



Pergamon

Public Relations Review 27 (2001) 223–239

Public
Relations
Review

Improving public relations web sites through usability research

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Received 1 March 2000; received in revised form 1 September 2000; accepted 1 February 2001

Abstract

Public relations communicators can use a variety of techniques to pretest the effectiveness of messages, including readability testing, focus groups, peer and jury reviews, experiments and field testing/test marketing. Another yet-untapped technique is *usability research*, a set of procedures used for more than 50 years in product and software development. Although usability is a technique that can be applied to any type of public relations message, usability research has particular relevance for enhancing the effectiveness of web sites and other new interactive techniques. This article examines the nature and value of usability research, and the elements of an effective web site based on usability principles. Applications to other types of public relations communications are also discussed. © 2001 Elsevier Science Inc. All rights reserved.

Organizations of all sizes have embraced the World Wide Web both to conduct business (e-commerce) and to foster and maintain positive public relationships (public relations). Few enterprises have adopted the web more than public relations, and the field is only just beginning to understand how it has been impacted.

Organizations have invested heavily in public internet sites—as well as controlled-access extranets and intranets—largely as an article of faith, often with little planning or research [1]. Many organizations feared being somehow left out of the communications revolution or being placed at a competitive disadvantage.

Ironically, the unbridled rush to establish web sites has occurred at a time when increased attention is being paid to public relations evaluation. Role research suggests that an orien-

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tation toward audience-centered research is a defining characteristic of a public relations manager (vs. technician) [2]. Similarly, public relations departments are being challenged to demonstrate the contribution that public relations makes to the organization [3]. In response, organizations such as The Institute for Public Relations have attempted to codify the ways that public relations activities ought to be evaluated.

In the Institute's *Guidelines and Standards for Measuring and Evaluating Public Relations Effectiveness*, published in 1997, the report's authors address the issue of research in cyberspace. The Institute's report suggests the first measure of internet research for public relations involves monitoring discussions in chat rooms, forums and news groups. In this regard, the Institute suggests following the same strategies and techniques used to evaluate press coverage. The second "output" measure suggested involves the review and analysis of a web site's traffic patterns. The report states:

Analysis might include deconstructing "hits" (that is, examining the requests for a file of visitors to the Internet) . . . a review of click-throughs and/or flash-click streams . . . an assessment of home page visits . . . domain tracking and analysis . . . an assessment of bytes transferred . . . a review of time spent per page . . . traffic times . . . browsers used . . . and the number of people filling out and returning feed-back forms" [4].

Interestingly, the Institute's report—and virtually all other references to the evaluation of public relations web sites—overlook one of the most important ways to assess the effectiveness of a site: understanding *how people actually navigate an organization's web site*.

A valuable avenue to gain a better understanding of public relations web sites can be found in applying the principles and techniques of *usability research* to analyze both the objective and subjective responses of users to sites. Usability research represents a major new avenue for public relations theorists and practitioners to better understand how web sites operate and how *characteristics* of web-based messages might moderate communication effectiveness.

1. Usability defined

Usability research is a well-established technique that has been employed in the research and development field for more than 50 years. Early usability research was used to test military hardware, telecommunications and information technology. The goal was to either make the product better or to make the accompanying instructions easier to use.

Usability is a branch of ergonomics, the study of design for human use. Ergonomics research is intended to maximize safety, efficiency and comfort by matching the requirements of technology to human capabilities and comfort [5].

Zimmerman and Muraski define *usability* simply as "how well the intended users can interact with a technology to carry out the assigned activity" [6]. Others have defined a useable technology as "any interface that is workable and intuitive from the user's point of view" [7]. Usability testing gained special prominence following its application to human-computer interfaces (HCIs), that is, computer hardware and software. The web is a specific type of HCI, commonly referred to as a graphical-user interface (GUI). Usability has become

a defining standard for judging software because most computer software is difficult to use. Computer firms now spend millions of dollars testing software and hardware usability to reduce errors and improve user efficiency. Other contemporary examples of usability research include the enhanced user-friendliness of automated teller machines and electronic kiosks.

Although technology has been the focus of most usability research, technical writers and other technical communicators routinely apply usability principles and research procedures to a wide variety of communications tools. These range from complex printed documents, such as policies and procedures manuals, to comparatively simple instructions written for the users of consumer, business, scientific and technical products.

System Acceptability Emphasis. Jakob Nielsen, one of the earliest and best-known advocates of usability research, suggests that usability is an important criterion—but not the only criteria—for judging whether any kind of system is *acceptable*. An acceptable system might be deemed as 1) socially acceptable, 2) practically acceptable (based on cost effectiveness and compatibility with other systems), 3) reliable, or 4) useful. Within the useful criteria, Nielsen suggests that *utility* deals with whether a system does what its needed. On the other hand, *usability* refers to how well users can take advantage of that functionality. Stated another way, usability focuses upon whether the system can be used to achieve some desired goal. To be fully usable, Nielsen argues that a system must meet five criteria: 1) be easy to learn, 2) be efficient to use, 3) be easy to remember, 4) produce a minimum of errors, and 5) be subjectively pleasing to the user [8].

Usability research strives to improve both the efficiency and effectiveness of systems. As an assessment technique, usability evaluations are generally conducted during the development phase of a new product or communication system. The intent is to enhance a system's acceptability by eliminating unnecessary distractions and reducing errors before the product reaches the final development and implementation stages. Poor usability—measured in low scores in the above criteria—interferes with the efficient use of a system. Indeed, minimum usability is a necessary—but not sufficient—condition for the effective use of a system [9].

2. Web site usability testing in the laboratory

Usability research methods fall into two broad categories: 1) laboratory testing and 2) a growing collection of observation and expert assessment techniques conducted outside a laboratory.

Usability *testing* involves subjecting web sites to objective scrutiny in a laboratory where groups of typical users are asked to perform prescribed tasks. These assignments might involve searching for or comparing simple facts from information readily available on a web site. More complex tasks might involve asking users to make judgments based upon available information, or to make comparisons of judgments.

Labs used to conduct usability testing are similar to facilities used to run experiments or focus groups. The typical configuration includes a testing room with a computer terminal and an observation room, which are separated by a two-way mirror. Unlike the typical experiment or focus group, the testing room is also equipped with one or more video cameras and microphones for recording each session.

The observation room provides space for clients (e.g., web site managers, developers and management representatives) as well as for personnel to run the recording equipment. Equipment typically includes a mixing panel with a video monitor for each camera, an audio input board, a date-time generator, and a mixer-dissolve unit. Together the equipment allows usability testers to record all actions of the user—including keystrokes and mouse movements, verbalizations and sometimes eye movements [10].

The typical session operates along the lines of an experiment. User-participants (subjects) are brought into the room one at time in an iterative process. The typical lab test takes less than an hour and follows a protocol procedure. Subjects are told about the general purpose of the investigation (without revealing specifics), then given a task to perform. Depending on the complexity of the research questions, participants are given 4–5 min to carry out each task. Researchers must be watchful to not wear out participants because testing fatigue will detract from a subject's performance. Unlike many experiments, the user-participants are usually asked to talk aloud while performing the task. Then, participants are asked to complete a questionnaire before being debriefed and excused.

Most usability tests rely upon *triangulation*, that is, combining several data gathering techniques—including quantitative and qualitative measures. Usability researchers combine their own observations (facilitated by scoring sheets completed during the test), the videotape recordings of actions taken, the keystroke and mouse click records, the transcripts of the participants' comments during the session, and the questionnaire results. Together, these multiple measures provide richer insights into the user's response than would be possible with a single measure. Triangulation helps minimize potential testing errors and chances of erroneous conclusions [11]. The typical usability laboratory in the United States can be equipped for as little as \$10,000–\$15,000, although more sophisticated labs can cost as much as \$100,000. Only a few academic institutions, such as Colorado State, have equipped usability testing facilities. However, a growing number of hardware and software producers, web site producers, and consulting firms have constructed usability labs.

The value of laboratory-based usability testing lies in the *objectivity* brought into the assessment process, including the rigor of quantitative and skilled qualitative analysis by independent researchers. Nielsen aptly points out that designers are not web site users. Search strategies might seem to be perfectly clear and logical to someone on a web design team or within the organization, but might not be readily evident to a first-time site user. Moreover, most vice presidents in organizations are not users; organizations that do not invest in basic usability testing run the risk of making costly site design errors. Best guesses are simply not good enough in light of the increasingly high costs related to web sites [12].

Usability testing in a laboratory incorporates elements found in both experiments and focus groups. The most notable similarity to experimental research is the laboratory setting and use of protocols. However, unlike experiments, usability testing does not usually entail a comparison of effects resulting from the exposure of groups of subjects to different experimental conditions. Because of high development costs, only a single web site design is usually tested at one time. A comparatively small number of user-participants is required because usability testing does not require randomly assigned groups nor groups of sufficient number to assure statistical power for making comparisons. As few as 3–5 subjects might be sufficient to test simple problems. Normally, defects are identified and modifications are

PROCEDURES FOR CONDUCTING USABILITY TESTS IN A LABORATORY

1. Develop a research question
2. Conduct a task analysis -- identify what user-participants will do in the test
3. Select and plan measurements -- write a scenario, arrange and become familiar with equipment, prepare the interview questionnaire, prepare check sheets to speed recordings of observations. Also obtain human subjects research approval, if require.
4. Identify and recruit subjects
5. Collect data -- based on observation data, recorded keystrokes and mouse movements, transcriptions of verbalizations, end-of-test questionnaire responses
6. Analyze and interpret the data -- including subjective analysis by observers, content analysis of videotape and audio tape transcripts, results of questionnaire
7. Summarize results and make conclusions.

Adapted from: Donald E. Zimmerman and Michel Lynn Muraski, "Usability Testing--An Evaluation Technique," in *The Elements of Information Gathering. A Guide for Technical Communicators, Scientists and Engineers* (Phoenix, Ariz.: Oryx Press, 1995), pp. 180-187.

Fig. 1

made in the design. Then the site is subjected to retesting with different subjects. Once researchers are confident that any defects have been overcome, testing ceases.

Similar to a focus group, participants are encouraged to share their thoughts. The test administrator also plays a critical role in the process. Researchers need sufficient knowledge of the system to assist user-participants, but must be careful to not allow their knowledge to bias responses. Clients and web site developers can gain valuable insights by observing the testing process, but must follow the same precautions imposed when observing experimental or focus group research in order to not contaminate the results [13].

Importantly, usability testing in the laboratory is not a perfect science. Rather, it is susceptible to all of the same types of errors found in other types of behavioral research. Typical problems in usability testing include the use of participants who are not representative of targeted users, mistakes made in planning and conducting test procedures, problems with validity and reliability of measures, and misinterpretation of results [14]. Good usability testing requires the same level of planning and execution found in the typical psychological experiment and follows the same general steps (see Fig. 1).

3. Alternative methods: web site inspection and user inquiry

Although laboratory testing is the classic, most sophisticated, and most reliable approach to usability assessment, usability researchers have developed more than two dozen alterna-

tive methods. These alternatives fall short of conducting full laboratory tests, and constitute what Nielsen has termed “discount usability engineering” [15]. These techniques fall into two major categories: web site inspection and user inquiry, plus an array of related techniques that adapt these methods [16].

Inspection-based usability research involves asking experts to make assessments about a site. For example, organizations might employ a consultant or staff member to conduct a formal usability inspection to examine every programming code in order to discover and record problems or defects. However, this process can be cumbersome. Instead, a more popular and practical alternative involves *heuristic evaluation*. Here an expert uses a checklist of key criteria (i.e., heuristics) for identifying potential problems and assessing the effectiveness of a site. A good example is Zimmerman’s list of 33 guidelines for effective web design (see Fig. 2). Various writers have offered similar checklists (see discussion of effective web sites below). Nielsen stresses the importance of focusing heuristic evaluation on key criteria, rather than a litany of every possible problem. He originally suggested that 10 guidelines were a workable number, but subsequently has proffered several different 10-item lists of heuristics [17].

Other techniques include using expert evaluators to construct task scenarios and to then perform a *cognitive walkthrough* of the task. This technique can involve one individual, or a group process that operates much like a focus group, where participants discuss and evaluate each step of the human-computer interaction. Expert walkthroughs can focus on an entire site, or can be limited to an examination of only particular features (sometimes referred to as *feature inspection*). Alternatively, several major software firms have created *web agents* that allow the remote electronic testing of web sites [18]. Consultants will perform a complete diagnostic on a site programmatically for a charge and provide recommendations for improvements.

Inquiry-based usability research involves directly observing and asking questions of users to identify problems and assess effectiveness outside the laboratory. A wide range of techniques falls into this category, including *structured field interviews*, *ethnographic observations*, *interviews*, *focus groups*, *surveys* and *questionnaires*. Usability also can be examined by asking users to complete *journals* in which they log their actions and observations. In tandem with this technique, users can be asked to save to a computer file what appears on the screen at times specified by researchers. This file of *screen images* is then analyzed.

Alternatively, *electronic polls* can be conducted where groups of people (experts or typical users) are situated at screens in a computer laboratory and asked questions regarding their understanding of processes and their opinions about using the site. This technique provides simultaneous examination of web sites, but participants cannot influence or be influenced by the votes of others. Once a web site is operational, organizations can install *reputation management software* that allows users to publish comments about using a site for others to read. Such feedback can then be used to make necessary refinements [19]. For e-commerce sites, researchers recently adapted the “secret shopper” technique used in retailing to assess sites from a visitor’s perspective, including site usability, navigation and functionality [20]. Modified laboratory testing also falls into this inquiry, and is a technique commonly found in Europe, where usability researchers freely modify what they consider to be restrictive

33 GUIDELINES FOR EFFECTIVE WEB SITES BASED UPON USABILITY RESEARCH

Design Considerations

1. Start simple -- Begin with a simple Web site design.
2. Strive for consistency -- Consistency helps users find information.
3. Avoid textured and colored backgrounds -- Make sure your copy is legible.
4. Use blue links -- Blue hypertext links are the convention.
5. Avoid clickable links in graphic designs -- Users often miss embedded links.
6. Use informative links. Describe pages so users can decide whether they should click on it or not.
7. Use narrow text columns. Column widths of 200 to 400 pixels make reading easier and faster.
8. Minimize page scrolling -- Use 20 to 44-line pages.
9. Provide navigational aids -- Add "Return to Home Page" and other key links.
10. Have fast download times -- Keep your download times short
11. Provide a text-only version -- Not all users, or computers, are of equal ability.
12. Include key information -- Be sure to identify your site and provide contact information.
13. Minimize typographical cues -- Avoid using too many italics or bold type.

Other General Considerations

14. Identify your audience -- Design for specific users. Take their systems into account.
15. Use the team approach -- Use ideas from several people whenever possible to design your site.
16. Know your users -- Ask, "What are my users like?"
17. Follow your organization's web policy -- Use the web in an efficient, ethical and legal manner.
18. Respect copyright guidelines -- Obtain written permission to use others' work.
19. Use relative URLs -- It will make site maintenance easier.
20. Include a meta tag -- Help web users and search engines find your site.
21. Test your site -- Make sure your site works and will download quickly.
22. Understand cognitive processes -- Communication is a cognitive activity.

Writing Considerations

23. Write in active voice -- Readers understand active voice better.
24. Delete prepositional phrases -- Fewer prepositions shorten sentences
25. Delete excess clauses -- Clauses add length but not meaning.
26. Write concisely -- Concise sentences promote understanding
27. Use strong verbs and release trapped verbs -- Write clearly and to the point.
28. Use short words -- Easy-to-understand words are better.
29. Delete unnecessary qualifiers -- Qualify only when necessary.
30. Eliminate wordiness -- Fewer words reduce confusion.
31. Use specific, concrete words -- Make your message clear
32. Avoid jargon -- Use terms your readers understand.
33. Replace cliches -- Cliches can be distracting.

Compiled from "Tips for Building Web Pages," Parts 1 and 2, and "Writing Web Copy."
Unpublished manuscripts by Professor Donald E. Zimmerman, Colorado State University. Center
for Research on Writing and Technology. Used with permission.

laboratory testing procedures. Researchers in Europe favor conducting research in a more naturalistic environment (such as user's work site) and making usability testing a more cooperative activity that involves the usability testing group, end users and the web site/software development team. Users thus take an active role in the discussion and evaluation [21]. However, Nielsen suggests "users are not designers" and can mislead usability researchers or distract them from quickly identifying workable solutions to defects, based on their design and technical expertise [22].

Related techniques. Other techniques are mostly deployed during the early development of a site and can serve as proxies for laboratory testing, site inspections, or user inquiries. Prototype and archetypes sites, that is, either partially completed or sites whose designs are borrowed, can be tested in lieu of an actual site. Researchers can develop the architecture for a site by employing affinity diagrams and carding sorting methods that allow prospective users or experts to group related concepts. These clustering and labeling exercises then serve as the basis for the logical layout and/or layering of site content [23].

4. Value of usability testing

Many public relations practitioners fashion themselves as experts on creating web sites.

However, astute public relations consultants stress the need for independent evaluative expertise. Middleberg suggests:

The best way to find out if your site is working is to get an independent evaluation from experts in the field. You don't want the designers who prepared your site to gauge its performance; leave that job to objective outsiders [24].

Usability experts suggest a variety of reasons for conducting usability tests. These include: the assurance of ease and satisfaction by users; establishment of a benchmark for future versions; minimization of service, training and support costs; increased use and support of the product (or site) by users; and the imperative to be competitive.

The real incentive for organizations to engage in usability research stems from what Nielsen terms "design Darwinism." It's a matter of survival of the fittest: every single user votes with every single mouse click. He explains:

[Web site users] are extremely impatient. They want solutions and answers right away. Not only are they unwilling to wait for slow downloads, they are not interested in overblown or fancy design. Simplicity is the key to satisfying most users. They don't want to spend time learning how to use a site. The very concept of manuals or help text is laughable, since we know that users don't read instructions [25].

Public relations practitioners have recognized the difficulty that users encounter when using web site content. In a survey of 49 senior U.S. public relations officers in 1998, Wright found that 11% of respondents either agreed or strongly agreed that the Internet was too chaotic, while 26% agreed or strongly agreed it was difficult to maneuver online, and 40% agreed or strongly agreed that Internet content was too unwieldy [26]. Meanwhile, Janal reported that difficulty in using information on the web ranked fourth among web-related problems cited by 61 public relations professionals in a conference survey [27].

The difficulties encountered by users at many web sites are corroborated by research in the usability field. Studies show that users find information only 42% of the time, even when users are taken to the correct page before beginning an assigned search [28]. A separate study found that 62% of web shoppers give up looking for items, and that 20% of users have given up on searches more than three times during a two-month period [29]. The economic benefits of usability testing are impressive. Nielsen calculated that redesign of intranet pages at a major software firm resulted in \$10 million in savings by reducing the time employees spent digging through a dozen intranet pages used daily. The usability expert puts the cost of a poorly written headline on an intranet home page at \$5,000, while the cost of poor navigation is even higher [30]. Nielsen estimates that it takes 39 hr to test the average web site. However, the work actually can be completed in as few as two days [31]. Testing and completing quick fixes to usability problems are relatively inexpensive. One estimate puts the cost at \$8,500–\$17,000. By comparison, the complete redesign of a major site can cost between \$750,000 and \$1.5 million [32].

5. Elements of effective web sites

As web sites have increased in importance, various authors in public relations have proffered recommendations on creating effective web sites [33]. Kent, for example, stresses three critical tests: availability of a dialogic or feedback loop (e-mail and direct response mechanisms), provision of ongoing services, and intuitive and easy use [34]. Falk stresses six criteria: the importance of workable links, availability of contact information, placement of information on the left side of the screen, ease of use, and clarity of purpose [35]. Middleberg writes that a winning web site is one that has a clear purpose, emphasis on content, lean text, showy graphics, easy navigation, and interactive capabilities. The true test of a site, he says, is whether people return to the site frequently. Thus frequent updates and the addition of new content are imperative [36]. Pavlik and Dozier state:

The design of online communication should follow many of the same rules of message design in any other environment, including creativity, quality and consistency with overall organizational image. In addition, rules of the Web and other new media should be considered, including keeping content fresh, interactive and uncluttered [37].

Because web site development is still in its infancy, hard-and-fast rules concerning the conventions that should be followed are difficult to specify or validate. One research team sums up the state of the art this way:

The web is a whole new ball game, and we're still learning how to play. We don't yet know how to design for finding information. We don't know how to design for comparisons so that users can find the best house, car or job—things the press tells us the web excels at. We don't know how to use multiple media like graphics, animation, interactive applets and text to produce the best results [38].

So, what constitutes a good web site?

Usability researchers have come up with a set of working hypotheses. Spool and his colleagues drew five major conclusions from their comprehensive examination of corporate

sites: 1) graphics do not necessarily help users retrieve information, 2) text links are vital, 3) navigation and content are inseparable, 4) intentional information retrieval involves behaviors different from “surfing,” and 5) people will say they like a site even if they have trouble using it [39]. This last observation is particularly insightful because it contradicts the axiom that people don’t like difficult-to-use software. Web designers and sponsors can be misled by users who say they “like” the content of a site, even though the users find the site difficult to use. Such sites are less valuable to organizations if users can’t obtain the information the organization wants to share with them. This underscores the importance of developing multiple measures of usability.

A review of the usability literature suggests that two criteria are paramount in web sites: content and design simplicity.

5.1. Content

Content issues focus on the utility dimension of usefulness. Does the content serve the needs of the user? This is an important issue that can be assessed by posing questions to participants during usability testing and user inquiry research.

In the mid-1990s, many organizations rushed to launch a web site without much strategic thought being given to how the site might be used. Many organizations fully expected to add or refine content later. Raj suggests that web sites need to become more consumer-centric, aimed toward organization-sponsored programming. Effective sites must go beyond being a digital data sheet about the organization and need to be “compelling” [40]. Nielsen, the guru of usability research, explained the importance of content this way:

Content is the next frontier in web usability. Ultimately, content is king from a user’s perspective. It is what users are there for. Usability studies tell us, when a page comes up—bong—people look in the middle of the content [41].

Importantly, because content is the driving force behind acceptance of web sites, many organizations are rethinking their web site strategies to invest in content, rather than in complicated and costly advanced designs or navigation components. Indeed, some of the most heavily trafficked sponsored sites are those that provide mundane and practical information. The *Wall Street Journal* observes that it could be 10–15 years before the full entertainment potential of the web can be exploited—not until enough users have access to broadband distribution channels that can deliver graphically-intensive content [42].

This raises the issue of why individuals visit a web site. Uses and gratifications theory suggests that people are motivated by a variety of needs and derive multiple satisfactions from using media. One study of why people are attracted to a commercial site suggests that obtaining information is only one of seven concerns of users when accessing a site [43]. However, for managers of sponsored sites, *fulfilling users’ needs for timely information about the organization* remains the primary business justification for incurring the costs of site development and maintenance. This is true whether the intent is to promote products or services, to provide timely responses to inquiries, or to maintain relationships.

Content Issues of Special Interest to Public Relations. Public relations and advertising web publishers have become increasingly sophisticated in their use of the web. They have

focused on the aggressive promotion of their sites, expansion of the content, and the addition of games, databases, and other devices.

Several recent commercial research studies suggest that the public relations field might not be taking full advantage of the web. Emerald City Interactive's analysis of the web sites of public relations firms found that agencies often leave out valuable client and industry information. Tsantes & Associates surveyed the use of the web by high-tech reporters. The lack of readily available press contact information was a major complaint, along with poor design and the lack of product information [44]. The Tsantes research suggests that the public relations field is ripe to apply usability research in analyzing the effectiveness of sponsored web sites targeted to this key audience. For example, what is the usability of the typical press room on an organization's web site?

Another pertinent content issue deals with the perceived credibility of the web. In their annual survey of print journalists, Ross and Middleberg report that journalists find web sites to be sorely lacking in credibility, regardless of whether the sponsor was a for-profit business, a trade association, a nonprofit/public interest group, or an activist group. In addition to building online relationships with reporters, the authors suggest that PR professionals must "help clients develop web sites and other online information repositories that contain news worthy and credible information" [45]. Web sites are classic examples of *hybrid messages*, which combine elements of information and promotion [46]. As a new medium, many users are confused about how to interpret web messages because they have not fully delineated cognitive rules for processing web information. More research is needed to understand how users view the web as a source of information. Usability testing, particularly close monitoring of verbalizations about content and questionnaires completed by laboratory test participants can provide a potentially useful way to research this problem.

5.2. *Design simplicity*

Separate from the subject matter of the content of a site is the question of accessibility and ease of use. Regardless of how interesting or relevant a web site's content might be to prospective users, the information's utility will be diminished if the content cannot be accessed quickly, easily and in a way that is subjectively pleasing.

This simplicity dictum suggests that public relations professionals need to be wary of attempting to have the most sophisticated, technologically advanced web site. The focus should be on the user, not on trying to win design awards or providing bragging rights so that managers can claim their organization's web site is better than a competitor's. A well-designed web site is one that works. Rajani and Rosenberg, in another recent analysis of web design issues, observed:

What came to light in this study is that users were possibly impressed by novel ideas and high technology, but not necessarily concerned that the capabilities of the technology were used to the fullest. If the technology was there, they found it interesting and fun to be able to use multiple channels in the interface [but they also found some elements distracting, such as disturbing sound] . . . the generally held assumptions that sites rich in color and animation with high tech sound to provide a "truly" human experience are good . . . have been shaken [47].

What should a public relations professional look for as indicators of simplicity in design? The various benchmarks found in the usability literature fall into four broad categories:

Systems Compatibility. Is the site's configuration technically compatible with the largest number of browsers, monitor sizes, screen resolutions, color systems, and modems that might be used by target publics? An elegant and sophisticated web site that requires high-capacity DSL or ISDN telephone lines to work optimally fails from a usability perspective if the majority of targeted user still rely upon ordinary twisted-wire telephone lines providing low bandwidth or ordinary 28.8 or 56.6 kps modems.

Speed of Use and Decision-Making. Does the site allow for quick selections of desired items and timely decisions? Web sites that require excessive loading time (because of large graphics files), long scrolls of text, or huge menus of choices (which require contemplation) are likely to be cumbersome and less satisfying for users. When given other choices to access information, users are likely go elsewhere.

Ease of Navigation. Does the site allow users to move easily from page to page, aided by navigational devices that order the information in ways that are easily understood and intuitive to the user? A wide range of design features contributes to navigation. These include navigation bars and icons on every page, color and/typographic coding of similar classes of information, backlinks to tops of documents and main pages, key section breaks, and simplified main menus.

Accuracy of Use/Success of Search Rates. Is the site logically organized and intuitive to users? Errors and abandoned searches can be minimized with logical and clear labels, consistent use of language, a search feature, and an on-line help capability—all features designed to assist users in finding desired information. A logical, layered architecture that guides users to desired information and uses the fewest number of decision points also helps users to find the information they want or need. Successful searches lead to satisfaction, assuming the information ultimately obtained is complete, accurate and relevant.

Design Issues of Special Interest to Public Relations. In assessing the effectiveness of a web site's design, one important concern deals with writing style. Usability research suggests that effective web documents are not merely print documents posted online. Significant differences exist between print and the web in terms of the layout. Computer screens introduce a variety of considerations not found when producing content on a printed page—a small canvas size, a horizontal (landscape) versus vertical (portrait) orientation, response time, resolution, scrolling, multimedia, interactivity and overlays. Reading patterns also are different on the web. Users scan for key words, meaningful subheadings, and bullets. Effective writing involves using about the half the words found in print, with information arranged in inverted pyramids similar to news stories [48]. Although content analysis using basic readability techniques can help determine the reading levels of web content, other heuristic analysis of style also might be required.

Of equal concern is excessive or needless use of state-of-the-art devices that have emerged

upon the web design scene—including banners, animations, consoles and pop-up windows. Users are content-focused and suffer from “banner blindness.” Users zero in on what they perceive to be the “content” of a page [49]. Thus, important public relations messages should not be relegated to secondary banner positions. Meanwhile, other research suggests that these gratuitous devices are irritations to users and can distract attention. Early research also suggests that a web site is no different than other media in one important respect: Users avoid, discount or counterargue against information perceived to be unwanted or intrusive advertising [50]. These concerns suggest that public relations practitioners should contemplate carefully how the placement and appearance of key messages on a web page might influence the accessibility to and acceptance of the message by users. Usability testing can help shed light on these concerns.

A final problem, which is only beginning to be addressed, deals with the cultural appropriateness of a design. One of the benefits of a web site is to provide worldwide, 24-hr-a-day access to organizational information. However, the bulk of design work and usability studies to date have been completed in Western (mostly American) cultures. Web design criteria have tended to reflect the preferences of people in those cultures. In analyzing web page designs, public relations managers need to be watchful to avoid the same ethnocentric assumptions that have plagued other aspects of the practice. Different cultures value different communicative features of printed and online documents, and the meanings and intentions of messages inferred by users can vary across cultures. One usability expert observes, “It ought to be obvious that is important to evaluate the usability of user interfaces in all of the cultures in which it they will be used. Yet, only recently have we begun to see active international usability testing of designs” [51].

6. Implications for public relations

By examining the nature and value of usability research, this article introduces a major new direction for research that public relations practitioners can pursue to enhance the effectiveness of mediated messages. While the focus here has been on web sites, usability is a versatile and potentially powerful framework for analyzing how audiences interact with a variety of public relations media. Media particularly appropriate for usability analyze include complex, multipart communications where users typically are seeking specific information and have considerable latitude in choosing search strategies.

Examples of public relations communication tools that lend themselves to usability testing and research include printed annual reports, benefits communications, directories, brochures and catalogs, newsletters, CD-ROMs and kiosks, automated telephone response systems, and documentation. Although many of these communication forms follow well-established content and design conventions, users are not always familiar with those standards. The conventions found one culture are not necessarily recognized in others. Similarly, these conventions are not always intuitive to users. This suggests the field might examine how public relations communications media other than web sites can become more accessible or user-friendly.

Research and evaluation in public relations can take place before, during and after the

implementation of a program. These research activities are often referred to as formative, progressive and summative evaluation, respectively. Usability clearly falls within the middle category as a form of progressive research that enables public relations managers, web site developers and usability researchers to test a site as it is being developed, and to make necessary improvements. Thus, usability research can be categorized as a message testing technique comparable to experimental copy testing, readability and listenability testing, focus groups, jury testing, and field testing/test marketing.

Most assessments of public relations messages rely upon on traditional psychological measures involving cognitive responses (e.g., awareness and information gain), affective responses (e.g., heightened emotions or arousal, or attitude formation/reinforcement/change) and behavioral responses (based on behavioral intent, observation or self-report measures). The assumption is that exposure to a message has a *direct* effect on these dimensions of human behavior.

Usability is a valuable theoretical construct because it suggests that *how* audiences process information can *moderate* message content effects. This is particularly important when messages are delivered through a complex communications vehicle, where audiences enjoy considerable license to decide which parts of messages they will focus on. Simply placing information a web site does not necessarily mean that it is seen, not to mention comprehended or remembered. If the information isn't accessible because of channel design problems, traditional psychological measures might be worthless in assessing a site. Web site sponsors in the future will need to pay close attention to the ease by which information is obtained, the efficiency with which it is learned, and the memorability of the procedure employed to obtain it. Sponsors must also strive to reduce errors and eliminate aborted searches. These all represent potentially damaging disruptions to message processing.

Similarly, a user's overall response or assessment of the experience of using a site can impact the message's effect. In this regard, web site sponsors can draw upon the extensive advertising and consumer behavior literature that suggests that affect toward a message (referred to as *attitude toward the ad*, or Aad) can moderate responses to the subject matter of the message (*attitude toward the brand*, or Abrand) [52]. The extension of this concept logically is that *attitude toward a message* is the generic case of Aad and works in similar fashion to impact assessments of all sorts of messages. More theoretical attention needs to be paid to how users, in fact, distinguish between specific *content* on the web versus the *message in which the content is being provided* and the *total experience* of obtaining information from the web.

A fundamental task of public relations communicators is to enhance the motivation, ability and opportunity of audiences to process public relations messages. Improving the usability of complex communications, such as web sites, clearly can be viewed as an enhancement of *opportunities* to process [53].

Further research about the usability of web sites is required if public relations practitioners are to fully understand the intricacies of this new complex communication tool. Public relations would benefit from looking to the work of researchers in the product development and technical communication, and to adopt many of the usability principles and research techniques outlined here. Although the field has traditionally focused on the notion of *messages*, communications produced in public relations can be considered *products*. In this

sense, the goal of public relations communicators is the creation of usable deliverables. Greater rigor will become imperative as the lifecycle of web communication evolves. We are seeing the end of the initial stage of euphoric, early adoption. We are now entering the stage of growth and development. Greater attention must be paid inevitably to optimizing effectiveness and value.

Although the managements of many organizations have become convinced about the importance of the web, most managers are not strikingly unsophisticated about evaluation of online communications (in much the same way they are ignorant about how to evaluate public relations). Most organizations focus assessment of their web site on crude measurements, such as the number of page visits or the total dollar volume of orders generated online. Although the total number of “hits” might be valuable, the joke among web experts is that “hit” is merely an acronym for “How Idiots Think.”

The need to conduct more in-depth research on web sites is a problem recognized by both public relations and usability researchers. But the two groups share a common challenge in convincing organization managers to invest in progressive message testing and research [54]. As web sites become even more important in the public relations media mix, managers will be compelled to become knowledgeable about web site usability and effectiveness. Eventually, these managers will be pressed to demonstrate the value of organization’s web site in the same way they are being challenged to evaluate other public relations activities. Among the questions they eventually will be asked by management is, “Is our site usable?”

Acknowledgment

The author gratefully acknowledges the insights provided by colleague Professor Donald E. Zimmerman, who has spearheaded a program of research on usability at Colorado State’s Center for Research on Writing and Technology.

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