

THINK

PART ONE

A background image of a hand holding a pen over a document, with a blue and yellow abstract graphic on the left side.

LEARNING TO SPEAK WEB

introduction

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At birth, we have few ways to express ourselves: frequent crying, an occasional laugh. But as we mature, so does our ability to communicate. After many years of development, we become expressive and eloquent and can easily describe complex scenarios and information. The Web is no different. As a communication medium, the Web has gone through many stages of evolution. From its first "words" to its current complexity, the way the Web "speaks" to us has changed dramatically. However, the key to creating articulate Web sites remains the ability to communicate with our audience.

THE EVOLUTION OF THE WEB]

[SECTION TITLE

WEB EVOLUTION

W E B E V O L U T I O N N

^{no}1 Simple Sharing

Allowed researchers to share information

^{no}2 Image & Table

The first graphical Web browsers made simple layouts possible

^{no}3 Design Intro

Visual designers unfamiliar with the Web began creating layouts for Web sites

^{no}4 Techno-Hype

Overindulgence in graphics and a use of new technologies for the sake of it characterized this era

^{no}5 Usability

A focus on the users and content of Web sites

^{no}6 Speaking Web

What this book is about

When we're young, even simple actions seem like grand feats. Our first steps are welcomed with great pride, and our first words signal an ability to make our ideas known to the world around us. Once we mature, however, few of us give talking and walking much thought. Instead, we use our grasp of language to convey complex narratives, and our firm footing to execute graceful athletic maneuvers. But, this maturity doesn't come quickly or easily. The lessons of adolescence and our early mistakes play a critical role in our evolution. They shape our understanding of the world around us and provide us with direction for our continued growth.

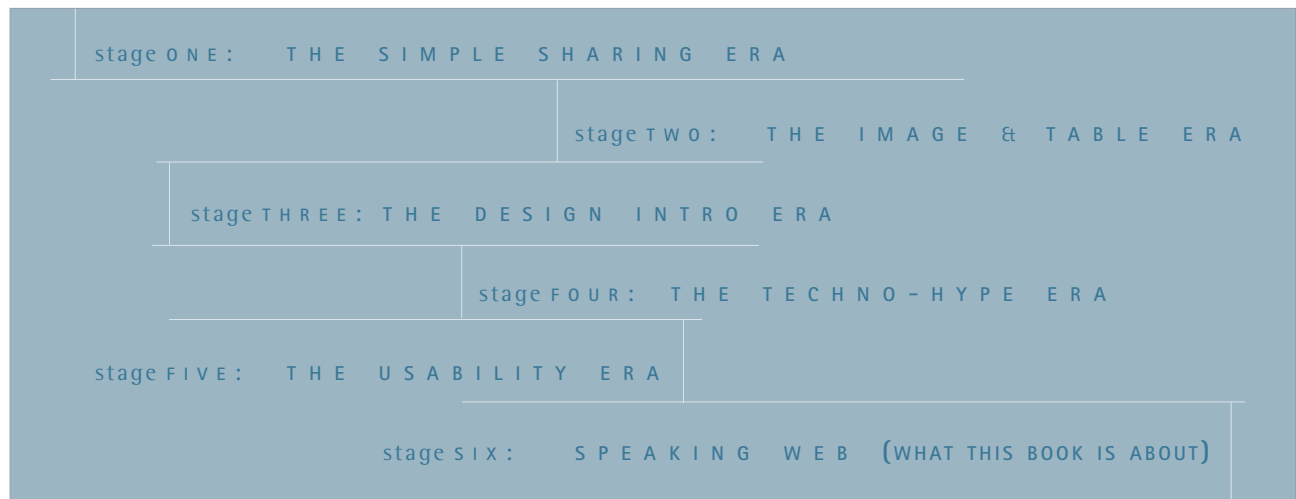
We are not alone in our progress: New technologies likewise go through a similar evolutionary process. To use Donald Norman's example from *The Invisible Computer* (Mit Press, 1998), a person more or less needed a mechanic to operate one of the first automobiles. Simply turning on the engine was a multistep process involving fuel lines, spark settings, cranks, and more. Now, all a driver needs to know is "turn the key, and off you go". This simplicity did not come about instantaneously. It took years of mistakes and improvements for the automobile to evolve into the "mature" product it is today: a product centered on efficiency and ease-of-use rather than technological accomplishment.

At barely ten years old, the World Wide Web still has a long way to go before maturity. But due to the large amount of attention it has received, it is progressing rapidly. We can best see this progress by looking at the history of the Web in significant stages (distinguished by overall Web design trends). Thankfully, each successive stage has built upon the lessons learned in stages past. As a result, our knowledge of Web technologies and design principles has grown substantially, and Web sites





have progressively become easier to understand and use. This allows us to now make better, more informed decisions when we design and develop Web sites. With that goal in mind, let's see what we can learn from the stages of Web evolution that have brought us to where we are today.



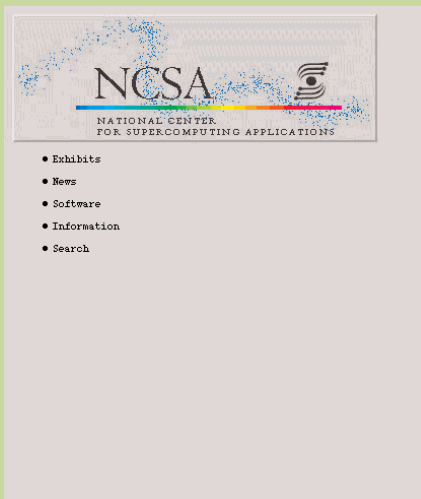
The first four stages should be considered lessons in history and in how not to design Web sites. We'll just briefly touch on each of them to provide a frame of reference for our current situation. We'll spend considerably more time on stages five and six: the focus of this book.



The Simple Sharing Era: The World Wide Web was born at the CERN research facility in Switzerland. As envisioned by Tim Berners-Lee, the Web was to transfer information between people in an easy-to-access format. Because of this vision, the first Web pages consisted of text-based data and little more.

At this very early stage in its evolution, the Web was clearly not for everybody. It "spoke" in a language only its parents could understand (URI, http, and so on). Getting started took some know-how, and once you did, the experience was hardly user-friendly. But, researchers and academics, thoroughly impressed with how the Web allowed them to share data, were quick to embrace the new technology. They found enough value in the Web to make using it worthwhile. They formed a community that would gradually nurture and raise the Web.

AN IMAGE | TABLE ERA LAYOUT



The National Center for Supercomputing Applications (NCSA) home page from 1993 is an example of an early Web site from the Image/Table Era. The ability to incorporate both images and text within Web pages was an important milestone in Web evolution that attracted lots of people.



The Image/Table Era: As traffic on the Web began to grow, so did the demand for the ability to share more than just text. In response, the first graphical Web browser (Mosaic) was developed at the National Center for Supercomputing Applications (NCSA) in 1993, and with it came the

A DESIGN INTRO ERA LAYOUT

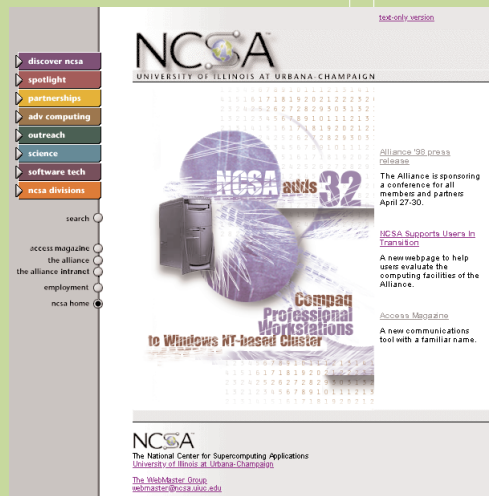
NCSA's home page from 1995 is exemplary of the kind of sites popular during the Design Intro Era. All the text on this site is contained within images, resulting in long download times and poor accessibility. Designers at the time were unfamiliar with the characteristics that made the Web a unique communication medium, and instead designed as they would for any other publishing technology.



ability to view and include images as parts of Web pages. When these images were dropped into tables, the Web's first layouts were born. This development caused a lot more people to get interested, and Web sites began popping up everywhere. When the first commercial Web browser (Netscape Navigator) was released and distributed in 1994, people all over the world were suddenly aware of the World Wide Web. No longer only in the hands of technology enthusiasts, the Web now had to be accessible and understandable by people outside its early community of "parents." It had to learn to communicate with the rest of the world.

The Design Intro Era: It was now clear that the Web was no longer confined to academic circles. Corporations, entrepreneurs, and early devotees all rushed to put up Web sites. They brought in graphic designers to take full advantage of the layout possibilities now available online. While these designers knew a great deal about communicating through text and image, very few knew the vocabulary of the Web: a new and unique communication medium. Because of this ignorance, not enough attention was paid to the navigation, behavior, and structure of Web sites. Instead, most Web sites were characterized by an oversaturation of images and poor functionality. Designers created great presentations,

A TECHNO-HYPE ERA LAYOUT



NCSA's 1997 home page consisted of an animated, multilevel navigation system coded as a Java applet. Though the applet looked "cool" and moved fluidly, it took a long time to download and was confusing to users. Technology was in charge, not usability.



but tended to fall short in interactivity and organization. They hadn't yet learned how to "speak" Web.

The Techno-Hype Era: Once images became commonplace on Web sites, designers and their clients looked for new ways to stand out from the crowd and get the attention of a continually growing Web audience. As it were, technology was more than willing to lend a hand. Embedded applications (applets and videos), add-ons to Web browsers for increased functionality (plug-ins), and new Web browsers (with advanced features) saturated the Web industry. Suddenly, if you were using the latest Web gimmick, you were at the forefront of Web design. Introductory animations created in Macromedia's Flash (a Web animation tool and browser plug-in) and navigation applets coded in Java (the programming language) were all the rage.

And while Web developers and designers paid lots of attention to glitz and glam, considerably less attention was paid to a site's content (substance) and ease of use. The Web was in its "teenage" years: It was only concerned with itself. Web site designers, like rebellious teenagers, thought they knew what was good for the Web better than anyone else. Consequently, sites were exciting and cool, but did little else for their audience.

THE USABILITY ERA

[SECTION TITLE]

It quickly became apparent that sites that only looked "cool" were not. Finding relevant information amidst a downpour of large graphics and gratuitous animations was no easy task. Add long download times and poor information organization to the mix, and it's not too difficult to see why something had to change. The Web had to grow up and accept some responsibility for its shortcomings. Visitors to Web sites were confused by needless glitz, and they often found themselves leaving a Web site

A USABILITY ERA LAYOUT



NCSA's 1999 home page has few large images (for a faster download) and focuses on providing the information visitors need up front and without effort.



Contact webmaster@ncsa.uiuc.edu with questions or comments regarding this page.
Last updated Jun. 1, 1999 - For more information on NCSA's PACI program see
<http://www.cse.ncsl.gov/paci/> and <http://www.npsl.edu/online/>
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without achieving their goals. On the advice of these frustrated users, Web sites began focusing on clarity, efficiency, and customer satisfaction. In other words, they focused on usability. Within a usable Web site, customers can accomplish their goals easily and leave happily.

With customer satisfaction in mind, usability professionals began taking a detailed look at what works and what doesn't work online. Taking an engineering approach to the problem, they performed rigorous user studies and interviews. From the data they acquired, they were able to generate a series of guidelines for Web site design and development. Many of these guidelines are based on "technical" factors (issues that can be generalized to mechanical solutions). For example, because the use of *frames* (Web pages divided into columns and rows of multiple Web pages) broke the unified model of the Web (bookmarking is not possible with frames, and so on), usability guidelines discouraged their use. Similarly, if a Web page contained links to large files, usability guidelines suggested indicating the file size near the link to warn users of a lengthy download time.

Though specific usability guidelines have helped many sites become much more useful and efficient, they're not the end-all solution to a successful Web experience. For example, quick download times are proven to be high on the list of user needs. If a page takes too long to load, users may become impatient and take their Web business elsewhere. For this reason, usability guidelines suggest that Web page elements that contribute to large page sizes (and thereby download time) should be minimized. Because images tend to have large file sizes, few images on a Web page might be considered "good" in terms of Web usability.

However, this guideline can be wrongly interpreted to mean that less visual elements provide a better Web experience. Such thinking could very well produce Web pages that download quickly, but only confuse users through poor layout and are as interesting as staring at the "Smith" page of a phone book.

The problem is not that Web usability guidelines discourage the use of frames, nonstandard Web interactions, too many images, and anything else that hinders content delivery. All of these are important considerations for designing a successful Web site and should not be ignored. Rather, the problem is that these same guidelines do not highlight the importance of visual communication principles (keep reading) for content delivery, interpretation, and presentation. A good Web experience consists of useful and usable content framed by the principles of visual communication to create meaning and understanding for an audience. Improving the overall experience for Web site visitors involves not only proper solutions to technical concerns (such as download time and accessibility), but also presentation, emotion, approachability, and more. It means advancing to the next stage of Web evolution.

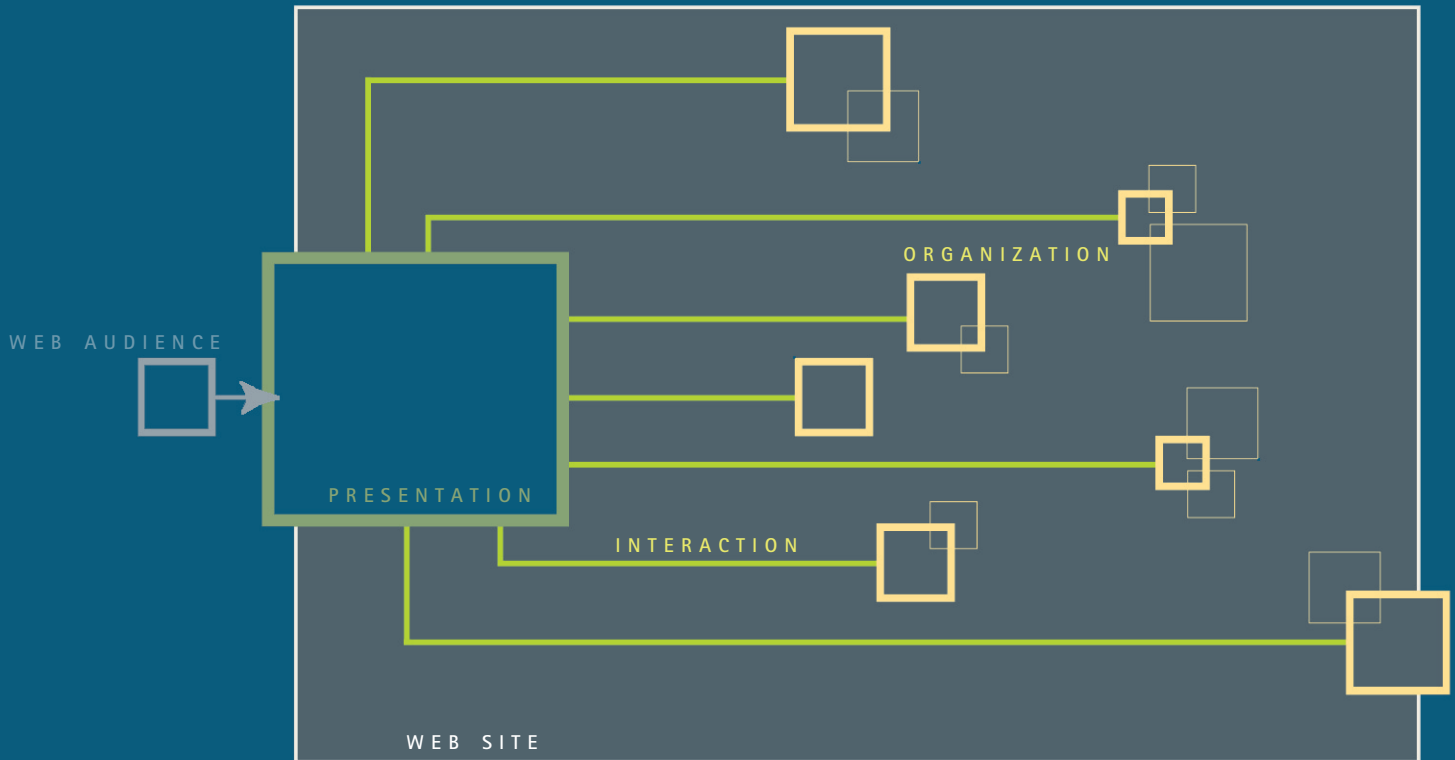
WHAT THIS BOOK IS ABOUT

[SECTION TITLE]

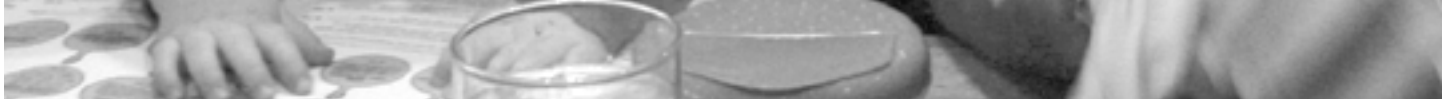
We are now in a stage of Web evolution where it's clear that a good Web experience is the result of mutual collaboration between presentation, interaction, and organization considerations. Web designers need to consider how their sites are structured (organization), how they look (presentation) and how they respond to users (interaction) —in other words, how they communicate.

When a visitor comes to your Web site, they have only the presentation to tell them what you have to offer, and how they can make use of it. As a result, the presentation has a lot of responsibilities. (Both

WEB SITE CONSIDERATIONS



When designing a Web site, we need to consider three basic factors: presentation, organization, and interaction. **Presentation** is how your site appears to your audience. **organization** is the structure of your site, and **interaction** is how your site behaves in response to user actions. Because all interactions between your audience and your structure occur through the site's presentation, it must be understandable and engaging. If the presentation is not clear, your audience might not be able to make it to your content. If the presentation is not engaging, your audience might not be motivated to try.



introduction :: learning to speak web.

THE ROLE OF PRESENTATION

AMONG OTHER THINGS, AN EFFECTIVE WEB SITE
PRESENTATION CAN HELP

Provide situational awareness

Provide clarity

Provide emotional impact

Engage and invite users

Explain organization

*Guide users through content
and sequences*

Maintain consistency

Educate users

Establish relationships between content

*Create emphasis and focus within Web
pages and sites*

Send the right message to an audience

*Give sites unique personalities
and distinction*

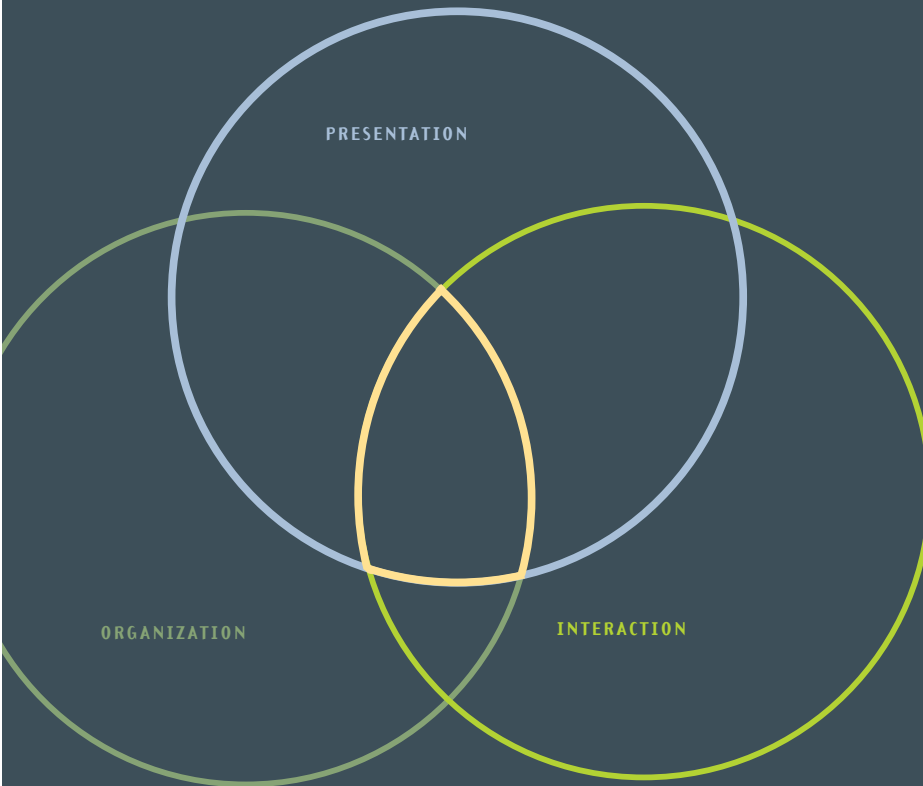
Establish a sense of place

organization and interaction are dependent on it.. A good presentation makes organizational systems understandable and clear, supports user goals and actions, effectively conveys the messages and ideas that we want to express to your audience, and more. (A poor presentation can do just the opposite, as evidenced by the techno-hype era.)

Effective Web site presentations aren't just flukes of evolution; they come from the proper use and understanding of visual communication principles. We use visual principles to communicate concepts to our audience: concepts about the behavior, structure, and purpose of our Web sites. The better at communicating we are, the easier it is for our audience to understand our messages and intentions, and the easier it is for them to use and appreciate our Web sites.

By introducing the fundamental principles of visual communication and then applying them to Web site interaction and organization, this book is designed to provide you with the skills necessary to enter the next stage of Web evolution: the skills to speak "Web". The book is divided into three sections reflective of how we convey information. Before attempting to communicate (visually or aurally), you need a solid understanding of what it is you want to say. Section 1 outlines a methodology for determining what you're trying to communicate and to whom. Once we know what we want to say, we need to know how to say it. The second section teaches you how to speak visually. It is in this section where I introduce the principles of visual communication and their role in Web usability. Finally, I start speaking "Web." Section 3 applies the lessons of Section 2 to the many elements of Web sites: page elements, navigation, home pages, and dynamic content design. By the end of Section 3, you'll be ready to make understandable and engaging Web presentations. You'll be fluent in the language of the Web!

FITTING IN: A SUPERIOR USER EXPERIENCE



PRESENTATION

Presentation includes everything related to how a Web site communicates: fonts, images, colors, and so on. The fields of sensorial, graphic, and information design provide the visual communication skills necessary to create a successful Web site presentation.

ORGANIZATION

Organization encompasses everything related to the structure of a Web site: information architecture, labeling systems, writing, and content decisions. Library and information sciences provide excellent references on organizing information.

INTERACTION

Interaction takes into account how users and systems behave. Human factors and engineering disciplines provide valuable resources for developing interaction models and technological solutions.

THIS BOOK AND THE BIG PICTURE

The key to a successful user experience is a combination of interaction, presentation, and organization considerations. This book goes into considerable detail about everything inside the blue circle including how the presentation can complement and enhance the organization and interaction of a Web site. Though we discuss the areas outside the blue area, other books discuss them in greater depth.

GETTING IT RIGHT

Note the orange area where these three considerations intersect. Not too big, is it? This area is reflective of just how difficult it is to get things right. On the Web, interaction, organization, and presentation are intertwined, and ceding one consideration for another is a surefire way to limit the success of your Web site.

WHAT DO YOU WANT TO SAY? D

chapter one

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WHAT THEY ARE LOOKING FOR ... 27

DETERMINING CONTENT ... 30

WRITING IT ALL DOWN ... 32

DECIDING ON CONTENT



At some point in our lives, we all have been told to "think before you speak." Though this advice seems like good counsel and easy to do, the truth is, it is rarely utilized. Communication is such a natural part of our daily routines that when we have something to say, we do just that: Say it. Speaking comes so easily we don't need to think too long about what we really mean to say. The same is true for other relatively easy actions. Currently, putting up a Web page is an easy task for anyone with some time to spare and a willingness to learn. As a result, a lot of Web pages are thrown together just like sentences: quickly and without much forethought.

HOW WE COMMUNICATE
Through:
Language
Gestures
Facial Expressions
Intonations
Space
Time
Culture
Images
Actions
Silence
Inactivity
And More...

At some point in our lives, we all did think before speaking, and we still didn't get our message across. Perhaps the problem was that we only thought about the words we were using. In our day-to-day communication, words play a small role. We communicate in many more nonverbal ways. Body language helps give words meaning. Intonation can make all the difference in a phone conversation. In online chat rooms, *smilies* (also called emoticons) attempt to articulate our intentions ("Just kidding" or "I'm confused"). Words alone are often not enough. Visual, aural, and temporal cues enhance our understanding and interpretation of what is being said and often infuse words with the proper meaning. The more we know about how to provide and receive cues, the better we can communicate.

The Web has its own set of cues: image, text, interaction, organization, motion, and sound. Just as in conversation, words are just a small part of how you communicate on the Web'. To create effective Web presentations that "speak" to our audience, we must take all our nonverbal cues into consideration. On the Web, "thinking before we speak" means far more than simply understanding verbal communication; it means thinking about how image, text, organization, interaction, motion, and sound can work together to create successful presentations. This process can be thought of as learning the language of the Web. Because the Web is still relatively young, both Web designers and their audience are new to this language. On the other hand, we're familiar with the verbal language we speak every day of our lives. So it is often possible for us to understand what someone means regardless of what he or she actually said.

'Steve Krug, in his book *Don't Make Me Think: A Common Sense Approach to Web Usability*, lists one of his "rules" of usability as "Get rid of half the words on each page, then get rid of half of what's left."





But, the Web not only speaks in a new language, it speaks in many languages (image, interaction, and so on), so there is no accepted vernacular from which you can interpret intended meaning. As a result, miscommunication occurs on a regular basis. Most of us haven't yet learned to "speak Web."

The problem is often escalated, because many Web authors simply "start talking" instead of thinking through what they want to say, and how to say it in the Web's unique language. Speaking "Web" means thoroughly thinking through the organization and interaction of a Web site, and how it is presented to an audience. Because the Web is visually rich, the presentation of a Web site must communicate in many nonverbal ways. Not only does the written language used need to be clear and approachable, but so does the visual language.

Ultimately, the Web is a communication medium. Therefore, effective Web design is analogous to effective communication, and we can often think of Web usability issues as communication issues.

KNOW WHAT TO SAY

[SECTION TITLE]

No matter the medium of communication, there is always a message. But real communication cannot take place unless someone is there to interpret the message and give it meaning. When we don't think through the message we're sending, it can often come out the wrong way or be interpreted in a manner the author never intended. In other words, it can lose its intended meaning. When the author of a message thinks through the intended meaning, odds are much better that the receiver's interpretation will be a close match.

Yet, even thinking through intended meaning is often not enough to communicate effectively. Sometimes the same message can be interpreted in two shockingly distinct ways by two separate individuals. The best way to explain something to Carl is not necessarily clear to Chris. Carl might be a mathematician and think in a very logical and rational manner. Chris, on the other hand, might be a therapist and analyze your message emotionally, coming up with something totally unlike what Carl surmised. So, how can we communicate successfully?

How can we make sure that Chris and Carl both receive the same message, and that the message is indeed what we intended? The answer is really not as complex as you might think. Thinking through the main message that you need to communicate and how best to articulate it often does the trick. Basically, we need to be certain we are aware of who is saying what to whom.





SAY IT IN "WEB"

When you open a Web page for the first time, the first thing you may ask is, "What am I looking at? And what does it mean?" Each and every Web page has a message, whether intentional or not. The message is communicated through images, text, colors, sounds, motion, and so on and assembled on the other end by you, the user, into meaning. If the Web page author did not give enough consideration for the audience and message of their Web page, the viewer might be confused or upset and leave quickly for a Web page that "speaks their language." If Carl, the mathematician, is the intended audience, numbers might be the proper form of communication; however, the therapist, Chris, may not know how to interpret the numerical presentation.

In order for a Web site to be "usable," it must be understandable. It needs to communicate, and communicate effectively. The intended message of a Web site needs to match the interpreted message of the user. In other words, a user must be able to successfully interpret meaning from how the Web site author selected and organized the many Web site elements (image, text, and so on). Therefore, Chris and Carl might find different sites more usable and suitable to their needs. But when both of them are your audience, you need to make sure that neither is confused.

When creating a Web site that effectively communicates a message, you should begin by asking numerous questions — questions like "What is my Web site's goal?", "Who is my audience?", "Why are they likely to come to my site?", "How do they communicate?", and so on. The following sections take a detailed look at some of those questions, how best to ask those questions, and what their answers may tell you.



GETTING TO KNOW YOUR CLIENT

Our client? Oh, that's easy. He's Joe from widget.com. Not quite. Getting to know your clients involves a lot more than first names. Prior to designing a Web presence for your clients, you need to really understand your clients, what they do, what they want, and how they expect to get it done. (Though I use the term clients here, you could certainly be designing a site for yourself, or someone within your company.)

Getting to know your client involves some reading and a lot of talking, especially a lot of inquiring. When you design Web sites for clients, you're effectively developing a means of communication for that client. Your clients' presence in cyberspace is their virtual showroom, open 24 hours a day and available in every household. The Web sites will provide information, offer services, and give visitors an understanding of your clients and their business. So, before you can start "speaking" for your clients, you have to learn what they would say. An initial step to understanding your clients might involve reading their business collateral or brochures, examining their business and marketing plans, trying out their products, or researching current trends and issues in your clients' industries. You need to try to understand your clients' intentions and focus, as well as their constraints. It might even be beneficial to sit down with some employees of the firm and have them describe to you, in their own words, what they feel their company is about. Do not be afraid to ask lots of questions. Only by having a clear idea of your clients' goals can you speak for them. The most important answer to "Who is your client?" is understanding what your client does, for whom, and why. Keep this information at the tip of your tongue (or in the case of Web





design, your mouse). When it comes time to communicate for your clients, make sure that this information remains in your forethoughts.

EVERYONE'S YOUR AUDIENCE?

Some clients will claim that everyone is a member of their target audience, and they wish to reach all of them with their Web site. However, when a customer is using a Web site, they become a particular type of person. If I am browsing an online clothing store, I am in need of new apparel. When I read about how to construct a table, I am an aspiring carpenter. The site that teaches me how to forge furniture has a target audience of wannabe woodsmiths. As a result, they need to present their information in a manner appropriate to that type of user.

UNDERSTANDING YOUR CLIENTS' GOALS

Now that you know more about Joe's company than even he does, you need to understand why Joe's company needs to be on the Web. When designing or organizing for the Web, it is your job to understand your clients' intent and direction. You need to define the problem. Clients sometimes think in very broad loosely defined goals or are convinced that they need the same solution their competitor just implemented. During this discussion, you should try to identify the problem. Without directly referencing the Web, have your clients try to clearly identify their needs. For example, instead of saying, "We need a form with five input fields and two drop down menus...", it is better to understand your clients' need as "We need the ability for interested parties to send us their contact information, so we can..." Make certain that you have the problem clearly identified, or you may end up spending most of your time developing solutions to ancillary issues.



Business Profile Form

This profile is a proprietary assessment tool for identifying musicians to participate in cooperative partnerships between industry, government, and academia.

Please complete and submit this form electronically. Or [download the form](#), fill it in, and submit it either as an email attachment to events@info.org or as a fax sent to 610-645-4766.

Personal Information		Business Profile Form	
First Name	Last Name	Business Profile Form	Business Profile Form
Title		Business Profile Form	Business Profile Form
Company/Organization		Business Profile Form	Business Profile Form
Street Address 1		Business Profile Form	Business Profile Form
Street Address 2		Business Profile Form	Business Profile Form
City		Business Profile Form	Business Profile Form
State	Zip Code	Business Profile Form	Business Profile Form
Phone	Fax	Business Profile Form	Business Profile Form
E-mail		Business Profile Form	Business Profile Form
Technology Development Assessment		Technology Development Assessment	
Please indicate whether or not each of the following Technology Development Assessment items is completed.		Please indicate whether or not each of the following Technology Development Assessment items is completed.	
Technology Development Assessment: Level 1: Conceptual		Technology Development Assessment: Level 1: Conceptual	
Concept's potential usefulness supported by existing evidence	☐ yes ☐ no	Concept is an offshoot of related products	☐ yes ☐ no
Concept is an offshoot of related products	☐ yes ☐ no	Baseline technology defined by library and patent searches	☐ yes ☐ no
Baseline technology defined by library and patent searches	☐ yes ☐ no	Market research and customers identified need	☐ yes ☐ no
Market research and customers identified need	☐ yes ☐ no	Conducted competing technical assessment	☐ yes ☐ no
Conducted competing technical assessment	☐ yes ☐ no	Technology fits with developer's expertise	☐ yes ☐ no
Technology fits with developer's expertise	☐ yes ☐ no	Identified development needs	☐ yes ☐ no
Identified development needs	☐ yes ☐ no	Determined if product is patentable	☐ yes ☐ no
Determined if product is patentable	☐ yes ☐ no	Technology Development Assessment: Level 2: Laboratory	
Developer preliminary specifications for product design, reliability, manufacturability, reproducibility, manufacturability, test to product, and price to customer		Developer preliminary specifications for product design, reliability, manufacturability, reproducibility, manufacturability, test to product, and price to customer	
Defined target market opportunities	☐ yes ☐ no	Conducted competitive analysis	☐ yes ☐ no
Conducted competitive analysis	☐ yes ☐ no	Determined product's uniqueness	☐ yes ☐ no
Determined product's uniqueness	☐ yes ☐ no	Identified technical and market risks	☐ yes ☐ no
Identified technical and market risks	☐ yes ☐ no	Identified potential strategic partners	☐ yes ☐ no
Identified potential strategic partners	☐ yes ☐ no	Determined proof of feasibility with laboratory testing	☐ yes ☐ no
Determined proof of feasibility with laboratory testing	☐ yes ☐ no	Defined baseline performance goals	☐ yes ☐ no
Defined baseline performance goals	☐ yes ☐ no	Defined commercialization strategy	☐ yes ☐ no
Defined commercialization strategy	☐ yes ☐ no	Technology Development Assessment: Level 3: Subscale Major Systems	
Technology Development Assessment: Level 3: Subscale Major Systems		Technology Development Assessment: Level 3: Subscale Major Systems	
Determined criteria for feasibility testing	☐ yes ☐ no	Developed feasibility test plan	☐ yes ☐ no
Developed feasibility test plan	☐ yes ☐ no	Conducted technical assessment's	☐ yes ☐ no
Conducted technical assessment's	☐ yes ☐ no	Determined that product benefits outweigh development costs	☐ yes ☐ no
Determined that product benefits outweigh development costs	☐ yes ☐ no	Developed commercialization plan	☐ yes ☐ no
Developed commercialization plan	☐ yes ☐ no	Identified problems requiring resolution	☐ yes ☐ no
Identified problems requiring resolution	☐ yes ☐ no	Identified information needed for integrated system	☐ yes ☐ no
Identified information needed for integrated system	☐ yes ☐ no	Determined system manufacturing costs	☐ yes ☐ no
Determined system manufacturing costs	☐ yes ☐ no	Developed operating manuals	☐ yes ☐ no
Developed operating manuals	☐ yes ☐ no	Technology Development Assessment: Level 4: Subscale Integrated Systems	
Technology Development Assessment: Level 4: Subscale Integrated Systems		Technology Development Assessment: Level 4: Subscale Integrated Systems	
Designed and built prototype	☐ yes ☐ no	Verified that prototype meets technical specifications	☐ yes ☐ no
Verified that prototype meets technical specifications	☐ yes ☐ no	Determined product can be manufactured at cost goals	☐ yes ☐ no
Determined product can be manufactured at cost goals	☐ yes ☐ no	Identified remaining technical risks	☐ yes ☐ no
Identified remaining technical risks	☐ yes ☐ no	Determined that product meets preliminary functional, price, and other user requirements	☐ yes ☐ no
Determined that product meets preliminary functional, price, and other user requirements	☐ yes ☐ no	Tested critical components/integrated system in field experiments	☐ yes ☐ no
Tested critical components/integrated system in field experiments	☐ yes ☐ no	Verified quality plans	☐ yes ☐ no
Verified quality plans	☐ yes ☐ no	Determined that resource/capabilities in place for commercialization	☐ yes ☐ no
Determined that resource/capabilities in place for commercialization	☐ yes ☐ no	Determined that strategic alliances, distributors, partners in place	☐ yes ☐ no
Determined that strategic alliances, distributors, partners in place	☐ yes ☐ no	Conducted successful peer review of integrated system	☐ yes ☐ no
Conducted successful peer review of integrated system	☐ yes ☐ no	Proved product's merits by cost/benefit analysis	☐ yes ☐ no
Proved product's merits by cost/benefit analysis	☐ yes ☐ no	Completed make/buy analysis for sourcing commercial product	☐ yes ☐ no
Completed make/buy analysis for sourcing commercial product	☐ yes ☐ no		

JUMPING THE GUN

Sometimes, in the rush to get a site up, important portions of the preplanning process are overlooked. When this happens, the result is often a mixed bag of content sewn together very loosely and called a "Web site." Deciding on a clear focus and set of goals for your Web site beforehand ensures that your final product meets the agenda of you and your audience.

In this Web site (to the left), potential customers are asked to complete a lengthy survey to initiate contact with the organization. The site's goal, to gather information from potential customers, could have been better met through a more approachable interface or series of interactions (perhaps involving more than just the Web). Instead, the site forces potential clients through an immense survey, which is unlikely to be filled in online.

The real question is "What need is the Web site going to solve?" Delivering information and technical support for a product? Providing educational tools for high school students? Promoting a musician's solo career? The designer needs to determine the best means for meeting their clients' needs. Believe it or not, this means can be different from what the clients think is necessary (see sidebar). This is why it is important to understand your clients' needs independent of the Web. When you start talking about Web site elements, you're already thinking about a possible solution. This is the time for thinking about problems. There will be plenty of time later for solutions.

W H E N N O T T O W E B

Oddly enough, the best solution to your clients' problems sometimes is not a Web site. An important question to pose is "Is the Web the right medium for what we are trying to do here?" Web sites have distinct advantages and disadvantages. These encompass financial, maintenance, audience, and other concerns. The Web is often a better solution for dynamic content, whereas radio or TV might get a message out faster. Likewise, a brochure mailing might be more effective at reaching a local audience. Simply consider that the Web is not the only communication medium available to achieve your clients' goals.

UNDERSTAND YOUR AUDIENCE

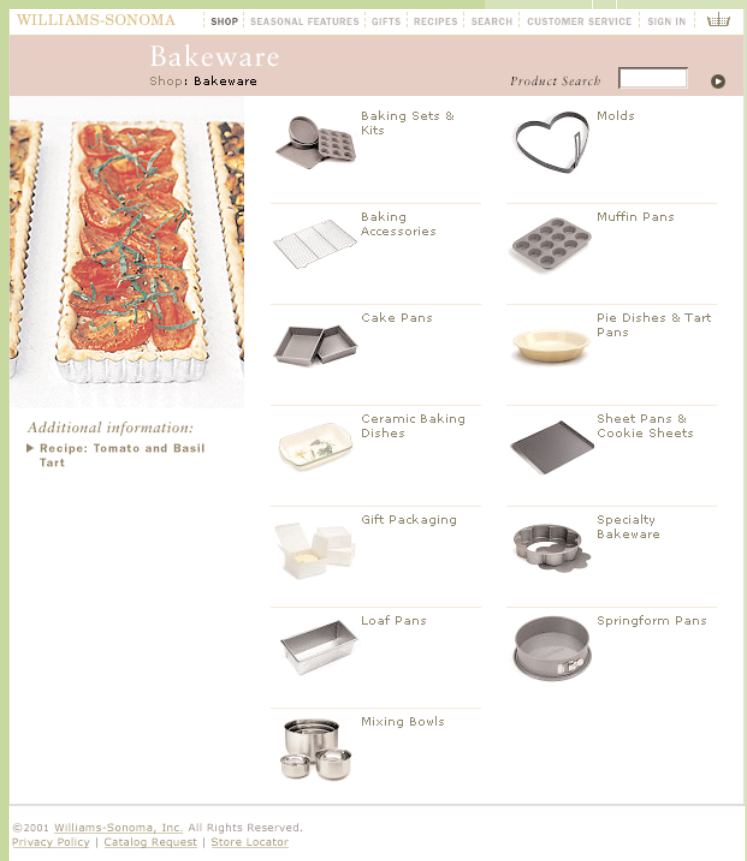
[SECTION TITLE]

"Who is your audience?" isn't just one question. It's a series of questions that need to be answered so that a designer knows with whom he or she needs to be communicating. The answers to these questions will also help to provide a composite idea of some typical members of this audience. A composite idea will help establish the tone, personality, and attitude of a Web site and is formed by asking questions. What is the age of the audience we're trying to reach? What kind of experience do they have? How

well do they know our client's firm? How experienced are they with the Web? What type of shared culture do they have as an audience? What are their objectives? The answer to these questions and others will help you determine the content needed within your Web site. More importantly, it will determine what content you do not need in your Web site.

WHO'S YOUR AUDIENCE?

Who is Williams-Sonoma's audience? Seems like cooks, but what kind of cooks? What value do they place on cooking? Clearly, Williams Sonoma customers take their cooking very seriously. As a result, they take the time to seek out specific cooking and baking products and appreciate the quality of such goods. From high-quality pots to top-of-the-line appliances, Williams-Sonoma provides a wide range of specific products for cooking and entertaining. The site had to capture a sense of elegance and simplicity that is reflective of the quality of the firm. High-quality images, refined design, and a clear and concise presentation of information begin to provide the user with a Web experience that meets the expectations and established qualities of the products sold.



WHAT THEY ARE LOOKING FOR]

[SECTION TITLE

Perhaps the most important question regarding your audience is "What is their purpose for coming to your Web site?" Consider what they want to achieve, and how their needs can be met. Visitors come to Web sites with questions and expectations. For example, they expect to be able to find information on how to use your product, or they want to know who scored a touchdown in last night's football game.

By anticipating the types of questions users will bring to your site, you can design sites that meet and even exceed customer expectations. When your audience can achieve their goals quickly and easily, they will be content. That said, knowing and accounting for what your audience expects from your Web site doesn't guarantee a successful Web experience. You also need to understand how they expect it.

HOW THEY COMMUNICATE

How does your audience communicate? Perhaps your audience uses a certain lingo to communicate ideas between one another. Certainly, industry-specific connotations and phrases are shared by like-minded individuals. In the Williams-Sonoma example, distinctions are made with the conventions of thousands of cookbooks worldwide in mind. *Pan* here means cooking utensil, not to move a camera so as to follow a moving object, as it would on a cinematic-effects Web site. Knowing how your audience communicates, however, goes beyond the meanings associated with words. For example, what connotations do colors have? In the financial world, red is associated with negative trends, and investors instinctually interpret red text as bad news. Other concerns might be

SAMPLE SCENARIO

Scenarios are useful for thinking through the eyes of a typical user. When a design decision must be made, you can ask, "How would "Amanda" expect this to happen?" The more specific a detailed scenario, the easier it is to answer this question.

PROFILE:

name: Amanda Sample

sex: Female

age: 28

residence: Tiny, overpriced apartment in Manhattan

hobbies: Fashion magazine browsing, men (of course), New York local theater, and occasional cooking

REASON FOR COMING TO WILLIAMS-SONOMA:

Wants to slowly build up a collection of high-quality cookwares that will last for many years. She is tired of poor quality cookware that has to be replaced

EXPECTATION:

Wants to see products organized by materials and cost and wants description of those materials, especially their durability

IDEAL OUTCOME:

Can compare products in the manner she chooses and easily purchase them

cultural. In the United States, mailboxes appear as rounded blue rectangles, whereas in Italy, they are often red squares (see image below). However, the image of an envelope with a stamp in the corner signifies mail for both cultures.



United States



Italia



France



Danmark

How does your audience like to receive information? Do they rely on images for an understanding of concepts, or are they more inclined to comprehend information presented in tabular form? Know what your audience finds useful and effective and present your information in that manner.

Another important point to consider here is the Web-specific requirements of your audience. Are they comfortable on the Web? What sorts of interactions do they typically engage in online? What have they come to expect from Web sites? It might be valuable to examine other sites in a similar area as your clients and see how their user base conducts itself online. Understanding how typical members of your audience communicate amongst each other online and in person will better allow you to communicate with them.

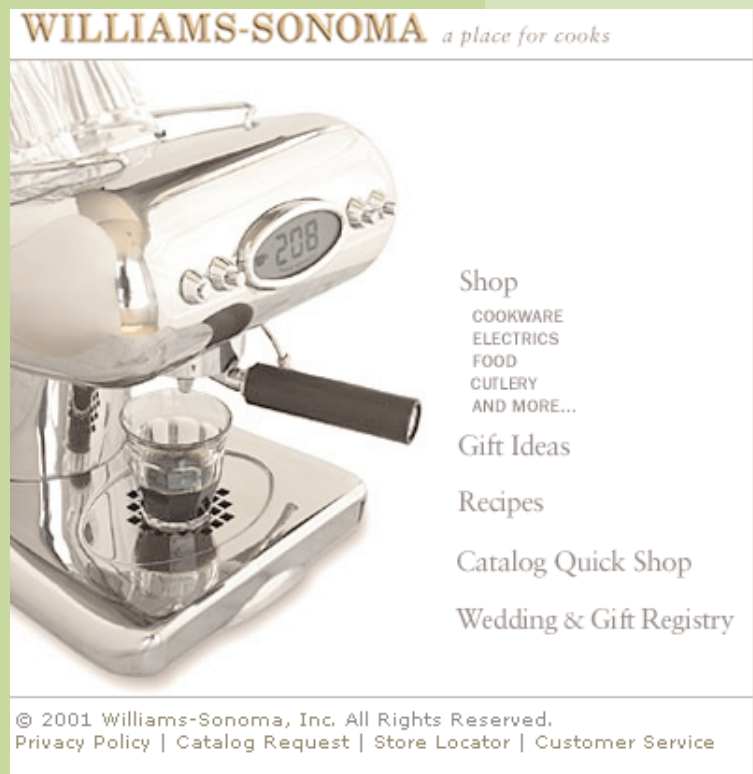
USING PROFILES AND SCENARIOS

Another technique commonly used to better comprehend an audience is the use of scenarios. A scenario is a sketch of why a typical audience member may use the site. It usually includes information such as the visitor's goal, the best way to realize that goal, and an ideal outcome for the site visit. Williams-Sonoma, for example, needed to consider a

variety of scenarios: a visitor who needs to create a registry for an upcoming wedding; a visitor with an extensive knowledge of gourmet cooking utensils who is seeking a specific product within the Williams-Sonoma catalog; a visitor who is uncertain what gift to purchase for a friend and would like to casually browse the selection; a visitor who has been referred to the site and wants to understand Williams-Sonoma; and more.

DESIGNING FOR VARIETY

In order to accommodate the various needs of its audience, Williams-Sonoma presents visitors with several choices on its home page. If you're looking to buy a specific knife, you can jump right to the "Cutlery" section. If you need to buy a gift for mom, but don't have a specific idea, go to "Gift Ideas."





Within a scenario, it's common to create user profiles — that is, to specify the gender, status, employment, age, education, and so on of a fictional audience member. Profiles can even be based on information gathered from interviews with potential customers or from previous customer records. Profiles also often include the person's viewpoints and expectations. When designing Web sites, it's useful to refer back to your fictional audience member profiles and ask, "How would Amanda expect her information to appear?" or "Would this organization make sense to Mike?" Walking through the site as a typical audience member will allow you to map that user's needs to actions. Say that Amanda is a typical audience member of widget.com. Amanda needs to get in contact with her sales representative. She comes to the home page and...? Walk through the steps Amanda makes when she tries to find this information. What is she thinking about? What content descriptions would make sense to her? What does she expect to see? What does she believe is possible?

By developing several different scenarios, we're able to determine how a representative portion of the target audience expects your sites to appear and act. By asking many questions, we're able to accommodate the full range of interests likely to be part of your audience. This knowledge is important, because an understanding of the audience's needs should form the basis for your Web sites' content.

DETERMINING CONTENT

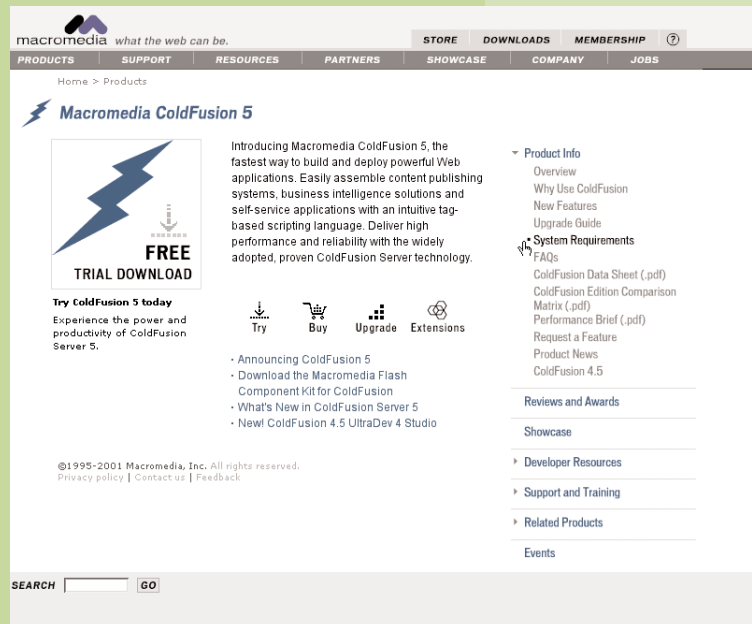
[SECTION TITLE]

"Well, Joe gave us a bunch of documents, so we are just going to put those online and call it good." Though that seems like an easy way out, it's more than likely not a good solution. The majority of Web users come to the Web for one thing: content. A good way to make sure that you meet your audience's needs is to provide the content that they seek. When you've

determined who your audience is, let them determine what the content of the Web site should be. Even though Joe is paying the bill, you're not really designing a Web site for Joe. You are designing for Joe's audience. An easy way to see the difference is to look at how both your client and your audience perceive the same action². Joe wants to sell his product. Joe's audience wants to make a purchase. Joe wants to reduce his costs by introducing services online. Joe's customers want to get their work done. Joe wants to provide information. Joe's audience wants to explore Joe's Web site to see what they can find. Fundamental differences

WHAT IS YOUR AUDIENCE LOOKING FOR?

The Macromedia site is a good example of audience determining content. Most visitors to Macromedia's Web site are software users interested in "what the Web can be." The majority of Macromedia's audience is interested in its software products. The navigation indicates this interest with categories such as products, support, resources, and showcase, all focusing on Macromedia's software. On each software page, there are lots of technical descriptions of the software, user feedback forums, support notes, and additional content all appropriate for users interested in Macromedia's products. Macromedia also has a "featured site" section where it showcases a site utilizing their software. Again, this site is a good example of audience determining content. Macromedia software users are interested in what others have done with the software, so they can better understand what is possible for them.



²A full discussion of this issue can be found in John Cato's *User-Centered Web Design* (2001).

between the client's viewpoint and their customer's can be seen just in the verbs used: sell/buy, provide/explore.

Content included in a Web site should meet the needs and expectations of your audience. If your audience does not need the content you are putting online, why is it there?



WRITING IT ALL DOWN

[SECTION TITLE]

Now that you understand your client, their goals, and their audience, let this knowledge keep your project focused and on track. I recommend that you develop a short mission statement to help you. A *mission statement* should outline what the site needs to do and whom it needs to reach. In other words, the mission statement will detail the intended meaning of your message.

REFERRING BACK TO IT

Throughout the Web design process, it's a good idea to refer back to your mission statement to make sure that the work you're doing fulfills the goals of your client, and more importantly, meets the needs of your client's audience. It is also a good idea to develop a form of measure to evaluate how well the site you're designing fulfills the mission statement. This measure could be a series of user tests involving members of your client's intended audience, or it could be systematic checklist to make sure that all the needs outlined in the mission statement are being met.

A clear understanding of the purpose of the Web site will help the designer create a useful and effective site and a mission statement is an effective way of maintaining that objective. Now that you have a firm grasp of your message and your audience, you're ready to take a look at the steps needed to begin laying the foundation for your site.

A DOORWAY TO COMPUTING



Sample mission statement: The University of Illinois Computer Science Department

"The goal of the UIUC CS Department Web site is to communicate information about the department's current activities and available resources. The site design needs to reflect the department's position as a leading innovator in computer science research and education. In addition, current students, alumni, faculty, corporate sponsors, and the general public need a clear understanding of the information available within the site."

PLAYING FOR FANS

Sample mission statement: Robert Randolph.net

"The goal of the Robert Randolph site is to maintain and develop lasting relationships with fans of Robert's music. In addition to being visually and emotionally appealing and appropriate to Robert's fan base, the site should be a reliable source for current information on Robert's activities and provide consistently updated audio and visual stimuli that encourage repeated visits from fans."

