1998

A proposal on documentation of the design process in online environments

Dinah Sanders
San Jose State University

Follow this and additional works at: https://scholarworks.sjsu.edu/etd_theses

Recommended Citation

Sanders, Dinah, "A proposal on documentation of the design process in online environments" (1998).
Master's Theses. 1770.
DOI: <https://doi.org/10.31979/etd.pecq-23kv>
https://scholarworks.sjsu.edu/etd_theses/1770

This Thesis is brought to you for free and open access by the Master's Theses and Graduate Research at SJSU ScholarWorks. It has been accepted for inclusion in Master's Theses by an authorized administrator of SJSU ScholarWorks. For more information, please contact scholarworks@sjsu.edu.

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI

A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor MI 48106-1346 USA
313/761-4700 800/521-0600

**A PROPOSAL ON DOCUMENTATION
OF THE DESIGN PROCESS
IN ONLINE ENVIRONMENTS**

A Project Report

Presented to

The Faculty of the School of Library and Information Science

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Library and Information Science

by

Dinah Sanders

December 1998

UMI Number: 1392835

UMI Microform 1392835
Copyright 1999, by UMI Company. All rights reserved.

**This microform edition is protected against unauthorized
copying under Title 17, United States Code.**

UMI
300 North Zeeb Road
Ann Arbor, MI 48103

© 1998

Dinah Sanders

ALL RIGHTS RESERVED

APPROVED FOR THE SCHOOL OF LIBRARY & INFORMATION SCIENCE

Dr. Linda Main

Dr. Kenneth Dowlin

Dr. Blanche Woolls

APPROVED FOR THE UNIVERSITY

ABSTRACT

A PROPOSAL ON DOCUMENTATION OF THE DESIGN PROCESS IN ONLINE ENVIRONMENTS

As the World Wide Web becomes an increasingly legitimate publishing medium, the need for consistency, clarity, and documentation grows. Developers can add depth and long-term utility to their sites by thoroughly documenting their designs. Surprisingly, the style guides used in traditional print design to ensure consistency in the look and feel of all work on a project have yet to be fully integrated into the web design process. To meet this need, the author has proposed a system of organizing, presenting, and locating "meta-information" (as distinct from metadata) about the design process. This system is offered as a tool via the MetaGrrrl web site (<http://www.metagrrrl.com>) including in its presentation the theory and research behind the proposal, an example of its use, templates, feedback and refinements, and an extensive bibliography and "URLography" of sources relating to the issue of documentation of the design process in online environments.

Contents

Introduction / 1

General Design Theory / 2

Design Documentation in Print and Multimedia / 4

Implementing Design Documentation on the World Wide Web / 7

Project Overview / 10

Project Goals / 11

Methodology / 11

Requirements/Constraints / 17

Design / 18

Code & Tools / 18

Maintenance & Growth / 18

Project Implementation / 19

Discoveries / 23

Feedback and Modifications / 25

Conclusions / 32

Plans for the Project / 34

Bibliography / 36

Appendix: Outline of the Design Process / 46

Introduction

Hypertext, especially its incarnation in the World Wide Web, lends itself to constant change and improvement. In print media, such as magazines or corporate communications, changes are usually made in accordance with explicitly chosen stylistic rules, and the evolution of the publication is documented in its past issues and proof sheets. With electronic media, it is more common to create content without the use of an overriding design manual or style guide and to lose past incarnations through lack of archiving. As the World Wide Web becomes an increasingly legitimate publishing medium, the need for consistency, clarity, and documentation grows.

Developers need to begin focusing on the issue of adding depth and long-term utility to large web sites by thoroughly documenting the design of their sites. This documentation should include why certain decisions were made, techniques used, problems encountered, solutions (or detours) found, and other information relating more to the creation of the page than to its content. Some important questions for web site developers to ask are:

- How do we keep track of our research and decisions?
- How do we communicate them to others, either clients or other members of the design team?
- Do we still have copies of old versions? Do we remember why we changed them?

The more complex the web site, the larger the design team, the more diverse the technical

solutions used, and the longer the site is expected to remain active, the more the design process must allow a team to build on past work without repeating it. In short, as the quantity and complexity of online data grows, detailed information management becomes essential.

The project described in this report explores these issues through discussion in general design theory, use in other media, and various degrees of implementation on the World Wide Web. The results of this research form an online reference center located at <http://www.metagrrrl.com>. An extensive, annotated bibliography/URLography is provided along with the author's proposed system for the presentation and archiving of detailed information about the design of web sites and an example of this system in use. Although this report provides a detailed description of this proposal and background information on the issue of design documentation, it is necessary to visit the web site to fully appreciate the project.

General Design Theory

[T]he principles that have informed quality print design for hundreds of years are equally valid online; in some cases, they are even more so. (Black, 1997, p. 29)

Principles, like Black's Ten Rules of Design (Black 1997) and Jeff Glover's pronouncements in his piece, Sucky to Savvy, (Glover 1998b) create a starting point for

designers. Simple principles - for example, using a small number of colors for design elements on a page or screen - are broadly applicable and useful to designers in most media. Although they often attempt to apply one design solution to all cases, these statements of principles do suggest to designers guidelines within which they may choose to operate. Once selected, guidelines become standards for a project, whether expressed explicitly or not. When repeated throughout a project (e.g., when every page of a newspaper is laid out in the same font), the presence of a standard can be obvious, though the specifics (e.g., the name of the font used) may not be. The design problem is not only one of technique, but of communication of technique.

The injunction to be consistent is found in almost every style guide, both on and offline, but very few discuss actual procedures for ensuring consistency.

Get this information down in some form and get everyone on the team to review it and reach some level of consensus...(Morris, 1996, p7)

Project a consistent image. Your marketing materials... should have the same 'look.' (California State Library Foundation, 1991, p17)

If all projects were created by a single person with an unfailing memory, consistency would not be a problem, but in reality design work is more likely to involve teams of designers, working on many projects simultaneously over extended periods of time.

However good the advice gleaned from the multitude of design theorists, the manner in which broad principles will be applied to a specific project must somehow be recorded if any consistency is to be achieved.

Design Documentation in Print and Multimedia

Consistency and predictability are essential attributes of any well-designed information system, aiding users in identifying the origin and relationships of World Wide Web pages, providing consistent and predictable access to interface and page elements, and a consistent graphic design scheme. The design grids that underlie most well-designed paper publications are no less necessary in designing electronic documents and on-line publications, where the spatial relationships between on-screen elements is constantly shifting in response to user input and system activity. (Lynch & Horton, 1998, http://info.med.yale.edu/caim/manual/pages/balanced_pages.html)

Many of the design rules put forward in style guides for the World Wide Web express principles that originated in traditional print design. Most of these rules apply to the layout of the individual page rather than to the relationship between pages. The endurance of the grid as the primary page layout tool serves as a typical example. While the greatest difference between the World Wide Web and print or multimedia is the lack of control over the final product, an ideal form of page design remains the goal (compare, for example, Jute 1996 with Waters 1996). With the removal of references to ink and paper, and the caveat that the variability of user environments will affect the appearance of the end result, even an extremely print-oriented style guide has something to say to a web page designer:

The visual aspects of a publication involve its typestyle, graphics, ... format, ... and how they interact to form an integrated document. Design is vital to successful communications. It determines how the reader sees and ultimately is able to use the information. (Xerox, 1988, p.1-12)

Although requiring adaptation for the World Wide Web, the lessons of print are invaluable to understanding how readers acquire information and how design affects perception.

The traditions of periodical design have much to offer designers working on web sites. Of all print media, magazines and newspapers are perhaps the closest to the World Wide Web because of their combination of consistent style with changing content. Many lessons for online design can be drawn from the literature of periodical design, and it is no surprise that many magazines and newspapers have made the transition to an online environment very well.

Styling is the permanent, underlying, all-encompassing visual vocabulary of the magazine. It is the result of a set of interrelated decisions made at one time, arrived at logically and with artistic insight.... Styling decisions are planned to serve the organization for a long time... If they are to remain viable, their purity must be closely guarded; these decisions must not be diluted or tampered with for short-term purposes, for they are, in effect, the visual vocabulary of the product. (White, 1982, p.4-5)

Although some of the lessons learned in print design are being imparted to web designers via exemplary guides such as the Yale C/AIM Style Guide (Lynch & Horton, 1998), it is becoming increasingly apparent that good web design requires an understanding of both current technology and general design principles. Excellence in design has always required the ability to look both backward and forward simultaneously. This might also be said of good art, but unlike art, design is intended to be duplicated. Therefore, good design decisions must be replicable and thus arises the need for some form of documentation.

Traditional print-design procedures include the creation of a collection of documents detailing the specifications of the project and the decisions made by the design team. This collection is often housed in a loose-leaf binder for easy updating and might be referred to as a style guide, design manual, specifications manual, or some combination of these terms. In many cases, particularly in corporate identity design, these documents are similar or identical to the mockups presented to the client for approval. Once approved, they act as an illustration of the standard until actually produced.

Graphics standards manuals explain in minute detail how to implement a company's identity in all the media used to convey it. It's a way for companies not to have to reinvent the wheel every time a logo is used....

In the past, the size of a graphics standards manual has been proportionate to company size; some are massive, and, in general, they are expensive to produce, difficult to maintain and update, and frequently take a year to publish.

Companies still need graphics standards manuals, but now the way they are maintained and updated can accommodate the mobility of a company's identity and take into account that more people shape corporate communications. Some companies have replaced their forty-pound graphics standards manuals with simple pamphlets updated on a quarterly basis, making them available to everyone in the company. Digital technology has spurred streamlined, direct communication, and some companies have dispensed with printed manuals altogether by distributing graphics standards and artwork electronically - making updates instant and universal. (Mok, 1996, p68)

The technology of the World Wide Web may replace the medium by which standards are stored, distributed, and communicated, but it does not eliminate the need for explicitly stating these standards.

Implementing Design Documentation on the World Wide Web

There is widespread recognition that web publishing is enough like traditional design that the work processes used in print and multimedia design can be adapted to suit this new medium.

The design process for creating web sites will not differ much from the design and development of any multimedia product. The differences are in the components that are included into the web site. The process for creating the web site will follow traditional design principles. (Morris, 1996, p6)

General principles of design can transcend medium. The need to understand the eventual user of the document being created is present in multimedia, print, and web design. Because hypertext implies movement between and through documents, web designers must draw on the traditions of all communications media and should consider the insights afforded by other disciplines. User interface designer Peter Merholz of Phoenix-Pop Productions has said that in his experience, architects seem to "get" the World Wide Web better than many print-type design houses do (personal communication, October 14, 1998). Storyboarding, as used in film and multimedia design, is frequently identified as a valuable part of designing web sites, not only in creating the layout of individual pages, but also in creating the way the site will be navigated (see, for example, Lopuck 1996, Ibanez & Zee 1998). Sketching rough ideas on paper is an essential brainstorming technique for blocking out the features of a page, exploring the effect of a particular illustration style, creating a logo or icon, or for any part of the design process in any media. A team with a diverse background utilizing a variety of techniques is a key

ingredient in web design success (see, for example, Siegel 1997), but regardless of the methods used to elucidate a design, a record of these decisions and any accompanying documents should be retained for future use.

Despite prevalent descriptions of the design process for the web that are nearly the same as the processes for other media, there is no counterpart to a "style guide" or "design manual". Although web designers are enjoined to be consistent and apply standards, very few guides talk specifically about how to do just that. Some web designers, particularly those with backgrounds in traditional design, do independently decide to create some form of documentation and presentation of standards for their sites, but the format varies wildly. Frequently, it is not compatible with or accessible from the web site itself as it may consist of paper documents, proprietary project planning software, email, or some mixture of these and other formats.

An informal survey of design professionals, many of them members of the mailing list "monkeyjunkies" sponsored by HotWired's internationally respected design resource Webmonkey (<http://www.hotwired.com/webmonkey/>), yielded a wide range of responses to the question of how they document and communicate design decisions:

Mostly the documents are on paper (or diskette). We are just starting to use our company intranet to post meeting minutes, troubleshooting and installation guides and other such documentation online. Right now we have a separate section for each area of the company (or each project) which has a sections for minutes, etc. What we really need (and I've been emailing the webmaster about this) is a *searchable* intranet so that we can find this stuff easily. I guess my point is that it makes no sense to publish documents online if no one is going to 1) find them and/or 2) use them. (Jenny a.k.a. "Chaosgirl," personal communication, March 4, 1998)

So, having originally learned most of my software and design skills from working on a weekly newspaper (tabloid format, color cover, etc) I realized that probably the best means of communicating seems to be something that I always used in the print world, a style guide. I am currently in the process of scanning text formatting, graphics, visual 'look' etc of my three corporate sites in order to compile a style guide that can be distributed to end users and developers alike to aid in consistency of design. Yes, I realize that with CSS [Cascading Style Sheets] this task becomes almost redundant, but I think the process in itself is useful in finding problems in design and possibly refining use of type, image formats, etc.

So, I would recommend that every designer put together at least a minimal style guide when finished with a site to lay out some of his or her intent in the design, why some decisions were made and other ideas scrapped. It very closely resembles in some ways the log books that early American explorers kept so that they or their colleagues would not make the same mistakes that they made, but also to guide them along a path that was already cleared if you will. (Travis B. Truman, personal communication, March 16, 1998)

In our new book [Rosenfeld, L. & Morville, P. (1998). Information architecture for the world wide web. Sebastapol, CA: O'Reilly & Associates Inc.], we talk about the process that goes into researching and designing a site, and there are certain deliverables and exercises that are part of the process and which can be retained and considered documentation. Or you can take a longer term approach from the outset and develop an architecture 'style guide', much like graphic designers do. (Louis Rosenfeld, personal communication, February 15, 1998)

I manage my company's two corporate sites, and I ended up creating an HTML-version of our styleguide with guidelines from everything to the updating process, color palettes, FAQ and form styles, file directory structure, spelling, and punctuation. I sent out the link to my team, and they follow those guidelines. Very important changes are listed on the default page of the guide in red (Susan Quinn, personal communication, March 4, 1998)

Also received were comments to the effect of "I have no idea, but if you find a way, let me know." These, combined with explorations of many web sites and the paucity of discussion of this topic online or in print, suggest that efforts like those cited above are the exception rather than the rule and that most web sites are created without formal documentation of the design process. Some web developers do put comments in their

code which provide some design information about the site, such as the names of fonts, the specific values of colors, or the sources of images, but the author has never seen any that provide broader information about the decisions made in the creation of the site.

Although good commenting within HTML code is a crucial part of quality web design, it is not suited to the task of design documentation. Nor are HTML meta tags – in their present or envisioned incarnation – the best means of communicating the design process or the subtleties of site standards beyond a very basic level. What is needed is not metadata but meta-information, that is to say, information that elucidates the design of a site rather than merely providing specific facts about it. Each design solution will have many aspects unique to that site that cannot be expressed through a simple set of attribute values. Communication of each solution requires a more flexible format, and (as one of the respondents cited above wisely notes) if it is to be of use, it must be easy to find within the web site.

Project Overview

This project is intended to:

- a) communicate the reasoning behind documentation of the design process;
- b) provide resources on the topic for web designers;
- c) suggest solutions to the problems relating to this issue.

Project Goals

The project has the following goals:

- A clearly explained system of documenting design decisions in an online environment that has been refined and improved through its use on various sites, announcement of the project to online design communities, user feedback, and use testing using WebTrends software and user observations.
- A detailed example site that makes full use of this system.
- An annotated directory to online and print references to the issue of web site design, documentation, and maintenance.

Methodology

The first stage of the project was a comprehensive literature review of the collections of San Jose State University, other California State University libraries listed in CSUlink, the University of California libraries listed in Melvyl, the San Jose and San Francisco Public Library Systems, extensive online searches on the World Wide Web using the search engines Yahoo! (<http://www.yahoo.com/>) and HotBot (<http://www.hotbot.com/>), design resources such as Webmonkey (<http://www.hotwired.com/webmonkey/>), the broad selection of Amazon Books

(<http://www.amazon.com/>), and additional sources found by following links from sites discovered in these and other sources.

References were also solicited, along with general feedback on the subject of design documentation, from members of the design community via email and professional mailing lists such as Webmonkey's monkeyjunkies, Silicon Valley Webgrrls, and CSU-SLIS, the mailing list of the School of Library and Information Science at San Jose State University. The author explored the World Wide Web focusing on design-oriented sites, particularly those of professional design houses, searching for examples of specific design processes. Examples of design documentation (e.g., standards documents, templates, design comments in HTML code, etc.) were sought along with discussion of design methodology.

These surveys all supported the author's conjecture that documentation of design on the World Wide Web is almost unstudied, infrequently mentioned, and often unimplemented within web sites. The majority of sources explored during this project discussed the design process and the typical questions which are asked during it.

Design is always a very messy process. When we start any project, we gather as much information as we can possibly put our arms around, everything from verbal descriptions to visual references. (Clement Mok in McCoy 1996)

No set of interface usability guidelines can answer the most important questions that must be answered before you design Web interfaces: What are the goals for building the site? What content will be presented? And, who is the primary audience? In general, your primary goals, e.g., to educate, to entertain, to sell, to foster creative expression, or some combination of these will dictate the content you provide and its unique look and feel. (Detweiler & Omanson 1996)

One of the best lists of questions found was the Quick Reference in the Sun Microsystems Guide to Web Style by Rick Levine (1998, http://www.sun.com/styleguide/tables/Quick_Reference.html).

Some sources emphasized the cyclical nature of design in online environments.

With the pressure for Web sites to update content daily, even hourly, the need for content management becomes more pressing. Supporting dynamic content requires best practices for Web-based content management - essentially, ongoing planning and assessment at every phase of the content life cycle. (Kalisky 1998)

Development of online documentation is iterative, cumulative, and empirical. It is *iterative* in that several cycles of development are required, *cumulative* in that you learn and improve through each cycle, and *empirical* in that improvements are based on testing and experience with working prototypes of the system.

Remember that development is ever ongoing. The online document is never perfected but always improving. The best you can do is to make each version better than the last. (Horton 1994)

Though Horton is referring specifically to online documentation projects, his comments are equally applicable to web sites in general. Answering questions about the site and its goals, making design decisions based on those answers, and then implementing those decisions will generate another round of questions.

Many sources examined pointed out the connection between answering these questions and ensuring that the design team is working consistently towards a common goal.

The creation of a guidelines document at the beginning of an implementation project focuses attention on the interface design and provides an opportunity for discussion of controversial issues. When the guideline is adopted

by the development team, the implementation proceeds quickly and with few design changes. (Shneiderman 1998)

In every document type design team in which we have taken part, we have reached a point where we had to ask ourselves: 'Why did we make this decision about this component?' Everyone on the team was a well-trained professional and each decision had been carefully weighed at the time it was made. However, a month later, no one could remember what the reasoning had been. We would then start the discussion all over again, and whether or not we came to the same decision, it was usually wasted time. ... This is why it's crucial, as a first step, to record all suggestions and decisions along the way so that the team can see progress through the design work and avoid revisiting topics or decisions already discussed. (Maler 1996)

Very few sources, however, explained how the results of a carefully conducted design process would continue to be communicated to the team in the long term. Some stated the importance of documentation, but no source was found which discussed how the documentation could be integrated with and linked from the web site it described.

If HTML weren't a moving target, the production phase would be less necessary. With HTML, the materials cost nothing, and spectacular effects can be achieved only with large quantities of labor. You need to work smart. The larger the project, the bigger the payoff for automating repetitive tasks. If other people are to maintain the structures you build, part of the deliverables will be a document that tells them how to maintain the site. Starting this process early makes it much easier at delivery time. (Todd Fahrner, design technologist, Studio Verso, cited in Siegel 1997)

...a web site keeps growing and changing. As an information architect, you must guide its development or risk architectural drift. It's frustrating to see your carefully designed organization, navigation, labeling, and indexing systems become mangled as site maintainers add content without heeding the architectural implications. While it may be impossible to completely prevent this disfigurement, an architectural style guide can steer content maintainers in the right direction.

An architecture style guide is a document that explains how the site is organized, why it is organized that way, and how the architecture should be extended as the site grows. (Rosenfeld & Morville 1998)

The need for consistency and the assistance which documentation provides in achieving it are recognized. It is also widely observed that other design traditions have much to offer web designers in terms of methodology. Whatever solutions are created, it seems probable that most of them will involve adaptation of existing documentation methods from other media.

The Web will increasingly be dominated by the same creative professionals who control print and broadcast media, according to a study released this month from TrendWatch, a research firm in Harrisville, R.I.

The report, 'Creatives and the Internet,' said that as the Web matures, its design is being held to a higher standard. TrendWatch said the industry will see a shift away from 'quick and dirty Web pages done in an on-demand environment.'

James R. Whittington, a partner at TrendWatch, said, 'Designers who formerly worked primarily with print media have been applying the same education, skills and experience to the Web.'

... 'We see sites becoming more sophisticated in that they are now going to require the use of specialized tools to ensure that there is consistency and data can be repurposed,' Whittington said. (Dudrow 1998)

Extensive searches of print, online, and personal sources yielded no systems for consistently documenting design decisions in an online environment. To meet this need, the author proposes a system of organizing, presenting, and locating meta-information about the design process for web sites. The proposed arrangement of this documentation is driven by the site creation process, echoing the natural order of decision-making and design. The system draws on overriding theories of design, on traditional documentary methods from other media, and on the multitude of solutions created by many designers in these early years of the World Wide Web. This system is offered as a tool, including in its presentation on the MetaGrrrl web site (<http://www.metagrrrl.com/>) not only theories,

but also templates, references, and examples of its use. By making this system available via the World Wide Web, and by soliciting feedback from online design communities, design professionals, and visitors who locate the site through its listing in search engines, web journals, and other means, a development environment was created that allows for the refinement and improvement of the system on an ongoing basis.

The project web site provides a proposed standard for the presentation of specific style choices that indicates the way in which those design decisions were reached. These documents are to be consistently located in a "meta-site," an area always located next to the documented site. This meta-site is reached by merely adding "/meta/" to the end of the root URL (Uniform Resource Locator) of the main site. For example, a meta-site for the School of Library and Information Science at San Jose State can be found at <http://witloof.sjsu.edu/meta/>. This area contains the SLIS Web Standards, file templates, procedural guides, sample files of designs under consideration, and other files relating to the design process. This consistent method of placing meta-information files will begin to solve the problem of accessibility as a key factor in the utility of documentation.

Detailed documentation about the design of a specific page on larger sites could be approached in the same way by adding "/meta/" to the URL immediately prior to the file name for that page (e.g., <http://www.bigcompany.com/products/meta/datasheet.htm>). Although page-specific meta-information could be useful on extremely large sites, testing of the system and feedback from designers indicate that this level of documentation is unnecessary on most sites. In addition, the presence or absence of meta-information on

two otherwise similar pages on a web site could be confusing to users and would necessitate use of a consistent icon or piece of text on each page indicating the availability of meta-information. This project's web site uses a small checkerboard ball icon placed in the lower right corner of the page for this purpose. This icon is offered to other designers for their use (<http://www.metagrurl.com/toolbox/images.htm>).

Below the level of the main meta-information page (.../meta/index.htm), which contains a brief description of the meta-site and links to its sub-pages, the documentation is broken down into four areas (enumerated below), each with its own consistently named page that acts as a directory to files in that subject area. In a simple site, all the necessary information can be contained on these four pages without the need for further sub-files.

The four areas are:

Requirements/Constraints

This is the Who?-What?-Why? part of the design process. It includes the purpose and goals of the site, audience, competitive analysis, restrictions (e.g., users who need text-only versions of the info, or confidential information requiring validation of users, etc), content needs, functional needs, and hardware constraints (including expectations of what equipment and software visitors will be using to access the site). (An example document may be viewed at <http://www.metagrurl.com/inkspot/meta/reqs.htm>).

Design

This area is most analogous to the traditional print style guide or design manual. It includes all decisions pertaining to how the site appears, behaves, and is arranged. It encompasses decisions made and the reasoning behind them regarding style, metaphors, site structure, navigation, flow, page layout, and prototypes. (An example document may be viewed at <http://www.metagrrrl.com/inkspot/meta/design.htm>).

Code & Tools

This includes program choices, specific techniques, code snippets, templates, and frequently used external resources such as links to other web sites. It also includes specific standards regarding titles, spelling and capitalization, punctuation, special characters, copyright statements, HTML meta tags, form layout and field specifications, linking, and any other specific standards regarding HTML tag attributes or other code. (An example document may be viewed at <http://www.metagrrrl.com/inkspot/meta/code.htm>).

Maintenance & Growth

This includes defining project success, version control, monitoring use, how to add content or new modules, recurrent tasks, dependencies (e.g., information about files which are created from content in other files such as databases), and diaries or logbooks

of work performed on the site after the initial design is complete. (An example document may be viewed at <http://www.metagrrrl.com/inkspot/meta/maint.htm>).

Templates for the main meta-information page (.../meta/index.htm) and each of these subpages are provided on the project web site (<http://www.metagrrrl.com/design/templates/index.htm>). They include keyword headings for the topics commonly discussed in each area.

Project Implementation

The first consideration in creating a system for online design documentation was to determine the form of this documentation. Though there are a plethora of web sites and books that firmly pronounce absolute rules of design, an exploration of these and of web sites widely acknowledged to be well designed will quickly illustrate that these pronouncements are contradictory and that some of the best-designed sites defy them. Therefore, provision of a simple checklist or standard set of rules to use as a basis for all design documentation is impractical. Each design solution is too individual to be forced into a common mold. Effective documentation needs to capture the decisions made in creating a particular design solution.

Since the solution arises through the site-creation process, a practical documentation method works with this natural order of decisions and creates a minimum

of extra work for the designer. Two resources proved critical in outlining the design process: Crystal Waters' book *Web Concept and Design* (Waters 1996) and John Shiple's Webmonkey article "Squishy's Crash Course in Information Architecture" (Shiple 1998). These excellent works illustrate the skeleton on which a decision is built. The answers to their questions (e.g. "Who are the intended audiences?", "What functions are needed for content to work?") are the meta-information that allows developers to maximize the long-term utility of their design efforts. Feedback from a member of Webmonkey's monkeyjunkies list suggested a logical method of dividing this mass of information into four documents addressing requirements, design, code/tools, and maintenance/growth:

I am a systems consultant for a small firm in CA. We mainly deal with telecommunications companies. They have really got their stuff together in terms of documentation. The documents listed below can also be support used to create documentation for web sites, with some modification.

Here are some of the documents I have created for my programs:

1. requirements document (purpose, restrictions, hardware, etc.)
2. high level design document (basic program flow, document/module layout, design decisions and reasons for the decisions)
3. code documentation (you know)
4. maintenance procedures (how to add content, new modules, what dependencies exist, and so on)

We usually bundle all the documents and hand them over to the client. That way they have all the resources they need. With telecom companies, you don't really have to worry about technical staffing, though... (Jenny a.k.a. "Chaosgirl", personal communication, March 3, 1998)

After procuring the memorable domain name metagrtrl.com, the author obtained web hosting via Hurricane Electric (<http://www.he.net/>) and internet access via The Duck Pond Public Unix (<http://www.kfu.com/>). Although these two service providers are small, relatively-unknown businesses and their combined fees total under \$10 per month, the

service received has been excellent and the author recommends the exploration of unconventional resources such as these in providing online resources similar to the web site used in this project.

Although the primary focus of the project is informational, some time was devoted to creating a stylish and intriguing interface for the web site. Feedback from web design professionals is an important goal of the project, and it was necessary to obtain their interest and respect from the beginning. The design was adapted from the author's prior home page and brought up-to-date with new navigation icons, a striking logo that lends itself to the creation of distinctive design elements, and the use of Cascading Style Sheets to create a unique look and feel.

The original academic proposal document was converted to HTML and placed on the site with a link to it at the top of the home page. Because the document itself is quite large, a brief introduction to it appears below the link:

This is an idea for a system to facilitate standards and consistency within websites, analogous to the design manuals/style guides used in the print industry. It is not a list of design rules to obey, but rather is a convenient framework on which to hang the decisions you have made for your site to help you (and your team and your successors) understand how the site should look and why.

The bibliography/URLography from the original literature review was also converted to HTML and placed in the same directory as the proposal. An index page was created for this directory and can be accessed via the navigation bar that appears on almost every page of the site. Links are provided at the top of the bibliography/URLography page to other related resources: the Bookmarks page (<http://www.metagrrrl.com/toolbox/bookmark.htm>), which contains links to a wide variety of web sites, and the Design and Web Design sections of the author's online bookstore, Inkspot (<http://www.metagrrrl.com/inkspot/>), which has additional titles and comments not found in the bibliography.

An outline of the design process was created based on the works of Waters (1996) and Shiple (1998) mentioned above. To test the proposed documentation method, this outline (reproduced here as Appendix A) was used to conduct the design process for a revised version of the Inkspot site. Each stage of the process and the documentation it yielded is linked as an example from that point in the outline. Accordingly, a meta-information folder with the documents proposed in this project was created (<http://www.metagrrrl.com/inkspot/meta/index.htm>). Conducting the design process in this manner proved invaluable in clarifying the intended nature of the Inkspot site. As a side benefit of creating the documentation, it forces the designer to answer many important questions that might otherwise be ignored until later in the design or implementation process.

As soon as enough of the design process for Inkspot had been completed to illustrate the type of information documented, the project web site was announced to the web design community via professional lists (e.g. Webmonkey's monkeyjunkies, Silicon Valley Webgrrls, etc.), email to people who had expressed an interest in the project, and listings submitted to the major search engines: Alta Vista, HotBot, Infoseek, Yahoo!, Excite, Lycos, and Webcrawler.

Discoveries

Because the project focused on the communication of theory and methodology rather than on the use of the web site, conducting user testing and obtaining access logs via software such as WebTrends, as originally proposed, were deemed by the author to be less helpful than reviewing visitor feedback in gauging the effectiveness of the site. To increase the likelihood of receiving feedback, a large icon soliciting it was created and placed on the home page and the main pages discussing the project.

Exploration of the literature and the World Wide Web has continued throughout the project, and new resources are still being added to the bibliography/URLography at <http://www.metagrirl.com/design/bibliog.htm> as they are discovered. These explorations

have also suggested improvements to the site such as the "leaving site" icon modeled after that used on Microsoft's corporate sites.

During the initial literature review, the author found the widest selection and most detailed commentary on web design books at online bookseller, Amazon (<http://www.amazon.com>). Unconstrained by academic or public budgets, their well-indexed catalog is able to keep up with the rapid pace of publishing in this genre. Their policy of providing additional information such as publisher and author comments, outlines, tables of contents, reader reviews, and dynamic links to related books purchased by other customers adds tremendous value to their database. The utility of this resource is frequently cited among web designers, and direct links to the Amazon record were added for each book title in the bibliography.

One unexpected development during the project was the rise of a Web Standards movement that is pushing for better compliance by the dominant browser companies with HTML and Javascript code formats. This has led to the word "standards" acquiring a very specific connotation in the web design community. In response, the author removed the word from the proposal title, changing it from "MetaGrrrl Web Standards Proposal on Documentation of the Design Process in Online Environments" to "MetaGrrrl Proposal on Documentation of the Design Process in Online Environments". Unfortunately, the navigation button leading to the project information page was labeled "Web Standards";

this has been changed to "Web Design". The folder in which the project files were contained was named "standards" and has been renamed "design". The file name for the page providing an overview of the project was changed from "webstan.htm" to "index.htm". All these changes necessitated a large number of corrections to links within the site, and these changes were performed before completion of this report to insure that it would contain the correct URLs to reference the ongoing project.

Feedback and Modifications

One of the first comments received by the author was from Irene Morris, a designer with a background primarily in print, who expressed concern about designers making this potentially valuable information publicly available. She noted that a client might take all the carefully documented hard work on the web site to a new, cheaper designer who would not otherwise be able to achieve the same results. Craig Vincent, Executive Website Designer and Director of Online Promotions of Web Dream Inc., offered related feedback:

...your argument regarding archiving and documentation of designs and graphics is an excellent one. I think you're correct in the idea that any particular company should designate a corporate standard or design ideal so that any surfer who comes across any of their sites will

- a) recognize the company just from site image
- b) Easily determine whether they have effectively left the previous site they were surfing.

I do believe companies keeping an archive of their work is essential to success....even if it's to promoting to advertisers (i.e. Look where we've come from 'A' to where we are now 'B'). There is only one true problem I see with this, which is an aspect of the Internet medium that is still at large. Copyright infringement, design copying and mimicking. For example you know how my web site looks. Now if I based all my company's sites on that style then anyone using my sites will immediately recognize my work and what's contained. Henceforth if they like my work they'll stay and investigate the site whereas normally they may not have given it a second thought. However back to my original point if my site design is successful, needless to say others will attempt to mooch off my success, copying my site design and the such. From this there's two scenarios

a) Their site is really well done effectively to my standard so anyone visits their site and is familiar with my sites will immediately think that the site they're at is mine (does this make sense?) and could perhaps signup for memberships or purchase products believing it is part of my reputable company.

b) Their site is really crummy, a first time surfer sees it, gets screwed over if they try to purchase a product or have tons of consoles/tricks popping up everywhere....so they leave that site, then they get to one of my sites and see a similar layout and instinctually leave based on the fear their previous bad experience may resurface...

In conclusion, I feel it is in a company's best interest to archive all their work and document their progress. Standardizing a web site is an excellent idea too but must still change frequently enough to stay competitive, interesting AND hopefully prevent any possible counter-productive measures taken by competitors. (Craig Vincent, personal communication, September 29, 1998)

It is important to clarify that the meta-information folder can, and perhaps should on commercial projects, be an area of the web site protected by passwords or other security. It need not be given to a client or even placed on the live server, but should exist on the development server along with other design-related items (e.g., image files in their original image-editor format). On non-commercial web sites this may not be as important. In many cases the designer may wish to provide specific design information in

much the same spirit as providing useful links, tips, and tutorials. Such mentoring is a common and encouraged practice on the World Wide Web.

Susan Quinn of BuildNet, Inc. graciously shared the design documentation and process standards from her company and allowed their reproduction on the project web site (<http://www.metagrml.com/design/QuinnStyle/default.htm>). Although not laid out according to the method suggested in this project, these documents are exceedingly useful as an example of the type of information which is valuable to design teams. Quinn has provided her team with a reference tool enabling them to find answers quickly, from broad rules (e.g. “<BLINK> tag: Don’t use it - ever.”) to extremely specific details (e.g. spell it "e-mail" rather than "email"). The focus in her documentation is on information which would primarily be placed in the Code & Tools document according to the method proposed in this project.

The author was gratified to receive feedback from a programmer endorsing this admittedly design-biased proposal:

I find the mere existence of the ‘meta’ directory which contains page templates appealing. If this standard alone were adopted, it would ease confusion, especially in large organizations with many contributors to a site. Templates provide the best hope of enforcing a design philosophy, particularly in the face of those hell bent for leather to get something up and browse-able. The additional written sections (Requirements/Constraints & Design) help maintain continuity across time; in a legacy situations for example. New contributors understand not just what has come before, but why.

As a programmer the ‘Code’ section is pretty much a no-brainer. Any sophisticated web site should document the technical hows and whys. The ‘Code’

section provides a central resource which can be referred to when embarking on a more advanced project or when a technical problem halts progress.

The 'Documentation of the Design Process' suffers from the same weakness of all documentation efforts: the risk of neglect. As time passes, the contained information becomes stale. Perhaps the standard could include an expected update cycle. Every cycle the information would be reviewed for accuracy and relevancy. The time of the last and next review would be available to the reader. (Robert Harris, personal communication, October 24, 1998)

Viability of the design documentation is a very important consideration. Review and renewal of documentation has been added to the template for the Maintenance & Growth section, but this is only a small step towards solving the problem of keeping documentation current. Though distaste for the process is a factor which some developers admit to, impending deadlines are the most frequently mentioned reason for not writing documentation. Comments such as these are typical:

...the main reason people don't keep standards and documentation is that they don't have the time. (Tony Jordan, personal communication, October 9, 1998)

When we completely scrapped our site and redesigned from the ground up, it had to be done with not enough time to fully document decisions that were made and whatnot while in-process. ... I had time to work on it, but any time I had was taken up with the actual coding and design process. It made for an interesting process trying to keep things uniform. So now I'm grappling a lot of reverse engineering documentation. What I've started doing is setting up a simple word doc file. (Doug Smith, personal communication, October 5, 1998)

The old axiom that there always seems to be enough time to do it over, but never enough to do it right the first time rings particularly true when examining the topic of design documentation. Any method which hopes to solve this problem must be fully integrated into the design process and make documentation as effortless as possible.

In the organization I work for (I am officially a software analyst working in QA, which means I play with software before it is released and try to break it), we have all code under version control. In a nutshell, before any changes can be made to the code, the code is placed under configuration management, and, anyone who changes the code must first 'check the code out of the version control library', make his changes, and then before he can check the code back into the library, he is forced to document the changes he made and why he made the changes. (Wayne Fisher, personal communication, March 4, 1998)

To what extent can the meta-documentation process be automated? As you probably know, this problem has been solved for technical documentation folks via document management software that manages and tracks every transaction in the course of building a complex document set. Might the same evolve for web site development? (David Weinberger, personal communication, October 25, 1998)

Although proprietary software solutions exist, research conducted during this project discovered no tools for design and documentation that are oriented towards design for the World Wide Web and that produce documents viewable in a browser. The challenge of creating such a tool is an intriguing one and is considered by the author to be the most promising area of future research spawned by this project.

The comments and criticism of Peter Merholz of Phoenix-Pop Productions were invaluable in preparing the final version of this report. His remarks about the nature of web design suggest possible future directions in which design documents may move:

You often refer to style guides, and borrow terms and ideas from graphic design and publishing, from the world of print. However, I feel web site design is more analogous to architecture. And if you think about architecture, it has what is perhaps the most classic design document -- the blueprint -- and people go to architecture school for many years to learn how to create blueprints, to re-teach themselves how to write the alphabet in a blueprint-acceptable style, to learn the

conventions of blueprints so that those building the building know *exactly* what the architect envisions.

The blueprint is a great document because it actually represents the end product. Style guides tend to be lists of rules and regulations that might occasionally show that to which it is referring, but whose form is quite distinct from the final product. The visual nature of the blueprint means that it actually represents the physicality of the structure in a direct one-to-one way--this line is *that* wall; this line is *that* door. I think this is particularly true of 'sites that do things' as opposed to content-based sites. (Peter Merholz, personal communication, October 24, 1998)

Some designers are beginning to move in the direction of site blueprints (e.g. the schematics shown by Peter Howells of Ikonik and Indi Young of Young Ideas in their presentation "Communication and Collaboration: Developing Standards for Web UI Design" at Web98 [permission to reproduce illustrations from presentation not yet received]), but whether these will be able to convey nuances of decisions regarding look and feel as well as they do the facts of functional design remains to be seen. Merholz continues:

I think your 'Code/Tools' area conflates two separate areas--code and content. Items like 'standards regarding titles, spelling and capitalization, punctuation, special characters, copyright statements, HTML meta tags, form layout and field specifications, linking, and any other specific standards regarding HTML tag attributes or other code' begin to strike me as more an editorial style guide (like Chicago Manual of Style), and purview of the site's editors, not engineers. I think you have two separate audiences in this section, which could be confusing. Editors don't want to deal with 'code' and technology issues, and I don't think engineers give a flying fig what the punctuation rules are... nor should they.

Kinda similar with Maintenance/Growth--not everyone will want access to all parts of this area. Perhaps a strategy for organizing the meta area is to break it down by user type, so that the writers aren't having to sift through design information, the engineers aren't reading about how to add new content, etc. etc.

All that said, I like the idea of this area. I just think it could be reshaped to better reflect the organization putting the site together. (Peter Merholz, personal communication, October 24, 1998)

These suggestions are excellent and will be integrated into the proposed system. Merholz's point is well taken: any solution becomes more effective when it is customized to the organization using it.

An excellent article on the design process, "Seven Deadly Sins of Information Design" (Miller 1998), was pointed out to the author by Merholz. In subsequent correspondence, the article's author, Drue Miller, referenced the outline of the design process used by her company, vivid studios, available online at <http://www.vivid.com/form/process/> (Miller & vivid studios 1998). Like Waters (1996) and Shiple (1998), this outline proposes important questions which the designer should ask and the answers to which should be documented to provide a clear vision of the project which can be repeatedly consulted to keep the work on track. Although this resource was discovered too late for inclusion in this report, the author intends to integrate some of the questions and ideas from vivid's process into the outline of the design process provided on the project web site. Vivid's process statement will be particularly useful for its discussion of the later stages of the design process, which are currently less represented in the outline than the initial requirements, visual design, and functional design phases.

Much of the other feedback received was related primarily to the visual design and navigation of the project web site and has led to improved cataloging of the

Bookmarks page, changed external links from the proposal itself such that they will open in a separate browser window allowing readers to keep their places in the large proposal document, and an explanation at the top of the site's home page of the way links appear within the site. This bias in feedback towards the interface rather than the content of the proposal indicates a need to reorganize the project information to a less academic, more accessible presentation. Modifications planned for this revised format are use of multiple pages with less text, arrangement of key ideas in bullet points, presentation of the proposal itself before the discussion of background information, and provision of a hyperlinked outline or table of contents.

Conclusions

The research conducted throughout this project as well as feedback from visitors to the project web site endorse the author's assertion that design documentation in online environments is a neglected topic that sorely needs addressing. The author's experience in creating and implementing the method of design documentation proposed in this report and feedback received on the project from other designers strongly support the idea that documentation helps to achieve consistency within web sites. The method of documentation described in this project demonstrates the ease with which well-established practices of design in other media can be adapted to an online environment. Testing of this method using the Inkspot site has demonstrated that the information which

needs to be documented throughout the site-creation process fits well within the four file framework (i.e., Requirements & Constraints, Design, Code & Tools, and Maintenance & Growth) proposed by the author.

The MetaGrrrl site provides an active resource for web designers and others interested in the issue of design documentation. It gives a clear articulation of the need for design documentation and a suggestion of how to achieve it. Templates for the files recommended in the MetaGrrrl documentation method are offered along with examples of their use. An outline of the design process is available and is inter-linked with the example files. Although the system may require modifications and refinements, it provides something otherwise unavailable and much needed on the World Wide Web. The project communicates the importance and benefit of good information management. It provides a useful tool to web designers both in and out of libraries which helps them guide their design process through the justification intensive environments found in both commercial client services and publicly-funded agencies. Perhaps the most valuable resource on the site is the extensive annotated bibliography/URLography, which collects information on this under-explored issue and packages it for easier access and understanding. This resource will be announced to the library community via newsletters such as Library Juice and mailing lists such as Stumpers and CSU-SLIS after approval of the project by faculty of the School of Library and Information Science at San Jose State University.

The MetaGrrrl documentation method is currently implemented in whole or in part on the following sites:

- MetaGrrrl (<http://www.metagrrrl.com/>)
- Inkspot (<http://www.metagrrrl.com/inkspot/>)
- School of Library and Information Science at San Jose State University (<http://witloof.sjsu.edu/>)
- Hewlett-Packard CES Sales Force Information Sharing (proprietary, internal only)
- Hewlett-Packard Infrastructure Management Team Year 2000 Program (proprietary, internal only)
- Hewlett-Packard Workgroup Productivity Team (proprietary, internal only)

This list is expected to grow, and additions to it will be listed on the project web site.

Plans for the Project

The project described in this report is ongoing. Input from designers and further experience with the proposed method will allow additional refinements that will be communicated on the project web site. The original proposal found on the site has been replaced with this report and, as described above, the author intends to create a more

popularized, hypertext-aware version of the proposal that will become the primary means of communicating the proposal, though this report will remain available. The author is also exploring the possibility of creating shorter articles on the important issue of design documentation in online environments for publication on the World Wide Web and in print. Such articles, when available, will also be referenced on the project web site.

As additional resources relating to web design documentation are discovered, they will be added to the project bibliography/URLography. Because of the usefulness of this resource, alternate methods of managing this information are being explored that take advantage of the ability to combine general information with links to sites such as Amazon Books, online articles, and examples like vivid studio's process description. (One which shows strong potential is Natrifical Software Technologies's The Brain [<http://www.natrifical.com/>].) Adaptation of the bibliography/URLography to a broader resource directory using this or other software will be explored in the coming months and the results communicated via the project web site.

Bibliography

- Albertson, R. (1995). Designer's guide to the Internet. Indianapolis, IN: Hayden Books.
This is intended as an introduction to internet technology, tools, and limitations for users and designers approaching it from a background in design in other media.
- Aronson, L. (1994). HTML manual of style. Emeryville, CA: Ziff-Davis Press.
This work has minimal or no information about design documentation.
- Barker, P. G. (1993). Exploring hypermedia. London : Kogan Page.
This is an exploration of the nature of the new media, what sets it apart from other media, and the implications this has for the process of creating works in hypermedia. His section on the creation of electronic books is particularly interesting. (Note the useful supporting illustration on page 140, Figure 5.4, "Design model for electronic book production").
- Barratt, K. (1989). Logic and design: in art, science & mathematics. New York: Design Press.
This work has minimal or no information about design documentation.
- Baumgardt, M. (1998). Creative web design : Tips and tricks step by step. New York: Springer.
This work has minimal or no information about design documentation.
- Berk, E. & Devlin, J. (Eds.) (1991). Hypertext/hypermedia handbook. New York: Intertext Publications.
This work has minimal or no information about design documentation.
- Black, R. (1997). Web sites that work. San Jose, CA: Adobe Press.
This book contains some basic design rules you should know before you decide to break them and a great overview of design principles as they relate to the web. Engagingly written and beautifully produced, but of use primarily to those new to design.
- Blakstad-Cooke, K. (1996). Hypermedia publishing: how to build a Web site. New York: Prentice Hall.
This general how-to-do-it book offers a particularly good treatment of the initial brainstorming stage. See pages 52-54 for the author's great suggestions for making a mock-up of the arrangement of the site.

Bolter, J. D. (1991). *Writing space: The computer, hypertext, and the history of writing*. Hillsdale, NJ: L. Erlbaum Associates.

This work has minimal or no information about design documentation.

Bradford, P. (Ed.) (1997). *Information architects*. New York: Graphis.

Introduction by Richard Saul Wurman. Very interesting, but this work has minimal or no information about design documentation. (Note: location of this title can be problematic because it may be listed with Wurman as the author).

California State Library Foundation. (1991). *Graphic standards and public relations manual*. Sacramento, CA: California State Library Foundation.

A collection of sample graphics, ads, letterheads, etc. with instructions for their use, this publication is of interest as an example of a typical print style guide.

Detweiler, M. & Omanson, R. (1996). *Ameritech Web Page User Interface Standards and Design Guidelines*. [WWW document]. URL

http://www.ameritech.com/corporate/testtown/library/standard/web_guidelines/reference.html

This site has useful tips which have been categorized as “Required”, “Recommended” and “Good Practice”, but it is difficult to navigate and is due for an update to make better use of its online setting.

Dudrow, A. (1998, October 26). Study: Web design gains: Creative pros driving innovation, survey says. *EMedia Weekly*, 14.

In addition to noting the trend towards traditional design professionals in online creative positions, the study offers statistics on Web sites’ content and delivery.

Ganim, B. (1995). *The designer’s commonsense business book*. Cincinnati, OH: North Lights Books.

This work has minimal or no information about design documentation.

Glover, J. (1998a). *Top Ten Ways To Tell If You Have A Sucky Home Page*. [WWW document]. URL <http://jeffglover.com/sucky.html>

Glover provides a flippant, but valid reminder about common design errors in personal web pages.

Glover, J. (1998b). *Sucky to Savvy*. [WWW document]. URL <http://jeffglover.com/ss.html>

This is a detailed guide to specific improvements you can make to your web designs written with Glover’s usual friendly and humorous style.

Gold, E. (1995). The business of graphic design: a sensible approach to marketing and managing a graphic design firm. New York: Watson-Guptill Publications.

This work has minimal or no information about design documentation.

Grippio, A. (1998). Ten Commandments for Producers. [WWW document]. URL http://developer.netscape.com/openstudio/docs/index_frame.html?cp=deo09art1&content=/docs/articles/howto/grippio.html

The facts of life in web development are given in this brief document that is crucial reading for anyone working on a design team.

Haig, W. L. (1997). The power of logos: how to create effective company logos. New York: Van Nostrand Reinhold.

This work contains an interesting discussion of the process of achieving consistency of image and tone. Note that the copy owned by San Jose State University shows the title Logo Power on the spine rather than the catalogued title.

Hall, B. (1997). Web-based training cookbook. New York: Wiley Computer Pub.

This work walks the reader through all aspects of the process of creating web-based training programs. It includes good discussions of project management and authoring tools.

Heid, J., Block, A. & Sydow, D. (1997). HTML and web publishing secrets. Foster City, CA: IDG Books Worldwide.

This work has minimal or no information about design documentation.

Heller, S. (1990). Low-budget/high-quality design. New York: Watson-Guptill Publications.

This work has minimal or no information about design documentation.

Hofmann, A. (1966). Graphic design manual: principles and practice. New York: Reinhold.

This work has minimal or no information about design documentation.

Horton, W. (1991). Illustrating computer documentation : the art of presenting information graphically on paper and online. New York: Wiley.

Good, but this work has minimal or no information about design documentation.

Horton, W. (1994). *Designing and writing online documentation : hypermedia for self-supporting products*. (2nd edition). New York : Wiley.

Very useful and well-written. Clearly explains principles such as “Design top-down, build bottom-up”. Valuable discussion of designing for efficient production. Good bibliography.

Horton, W., Taylor, L., Ignacio, A. & Hoft, N. L. (1996). *The web page design cookbook: All the ingredients you need to create 5-star web pages*. New York : John Wiley & Sons, Inc.

A general how-to-do-it book which contains a very detailed walkthrough of the whole process presented in a friendly style. The authors encourage the keeping of careful records and suggest the use of a master spreadsheet to show file organization and naming conventions. The example spreadsheet has columns for Name [page title], Subtitle, File Name, and Template. The site it illustrates has buttons for forward and backward movement, so the files in the spreadsheet are listed in display order. When adding a file into this structure it is first added to the spreadsheet in the appropriate place and the prior and succeeding files listed are noted because they must have their "Next" and "Previous" buttons updated.

Hutt, A. (1989). *Newspaper design today: A manual for professionals*. London: Lund Humphries.

This work has minimal or no information about design documentation.

Ibañez, A. & Zee, N. (1998). *HTML artistry: More than code*. Indianapolis, IN: New Riders.

A style-oriented approach to HTML and DHTML, this book walks the reader through the details of the creation of many interactive and enticing web sites.

Jute, A. (1996). *Grids: The structure of graphic design*. New York: Watson-Guptill Publications.

This book offers all you need to know about page layout using grids and its glossy presentation provides inspiring examples.

Kalisky, L. D. (1998, October 19). Web-based content management in 8 steps. *EMedia Weekly*, 23.

Kalisky outlines eight key steps for content management in larger organizations.

Karpinski, R. (1996). *Beyond HTML*. Berkeley, CA: Osborne McGraw-Hill.

This work has minimal or no information about design documentation.

Lemay, L. (1996). *Creating Commercial Web Pages*. Indianapolis, IN: Sams Publishing.

This work has minimal or no information about design documentation.

Lesly, P. (Ed.) (1991). Lesly's handbook of public relations and communications. New York: AMACOM.

This work has minimal or no information about design documentation.

Levine, R. (1996). Sun Microsystems Guide to Web Style. [WWW document]. URL <http://www.sun.com/styleguide/>

Recommended for its thorough treatment of the issues of web design and as an example of good design. Note the use of “pull-quotes” alongside paragraphs to facilitate browsing.

Lopuck, L. (1996). Designing multimedia: A visual guide to multimedia and online graphic design. Berkeley, CA: Peachpit Press.

Though very specifically directed at multimedia production, the ideas in this book also hold value for those interested in web design. The discussion of the production timeline is particularly good.

Lynch, P. & Horton, S. (1998) Yale C/AIM Web Style Guide. [WWW document]. URL <http://info.med.yale.edu/caim/manual/>

The finest web style guide available; well-written, well-designed, well-maintained.

Maler, E. (1996). Developing SGML DTDs: from text to model to markup. Upper Saddle River, NJ : Prentice Hall.

Though targeting a very specific topic, this book does contain some useful suggestions regarding the design and production process.

McAllister, R. (1996). Design for production : For preparers of desktop published documents for printing. Albany, NY: Delmar Publishers.

This work has minimal or no information about design documentation.

McCoy, J. (1996). Mastering web design: Tools of the trade from the industry leaders. San Francisco: Sybex.

Good hands-on information. The first half consists of chapters contributed by noted designers discussing their design approach and specific projects on which they've worked. Detailed tutorials make up the second half.

Metz, R. E. & Junion-Metz, G. (1996). Using the World Wide Web and creating home pages : A how-to-do-it manual. New York: Neal-Schuman Publishers.

This work has minimal or no information about design documentation.

Miller, D. (1998). Seven Deadly Sins of Information Design. [WWW document]. URL http://developer.netscape.com/openstudio/docs/index_frame.html?content=/docs/articles/infoarch/sins_v2.html?cp=osd03

vivid studio's Drue Miller shares the seven little mistakes you should avoid in every site you create.

Miller, D. & vivid studios (1998). There's a Method to Our Madness. [WWW document]. URL <http://www.vivid.com/form/process/>

This area of vivid studio's site provides a detailed overview of their design process covering concept & planning, design, specification & prototype, production, testing, live, and maintenance & wrap phases.

Mitchell, C.T. (1996). New thinking in design: Conversations on theory and practice. New York : Van Nostrand Reinhold.

This work has minimal or no information about design documentation.

Mok, Clement. (1996) Designing business: Multiple media, multiple disciplines. San Jose, CA : Adobe Press.

One of the key thinkers on design both on and off the World Wide Web presents his thoughts on design for business in the online age.

Morris, M. E. S. (1996). Web page design : A different multimedia. Mountain View, CA: SunSoft Press.

A general how-to-do-it book which excellently treats both the most nebulous questions (e.g. "What is the web and what design issues do its characteristics raise?") and specific techniques and issues (e.g., "What meta information techniques are available and which are likely to become part of a standard?").

National Communication Council for Human Services. (1977). Managing your public relations: guidelines for nonprofit organizations. New York : Foundation for Public Relations Research and Education.

This work has minimal or no information about design documentation.

Nemzow, M. (1997). Building cyberstores: Installation, transaction processing & management. New York: McGraw-Hill.

This work has minimal or no information about design documentation.

New, A. & Bates, D. (1977). Using standards to strengthen public relations. New York : National Communication Council for Human Services consolidated with Public Relations Society of America.

This work has minimal or no information about design documentation.

Niederst, J. (1996). Designing for the web: Getting started in a new medium. Sebastopol, CA : O'Reilly & Associates.

This work has minimal or no information about design documentation.

Nielsen, J. (1990). Hypertext and hypermedia. Boston: Academic Press.

This work has minimal or no information about design documentation.

Olins, W. (1990). Corporate identity : Making business strategy visible through design. Boston, MA : Harvard Business School Press.

This book is useful to web designers for its examples of how to present designs to clients for maximum comprehension of the intent of the design.

Quinn, S. (1998) BuildSoft Web Site Style Guide. [WWW document]. URL <http://www.metagrrrl.com/design/QuinnStyle/default.htm>

An example of a company style guide was provided to the author for reproduction on the MetaGrrrl web site. It has great details and is a good example of the kinds of questions which arise repeatedly in site creation and which can be answered in one consistent location allowing members of a design team to quickly obtain needed information and move ahead.

Rand, P. (1993). Design, form, and chaos. New Haven, CT: Yale University Press.

This work has minimal or no information about design documentation.

Rosenberg, J., Sherman, M., Marks, A. & Akkerhuis, J. (1991). Multi-media document translation: ODA and the EXPRES project. New York: Springer-Verlag.

This is a detailed report of a project recommending a specific format for markup languages. Unfortunately, one of the possible formats which they rejected before choosing ODA (Office Document Architecture) was SGML, thus the particulars of the work have been largely outdated by subsequent events. The report does offer some valuable critiques of SGML and its lack of document organization semantics.

Rosenfeld, L. & Morville, P. (1998). Information architecture for the world wide web. Sebastopol, CA: O'Reilly & Associates Inc.

Simply the best basic text available on this topic. Essential reading for anyone designing large-scale web sites.

Schultz, S. et al. (1993). The digital style guide. Burlington, MA: Digital Press.

This work has minimal or no information about design documentation.

Sebastian, L. (1995). *Electronic Design and Publishing Business Practices*. (2nd edition). New York: Allworth Press.

This work has minimal or no information about design documentation.

Shiple, J. (13 July 1998) *Squishy's Crash Course in Information Architecture*. [WWW document]. URL <http://www.hotwired.com/webmonkey/design/tutorials/tutorial1.html>

Shiple offers a friendly and thorough introduction to the process of designing a web site and the questions the developer should ask. Highly recommended.

Shneiderman, B. (1998). *Designing the user interface: Strategies for effective human-computer interaction*. Reading, MA: Addison Wesley Longman.

A key thinker on human-computer interaction, Shneiderman does not write light reading, but is worth the time.

Siegel, D. (1997). *Secrets of successful web sites: Project management on the world wide web*. Indianapolis, IN: Hayden Books.

Containing interviews with designers, examples of their work, process suggestions, business principles, this book is a rich source of inspiration and a good jumping off point for online explorations.

Simon, R. (1996). *Public relations workbook: writing & techniques*. Lincolnwood, IL: NTC Business Books.

This work has minimal or no information about design documentation.

Studio Archetype, Inc. (1998). *Studio Archetype - The Process* [WWW document].

URL <http://www.studioarchetype.com/process/index.html>

URL <http://www.studioarchetype.com/netcafe/bookmarks.html>

Studio Archetype is the design firm founded by Clement Mok. Their site offers a good explanation of their design process and links to other design sites.

Supon Design Group. (1992). *Design in progress: what happens behind the scenes*. Carson, CA: Nippan Publications.

This work has minimal or no information about design documentation.

Swann, A. (1989). *Creating dynamic roughs*. Cincinnati, OH: North Light Books.

This work has minimal or no information about design documentation.

Swann, A. (1990). *Designed right!* Cincinnati, OH: North Light Books.

Though intended as a guide to advertising design, this book does detail the process of creating uniform style with strong visual impact. It includes extensive examples including storyboards and rough versions.

Thompson, B. (1988). Bradbury Thompson: The art of graphic design. New Haven, CT: Yale University Press.

This work has minimal or no information about design documentation.

Tilton, E., Steadman, C. & Jones, T. (1996). Web weaving: designing and managing an effective web site. Reading, MA: Addison-Wesley Developers Press.

This is a general how-to-do-it book with a good treatment of the creation of an infostructure encompassing the organization of documents and document collections (including the issue of currency), server organization, and content and style. Tilton et al. walk the reader through the usual series of requirements questions: Why make the site? Who is it for? How will it be organized (the infostructure)? How do you create it? How will it be maintained and by whom?

Turnbull, A. (1980). The graphics of communication : typography, layout, design, production. New York: Holt, Rinehart, and Winston.

This work has minimal or no information about design documentation.

VanderLans, R. & Licko, Z. (1993). Emigre: graphic design into the digital realm. New York : Van Nostrand Reinhold.

This work has minimal or no information about design documentation.

Veen, J. (1997). Hotwired style : Principles for building smart web sites. San Francisco: Hardwired.

This work has minimal or no information about design documentation.

Waters, C. (1996). Web concept and design: A comprehensive guide for creating effective web site. Indianapolis, IN: New Riders.

A great introduction to the entire act of creating a web site. Deals as much with the process of design as with specific code techniques. Waters does a fine job introducing traditional design theory and adapting it to the web. Her treatment of the brainstorming phase is the best discovered in this literature review. This book is a "must read" for any new web designer and a good brainstorming tool for more experienced designers.

White, B. (1996). HTML and the art of authoring for the world wide web. Boston: Kluwer Academic Publishers.

This work has minimal or no information about design documentation, but does contain an extremely clear statement about HTML's limitations: "HTML does not provide content management tools".

White, J. (1982). *Editing by Design: A Guide to Effective Word and Picture Communication for Editors and Designers*. New York : Bowker.

A wonderful book which, though targeted at magazine editing, is great background reading for web designers. It is somewhat dated, but still relevant in many areas.

Wilson, S. (1995). *World wide web design guide*. Indianapolis, IN: Hayden Books.

This work has minimal or no information about design documentation.

Woodard, C. (1996). *Starting and running a successful newsletter or magazine*. Berkeley, CA: Nolo Press.

This work has minimal or no information about design documentation.

Woodson, W., Tillman, B. & Tillman, P. (1992). *Human factors design handbook: information and guidelines for the design of systems, facilities, equipment, and products for human use*. New York: McGraw-Hill.

This work has minimal or no information about design documentation.

Wragg, D. (1992). *The public relations handbook*. Cambridge, MA: Blackwell Business.

This work has minimal or no information about design documentation.

Xerox Corporation. (1988). *Xerox publishing standards: A manual of style and design*. New York: Watson-Guption Publications.

This is an impressive work which has aged well. The design notes and example it sets transcend the print medium. It is the Platonic ideal of standards manuals.

Yahoo!. (April 1998). *Yahoo! Computers and Internet: Internet: World Wide Web: Page Design and Layout* [WWW document]. URL

http://www.yahoo.com/Computers_and_Internet/Internet/World_Wide_Web/Page_Design_and_Layout/

This directory lists many sites which focus primarily on how to use HTML to achieve certain page effects and a few sites discussing broader design issues.

Note: Yahoo! is an extremely dynamic resource; not only will the items listed today be different than those listed in April 1998, the classification has also changed to Arts: Design Arts: Graphic Design: Web Page Design and Layout and the URL has changed accordingly to

http://dir.yahoo.com/Arts/Design_Arts/Graphic_Design/Web_Page_Design_and_Layout/.

APPENDIX: OUTLINE OF THE DESIGN PROCESS

Note: This outline owes a great deal to John Shiple and Crystal Waters whom the author thanks for their clear explanations and ideas.

Defining Site Goals

Why does the site exist?

Define project terrain

Who are the intended audiences?

What are the short- and long-term goals of the site?

What is the mission or purpose of the organization?

Why will people come to your site?

Filter answers and rephrase them as goals

Have group members rank goals

Client sign-off on goals?

Document goals and publish them to group

Defining Audience

Who am I trying to reach?

Who are the intended audiences?

Rank importance of each audience and list goals important to each

Refine site goals accordingly

Create use scenarios for typical users

Create user profile and walk through typical task, do this for at least 6 users

Look at what these stories say about the way the site will feel and respond to users. These stories will be valuable when defining the content and functional requirements of the site.

Perform Competitive Analysis

Generate list of features and criteria for evaluation of each site.

Evaluate sites (including own existing site if there is one) consistently, taking notes & screen shots.

Choose a date 1.5-3 months in the future to repeat the competitive analysis.

Create pros & cons summary of all sites evaluated.

Document and publish this information to the group.

Defining Requirements

What pieces of content does the site need?

How will this content be grouped and labeled?

Create a content list or inventory.

What sorts of functionality will be required?

What functions are needed for content to work?

Create a functions list or inventory.

Rank the items on each list.

What can we achieve on deadline and on budget?

Create requirements list.

Group content (this step is sometimes easiest to do with index cards arranged and rearranged on a table).

Label groups

Use these labels to define the major sections of the site and the names of each section.

Do we have buy-in from key players on names?

Revise the content inventory, if necessary, to reflect the new organization of the information.

Creating Site Structure

Explore Metaphors

Organizational metaphors? (e.g. supermarket)

Functional metaphors? (e.g. cut, paste etc in Photoshop)

Visual metaphors? (e.g. cd player buttons on audio controls)

Remember, no metaphor is perfect. The overall site might not be explainable as a metaphor, but perhaps the navigation system (or smaller subsets of the site) can be.

Create a text-based, hierarchical map of the site, called the "site structure listing".

The major sections you decided upon earlier are the "roots" of the site structure listing. Fit them to your rationale or metaphor.

Map out the organization of each section with items from the content inventory

Create a visual representation of this structure (like an org chart or architectural diagram)

Publish structure to group

Creating Navigation

Will the visitors find what they need?

Choose global navigation elements

The major sections identified earlier are excellent candidates. Try to use fewer than 7 elements.

Document the global navigation system and as many of the local navigation systems as you can.

This can be as simple as compiling a list of elements that make up each system. For example, Webmonkey has a global navigation system that can be documented as a list: "The global navigation device contains links to all the major sections of Webmonkey: design, HTML, dynamic HTML, etc." A local navigation definition for Webmonkey might be: "For a multi-part article, a list of links to each section appears at the end of each page. Use the title of a section as a link to that section."

Write a summary or metaphorical explanation about the driving rationale behind the site structure

A good site structure combined with an effective visual design enables users to construct a mental map of the site.

Publish these to the group

Creating the Visual Design

Take the site's structure and map it onto the visual design

A number of tools are useful in creating the design. The first step is to make layout grids that define the structure and organization of the site as it will show up on the page level. Then design sketches will establish a general look and feel. Layout grids and design sketches together lead to page mock-ups, which in turn lead to the construction of Web-based prototypes.

Take the site structure listing and make a list of all the possible page types

Review the content inventory, then try coming up with two or three generic page types.

Create a rectangle representing the page, and block out the elements of your design. Since content is the most important element, start with that - even though it's a little tricky, since you won't yet know what else will be on the page. Several other elements must be considered: branding, advertising and sponsorship,

navigation, page titles, header graphics, and footers, which include copyrights. This is an iterative process. You will need to revise the layout grids several times. You will probably want to do two or three different styles for the layout, if you have time.

Create page mock-ups

Once approved, document visual design and publish to group

Production

What can I do to streamline site creation?

Maintenance & Growth

How am I defining success?

IMAGE EVALUATION TEST TARGET (QA-3)

APPLIED IMAGE, Inc
1653 East Main Street
Rochester, NY 14609 USA
Phone: 716/482-0300
Fax: 716/288-5989

© 1993, Applied Image, Inc., All Rights Reserved