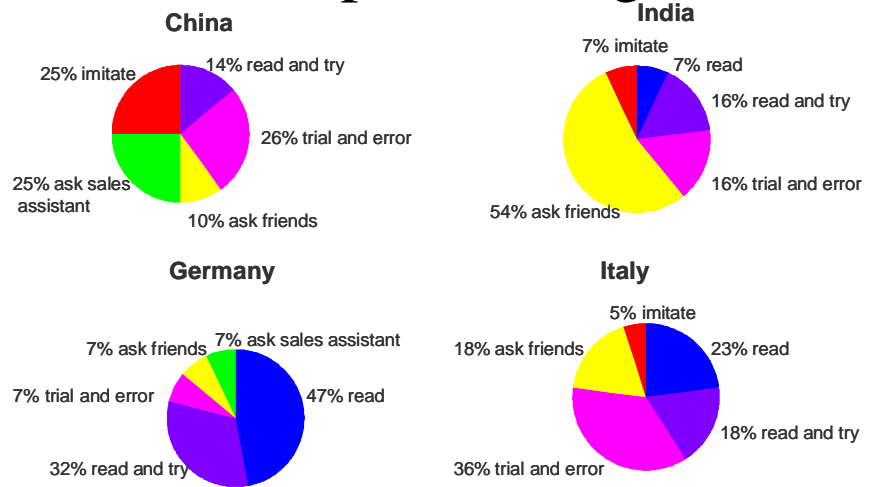
Internationalization refers to a world-wide focus, while localization refers to a focus based on a specific locale.

One of the most compelling arguments I have found for designing for an international user population is the accompanying figure from Dr. Nuray Aykin, currently the Manager of the User Interface Design Center at Siemens Corporate Research in Princeton, New Jersey. This research suggests that the very same learning methods preferred,

1. IBID, 294

avored, and relied upon in one culture may be underrepresented or even non-existent in another. If you are designing for an international population, and are unaware of these differences, you are likely to lose a significant segment of your customer base.

Example: Cultural differences in mobile phone usage



What do users do while learning to use a mobile phone?

Courtesy of Siemens Corporate Research

Homepage Usability Guidelines

In his book, *Homepage Usability*, Jakob Nielsen offers 113 guidelines¹ for homepages. Nielsen organizes these 113 guidelines into several topic areas, which are briefly addressed and discussed in the following sections.

COMMUNICATING THE SITE'S PURPOSE

The homepage is your opportunity to orient your user in Internet-space. If this first impression is a failure, your chances of recovery are slim to none. If users have to figure out what your site is about, you've lost them. Your site must communicate its branding, purpose, and tasks. It's important that the look and feel of your site be unique and memorable to those who visit it--otherwise, why should they return?

1. Jakob Nielsen and Marie Tahir, *Homepage Usability*, New Riders Publishing, Indianapolis, IN, 2002, 10-34.

**COMMUNICATING
INFORMATION ABOUT
YOUR COMPANY**

Many users locate your site in order to obtain information about your company, and you must anticipate that at your site. Tell users about your company so that they are more likely to do business with you, or to give you and your site credibility. While the details may vary, the requirement to communicate information also applies to non-profit organizations and government agencies. Unless you think this opportunity through, you may wind up communicating the “wrong” type of information. Make sure that don’t wind up communicating unnecessary details about your organizational structure or an individual manager or leader at the expense of giving users fast access to information.

CONTENT WRITING

Your content should be optimized in several ways. Content should be scannable and designed to convey the maximum amount of information. On the homepage, you have the least amount of time to capture and hold your audience’s attention. It’s a mistake to take existing content and simply re-purpose it for the Web. Instead, your design team should involve real users and develop initial requirements, redesigning as the site evolves.

**REVEALING CONTENT
THROUGH EXAMPLES**

You can support site visitors by providing samples on your homesite of content that is available elsewhere on your site. You can pique interest, instantly communicate, reveal the scope of your site, and support users’ navigation of your site.

**ARCHIVES AND
ACCESSING PAST
CONTENT**

Support returning users looking for what they have found in the past by providing access to past homepage and other site content.

LINKS

Your homepage is the link to the rest of your site. Design guidelines will assist your users in using your homepage links with success.

NAVIGATION

Navigation is crucial to homepage design because it’s how your users get to other places on your site. You can empower your users by providing navigation choices that are easy to find, distinguishable from each other, and convey appropriate meanings.

SEARCH

Your searching feature should be clearly visible, easy to use, and large enough that users can locate it easily. You can also visit Nielsen’s 29 guidelines¹ for the implementing search features at <http://www.NNgroup.com/reports/ecommerce/search.html>.

**TOOLS AND TASK
SHORTCUTS**

Shortcuts have been a popular feature of so-called “power” users of software for decades. It’s important to be judicious in the choice of tasks you provide shortcuts for.

GRAPHICS AND ANIMATION

Graphics and animation offer mixed blessings. They slow down your site, and convey a lot of information. If you use these, leave them off of your homepage.

1. IBID, 20.

Homepage Usability Guidelines

GRAPHIC DESIGN	If you use graphics at your site, omit them from your homepage for best results. As in print media and on other web pages, use graphics to draw the user's attention to a page element. Be judicious in using and designing graphics, as they slow your site.
UI WIDGETS	Features like drop-down menus, selection lists, and text boxes attract your users' focus, and should be used sparingly, if at all.
WINDOW TITLES	Use the TITLE tag of each HTML document to specify a title for your homepage window. The title is important for bookmarking the page and for finding it again when using a search feature.
URLS	Your homepage URL should be easy to remember and simple, because users may not always write down or spell your site's address and domain name.
NEWS AND PRESS RELEASES	If you let users know about news and press releases from your homepage, you must write headlines and summaries that are simple, short, and clear. You can offer these headlines and summaries, called decks, for any type of news. These headlines and decks are valuable to users. Nielsen's own website, www.useit.com , contains excellent examples. It's important to give users real information in these headlines and decks.
POPUP WINDOWS AND STAGING PAGES	For best results, omit staging windows which put barriers between your users and the information that they are hungry for. Staging windows may be confused with the "real" homepage.
ADVERTISING	Most users can spot advertising copy a mile away, and they'll spot it on your website too, if it's there. Most users do not read ads or something that looks like one. Be wary of spending money on non-content-related information that you may not obtain returns on.
WELCOMES	Be careful about wasting any real estate on your homepage or elsewhere to welcome your users. Consider instead giving users clear information as to what your site can do.
COMMUNICATING TECHNICAL PROBLEMS AND HANDLING EMERGENCIES	Since it's not a perfect world, make plans as part of your web design to handle specific situations such as "construction", if a web page goes bad, or if there is some other site emergency.
CREDITS	Is it content, or credits, that your users come to your site for? If you do display any awards, make sure they relate to your company's purpose so that they'll come back.
PAGE RELOAD AND REFRESH	Support your users by providing smooth transitions if they are reloading or refreshing your homepage or other pages.
CUSTOMIZING	If you offer customized views of your homepage or other pages, offer the user clear choices in advance of displaying these pages, or present a customized page based on this user's previous behavior or selection.

How Usable Is This Web Site?

GATHERING CUSTOMER DATA

If you explain to users the reasons you are asking for information, you are more likely to obtain the data you are looking for. Tell users how often they will receive email from you, and you are more likely to get their subscription.

FOSTERING COMMUNITY

Nielsen says that “the best thing you can do at the homepage level to foster a community of users is to reveal what resources the site has to bring people together.”¹ Note that sometimes a user community is not appropriate for a site.

DATES AND TIMES

How current is the information your users are receiving? Which pieces of information are time-sensitive? How will you format the information so that users can translate the dates and times to their local time?

STOCK QUOTES AND DISPLAYING NUMBERS

Nielsen provides guidelines for representing stock quotes, stock abbreviations, and numbers that will support your users.

How Usable Is This Web Site?

Nielsen suggests that you can use his 113 guidelines to determine how well your website complies. You can give 1/2 point for partial credit. Sum the points and divide by 113 and determine a percentage compliance rate. If your score is over 80%, your site is okay. If your score is between 80% and 50%, he suggests you re-design your site. If your score is under 50%, your most efficient strategy is to start the re-design of your homepage from scratch, because you aren't serving your customers yet.

Conclusions

VOTE WITH YOUR MOUSE-CLICKS

“We should not accept the oppression of information technology. It is time to rise to the defense of humanity in the age of machines. Users of the Web, unite at the useful sites; You have nothing to lose but your download delays.”² Nielsen's statement is not 30 years old, but three. Clearly, we have come a long way in 30 years, and we're far from finished. Vote with your mouse-clicks. Let others what you think of their web sites, what works for you, and what doesn't. How do we know we've reached our goal of usable design? Whitney Quesenbery, a usability researcher at Cognetics, Inc., offers this the following criteria: “When the software disappears as a visible tool, we've reached our design goal.”³ If we apply Quesenbery's criteria to Web design, then we will have reached our goal of usable Web design when conversations about Web design and browsers have moved from the foreground, to the background. We're getting there.

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1. Jakob Nielsen, *Homepage Usability*, 2002, New Riders Publishing, Indianapolis, IN, 33.
 2. Jakob Nielsen, *Designing Web Usability*, 2000, New Riders Publishing, Indianapolis, IN, 390.
 3. Member Spotlight, *PMC News & Views*, Philadelphia Metro Chapter Society for Technical Communications, November-December, 2001, 6.