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Improving web accessibility: a study of webmaster perceptions

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Abstract

Large percentages of web sites continue to be inaccessible to people with disabilities. Since tools and guidelines are available to help designers and webmasters in making their web sites accessible, it is unclear why so many sites continue to be inaccessible. In this paper, we present the "Web Accessibility Integration Model," which highlights the multiple points within web development where accessibility can be incorporated or forgotten. It is uncertain why webmasters do not use the various tools and guidelines that currently are available for making web sites accessible. A survey was created, and data was collected from 175 webmasters, indicating their knowledge on the topic of web accessibility and the reasons for their actions related to web accessibility. Findings and future directions for research are discussed.

1. Introduction

The world wide web provides a wealth of information, and the user population of the web is diverse, including users of all ages, educational levels, and levels of computing experience (Shneiderman, 2000). Many users of the web have various types of disabilities. These disabilities include sensory (e.g. hearing and vision), motor (e.g. limited use of hands) and cognitive (e.g. learning disabilities) impairments. These users with disabilities use various forms of assistive technology to allow them to browse web sites. Assistive technologies include hardware and software such as screen readers, voice recognition, alternative pointing devices, alternate keyboards, and refreshable Braille displays (Paciello, 2000).

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Users with disabilities can only utilize a web site if it is designed to be compatible with the various assistive technologies. A web site that is sufficiently flexible to be used by all of these assistive technologies is called an accessible web site (Slatin & Rush, 2003). An accessible web site is very similar to an accessible building. An accessible building offers curb cuts, ramps, and elevators to allow a person with disabilities to enter and navigate through the building with ease. An accessible web site offers similar functionality.

Accessibility is not just a high-level theoretical goal. Currently, there are guidelines that web developers can follow so that their web sites can be accessible. For instance, the Web Accessibility Initiative provides guidelines, called the Web Content Accessibility Guidelines (WCAG) to help developers make their web sites accessible (http://www.w3.org/wai). The United States Government offers similar guidelines to web developers, which are included in the Section 508 initiative (http://www.section508.gov). A copy of the Section 508 guidelines is included in Appendix A. In addition, automated software tools are available to help find accessibility flaws in web sites before the sites are publicly posted. These software tools include Bobby, RAMP, InFocus, and A-Prompt (Ivory, Mankoff, & Le, 2003). In addition, new versions of web development tools (such as DreamWeaver and FrontPage) include tools that assist developers with accessibility-related issues. Given that the guidelines and tools are there, it seems hopeful that most web sites would be accessible. In fact, many governments make web accessibility a requirement for government information on the web. The United States, England, Canada, Portugal, and Australia require some types of government information to be accessible (Slatin & Rush, 2003).

Unfortunately, most web sites are not currently accessible. Recent studies point out that large percentages (70–98%, depending on the category of site) of web sites are not accessible. For instance, in recent studies, private and non-profit web sites (Lazar, Beere, Greenidge, & Nagappa, 2003), for-profit commerce web sites (Sullivan & Matson, 2000), US state web sites (Ceaparu & Shneiderman, 2002), and even US Federal web sites (Stowers, 2002) were found to have major accessibility problems. In addition, over time, web sites are getting more inaccessible (Lazar & Greenidge, in preparation), as accessibility violations have been added to sites.

Web sites need to be accessible to all users, including those with disabilities. Given all of the resources available for making web sites accessible, it is unclear why they remain so inaccessible. Our goal is to learn more about why sites are not accessible. Since the person that has the greatest influence on currently-existing web sites is the webmaster, the researchers decided to start the investigation with webmasters. The researchers created a survey to learn more about webmasters and their perceptions and knowledge on the topic of web accessibility. The results of that survey are discussed in this paper. In addition, we have created a model, called the Web Accessibility Integration Model, which describes the various ways that accessibility flaws enter a web site. Our goal with this research is to increase the knowledge about why web sites are not accessible, so that we can make the web a more accessible place.

2. Web Accessibility Integration Model

Web accessibility levels are low, yet the tools and guidelines exist to help. Thus, it remains unclear why this is the case. To help in understanding the problem, the researchers created a model, called the Web Accessibility Integration Model, which highlights the various influences on the accessibility, or inaccessibility, of a web site. The hope is that this model will help spur other researchers to investigate all of the different angles of accessibility and to learn how to make sites more accessible.

In the Web Accessibility Integration Model, there are three categories of influences on web accessibility: societal foundations, stakeholder perceptions, and web development. Fig. 1 presents a graphical representation of these categories and the components within each category.

2.1. Societal foundations

Society places value on different skillsets. How much is web accessibility valued? It varies. Accessibility, or designing computers for people with disabilities, is not a standard part of any national curriculum in Computer Science (CS), Information Systems (IS), or Information Technology (IT) (Lazar, 2002). In addition, training in accessibility for current IT workers is rare outside of government. At the same time, policy and law in many countries encourage web accessibility, and in fact, many government web sites are legally required to be accessible. Present statistics on accessibility are shocking, yet they do not seem to influence people to make more web sites accessible or change the patterns of education. This is conflicting: education in

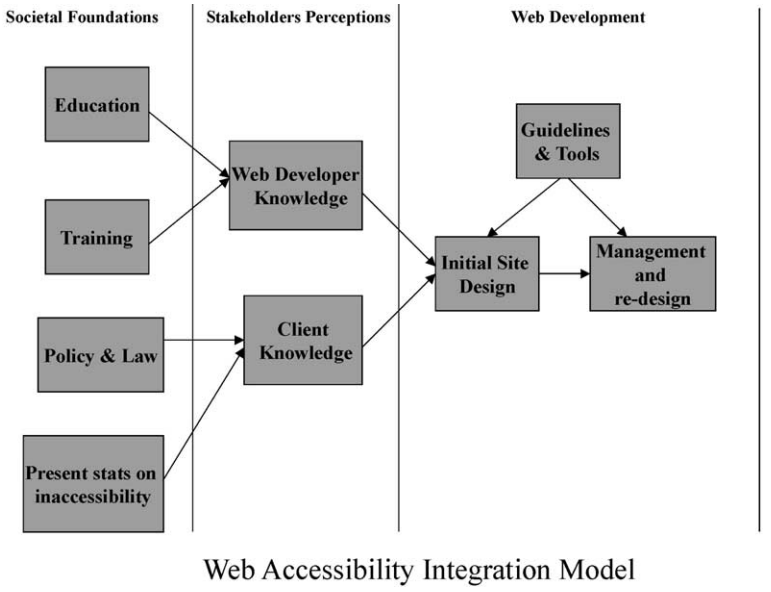

Fig. 1. Web accessibility integration model.

accessibility, is in fact missing, but accessibility is noted by government as a societal priority.

2.2. Stakeholder perceptions

Societal foundations help to influence the stakeholders involved in a specific web site development project. The people who decide whether a site will be built for accessibility or not are the web developers and the clients. It is likely that if neither of these groups of people are aware of or passionate about web accessibility, then a web site will be built to be inaccessible. What influences the stakeholders on their perceptions of web accessibility? Societal foundations such as education, training, government policy, and accessibility statistics in the news can all help form the perceptions of web developers and stakeholders.

2.3. Web development

The societal foundations and stakeholder perceptions influence the actual web development. There is another impact on both initial site design and subsequent re-design: guidelines and tools. These guidelines and tools help not only web developers and webmasters with guidance, but also these guidelines and tools help provide the current "working definition" for web accessibility. Web developers and webmasters are likely to follow the tools and guidelines that are available to them. Good, well-written guidelines, and powerful software tools are likely to help improve levels of accessibility. Poorly-written, confusing guidelines, and hard to use or unclear software tools are likely to keep sites from becoming accessible.

Given that web developers and webmasters have a lot of influence on whether web sites become accessible, we are interested in learning what these groups know, what their perceptions of accessibility are, and how changes could be made (in tools, guidelines, education, law, etc.) to improve current levels of web accessibility. While this study focuses on webmasters (people who manage currently-existing web sites), we do think that in the future, web developers are an important group to study.

3. Research methodology

A survey was developed, with questions asking webmasters about their knowledge of web accessibility and their perceptions of when and why web sites should or should not be accessible. The goal of this survey was to be exploratory in nature. Web accessibility is not a topic that has been researched in great depth. While guidelines for web accessibility exist, research surrounding the effectiveness of those guidelines, how IT workers interact with those guidelines, and reasons for implementing accessibility, do not exist.

The goal of this research is to learn more about why webmasters do or do not make their web sites accessible, and provide avenues for future, more focused research. After development, the survey was then pre-tested for clarity, and the

survey was then posted on the web. Guidelines for good web survey usability were followed (Lazar & Preece, 1999). Information about the survey was distributed to a number of listservers (in the fields of IS, CS, Management Information Systems, and Library Science) that include webmasters, and webmasters that were known to the research team were also invited to participate. Since the goal of the survey was not to create population estimates, a diverse sample, rather than a random sample, was sufficient, and the methods used were appropriate for ensuring a diverse sample (Lazar & Preece, 2001). A copy of the survey is included in Appendix B. A total of 175 webmasters responded to the survey.

4. Results

Since this is a paper focusing on the topic of accessibility, the researchers decided to present data in tabular format, even if the same data is available in graphical format. We feel that this helps improve the accessibility for users with assistive technology such as screen readers.

4.1. Demographics

Of the 175 respondents, 103 indicated that they were male, and 72 respondents indicated that they were female. Table 1 and Fig. 2 report these data. Table 2 and

Table 1
Respondents by gender

Gender	Number
Male	103
Female	72

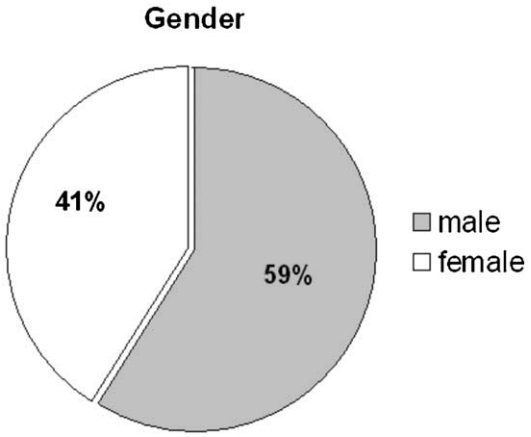

Fig. 2. Gender of webmasters.

Fig. 3 report the age of survey respondents. Of the respondents, seven reported that they are between 18–24 years old, 86 reported that they are between 25–35 years old, 47 reported that they are between 36–45 years old, 29 respondents reported that they are 46–60 years old, five respondents reported that they are between 60–70 years old, and one respondent reported that they are above 70 years old. Table 3 and Fig. 4 address the experience level reported by survey respondents. Interestingly, no one considered himself/herself a novice user, while 119 respondents indicated that they are computer experts, and 56 indicated that they are intermediate computer users. Data in Table 4 and Fig. 5 show that the respondents not only represented the United States, but a good number of respondents were also from other countries. In addition, different types of organizations (e.g. education, government, health care, and corporations) are well-represented. The data for the organization type is available in Table 5 and Fig. 6.

4.2. Responses to main survey questions

Questions 1–9 are closed-ended questions, focusing on current and future web site accessibility, webmaster knowledge, and webmaster experience with various software tools. Table 6 displays the frequencies for each question, and Fig. 7 displays the data graphically.

Table 2
Age group

Age group	Number
18–24	7
25–35	86
36–45	47
46–60	29
60–70	5
70+	1

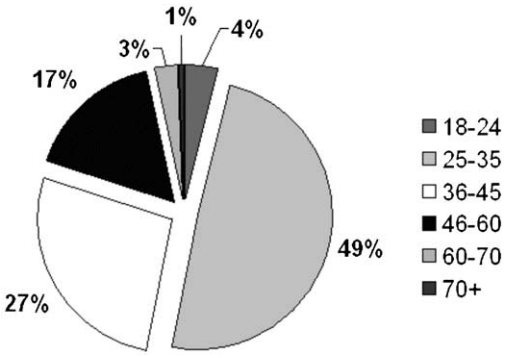

Fig. 3. Age groups of survey respondents.

Table 3
Computer experience

Computing experience	Number
Expert	119
Intermediate	56

Table 4
Location of webmasters

Location	Number
United States	79
International	25
Left blank	71

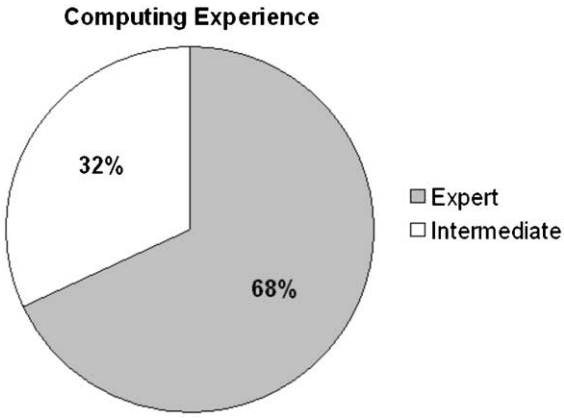

Fig. 4. Computing experience of respondents.

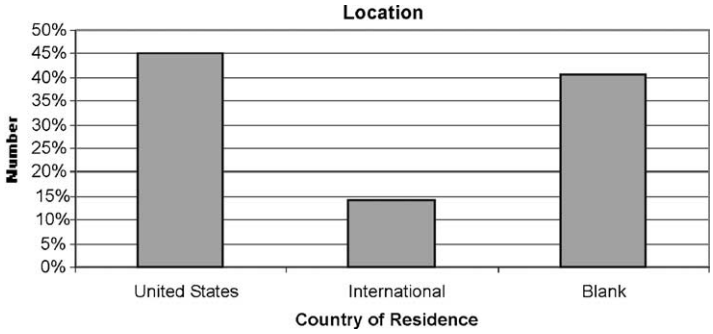

Fig. 5. Location of webmasters.

Table 5
Organizational type

Organizational area	Number
Education	66
Government	20
Other	39
Health care	10
Corporate	40

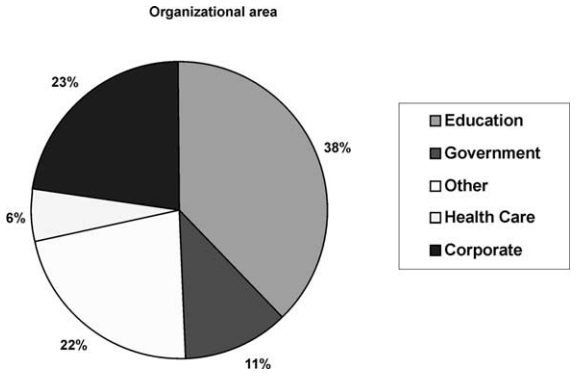

Fig. 6. Organizational types.

For question 1, ''Have you ever created a web site that is accessible for users with visual impairments?'', 115 respondents (65.7%) indicated that they had previously created an accessible web site, 47 respondents (26.9%) indicated that they had not created any accessible web site, and one respondent (0.5%) was not sure. Please note that 12 respondents did not respond to this question.

For question 2, ''Are you familiar with the Section 508 laws by the US Federal government or similar laws from other governments around the world (i.e. Portugal, Canada, England, and Australia)?'', 129 respondents (73.7%) indicated that they were familiar with the laws, two respondents (1.1%) indicated that they were not familiar with the laws, and 13 respondents (7.4%) were not sure. Please note that 31 respondents did not respond to this question.

For question 3, ''Is your web site subject to the US Federal Government's rules on accessibility?'', 43 respondents (24.6%) indicated that their web sites were subject to Section 508, 101 respondents (57.7%) indicated that their web sites were not subject to Section 508, and 30 respondents (17.1%) were not sure. Please note that one respondent did not respond to this question.

For question 4, ''Is the web site that you are currently overseeing accessible to users with visual impairments?'','' 98 respondents (56.0%) indicated that their current web site is accessible, 38 respondents (21.7%) indicated that their current web site was not accessible, and 38 respondents (21.7%) were not sure. Please note that one respondent did not respond to this question.

Table 6
Responses to questions 1–9

Answer	Question								
	1	2	3	4	5	6	7	8	9
Yes	115	129	43	98	138	121	38	68	103
No	47	2	101	38	29	50	132	105	37
Not sure	1	13	30	38	5	1	4	1	30
Left blank	12	31	1	1	3	3	1	1	5

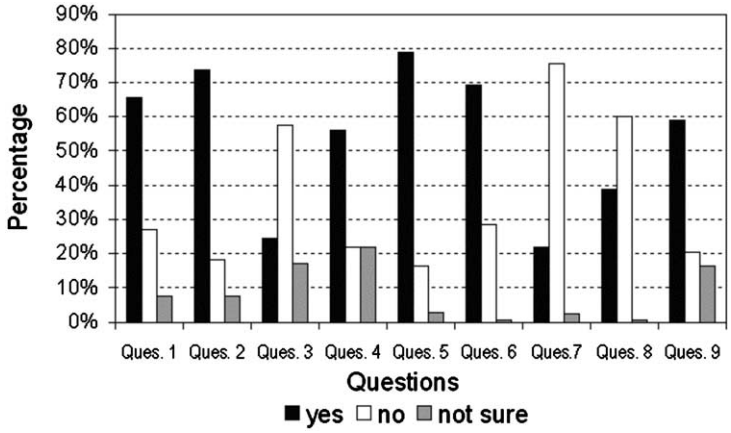

Fig. 7. Statistics of questions 1–9.

For question 5, ''Are you aware that there are software tools that can check your web site to see if it is accessible, and provide useful feedback?'', 138 respondents (78.9%) were familiar with the availability of software tools, 28 respondents (16.0%) were not familiar with software tools, and five respondents (2.9%) were not sure. Please note that three respondents did not respond to this question.

For question 6, ''Have you ever used a free web-based accessibility tool, e.g. Bobby?'', 121 respondents (69.1%) indicated that they had used free web-based tools, 50 (28.6%) respondents indicated that they had not, and one respondent (0.5%) was not sure. Please note that three respondents did not respond to this question.

For question 7, ''Have you ever used a non-web-based accessibility tool, e.g. A-Prompt, INFOCUS, PageScreamer?'', 38 respondents (21.7%) indicated that they had used non-web-based tools, 132 respondents (75.4%) indicated that they had not used such tools, and four respondents (2.3%) were not sure. Please note that one respondent did not respond to this question.

For question 8, ''Have you ever tested your web site using a screen reader? (A screen reader reads the text out loud in computer-synthesized speech)?'', 68 respondents (38.9%) indicated that they had tested web sites using screen readers, 105 respondents (60%) indicated that they had not tested sites using screen readers, and

one respondent (0.5%) was not sure. Please note that one respondent did not respond to this question.

For question 9, ''Does your organization have any plans to make your web site accessible to users with visual impairments in the future?'', 103 respondents (58.8%) indicated that their organization is planning on accessibility, 37 respondents (21.1%) indicated that no accessibility improvements were planned, while 30 respondents (17.1%) were not sure. Please note that five respondents did not respond to this question.

There are some paradoxes from questions 1–9. For instance, 138 respondents were familiar with the existence of automated software tools to help with accessibility, but only 98 respondents indicated that their web sites were accessible. In another example, 129 respondents indicated that they were familiar with government laws relating to accessibility, even though those laws only applied to 43 of the respondents. Sadly, only 103 of the respondents indicated that their organizations are planning to have accessible web sites in the future.

The next question, question 10, asked respondents if they were familiar with the three sets of guidelines coming out of the Web Accessibility Initiative (http://www.w3.org/wai). Table 7 displays the raw data and Fig. 8 displays the data graphically. Interestingly enough, 112 people indicated that they were familiar with the web content accessibility

Table 7
Familiarity with the various web accessibility initiative guidelines

Web accessibility initiative guidelines	Number
Web content accessibility guidelines	112
Authoring tool accessibility guidelines	1
User agent accessibility guidelines	2
Not familiar with any	40

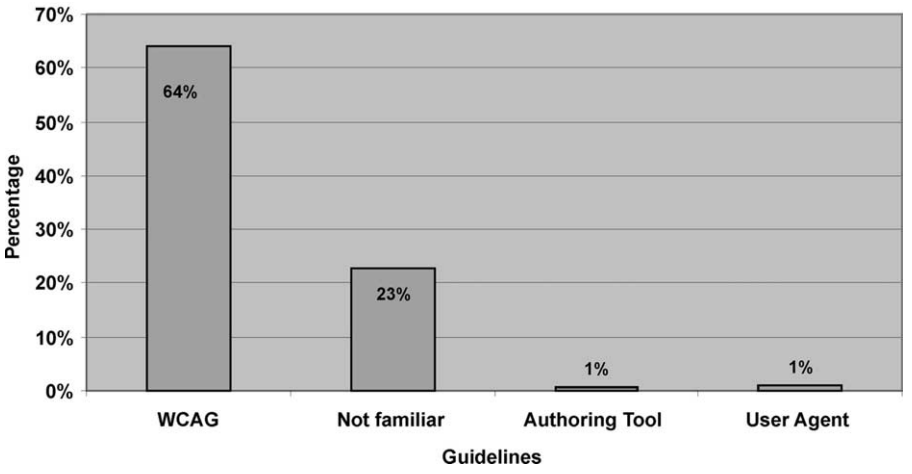

Fig. 8. Familiarity of accessibility guidelines.

guidelines (known as WCAG), the main guidelines for web accessibility of pages. Other guidelines from the WAI were barely known. Only one respondent reported being familiar with the authoring tool guidelines, and two people reported being familiar with the user agent guidelines. This is not surprising, since most webmasters would only be designing web content, rather than authoring tools or agents. Forty respondents indicated that they were not familiar with any of the WAI guidelines, and 20 respondents did not answer the question. As a comparison, 129 respondents indicated that they were familiar with Section 508 and similar governmental rules for web accessibility. A few more reported being familiar with Section 508 (129) versus the Web Content Accessibility Guidelines (112), but the results were similar.

4.3. Open-ended questions

Because closed-ended questions cannot reveal the complete story behind webmaster perceptions and actions, we decided to include a number of open-ended questions on the survey. Because these are essentially qualitative, and the responses were unpredictable, each question will include a sampling of user responses, as well as some overall trend numbers for when many responses were indicating similar ideas.

Question 11 asked "What do you think is the biggest challenge of making a website accessible for users with visual impairments?"

Sample of answers:

> Given that I answered 'no' to all of the above questions, I suppose that education of webmasters must be critical

> Dealing with design requirements that call for non-underlined links.

> Maintaining accessibility while also maintaining the designer's intent and aesthetic sensibility.

> Tedium, cost, and compliance with a law that may well get over-turned in the years to come.

> Your clients (i.e. bosses, management) want glitzy web sites that are difficult to make accessible.

> 'Selling' the importance of accessibility to various stakeholders...[it's] often perceived as trivial/non important.

For those survey respondents that answered this question, 24 respondents mentioned the challenge of balancing accessibility and graphical design, 23 respondents mentioned the challenge of convincing clients and management of the importance of accessibility, 21 respondents mentioned technical challenges, nine respondents mentioned the lack of funding to address accessibility, nine respondents mentioned the lack of time to address accessibility, seven respondents

Table 8
Responsibility for web site accessibility

Responsible party	Number
Webmaster	143
Systems analyst/engineer	83
Programmer	96
Help desk manager	28
Disability compliance office	87

mentioned the need for training, and six respondents mentioned the need for better software tools.

Question 12 asked "Who do you think should be responsible for making a web site accessible for users with visual impairments?"

The responses to this question were very interesting. Please note that respondents were allowed to select more than one choice. A large percentage of the respondents (143) indicated that webmasters are responsible. Programmers were noted as responsible by 96 respondents, the disability compliance office was cited by 87 respondents, systems analysts were cited by 83 respondents, and the help desk manager was cited by 28 respondents. These data are presented in Table 8. In their open-ended responses, most of the respondents indicated that accessibility was not an individual effort. People at all levels, through the development and maintenance of a web site, should be involved. A very small number of respondents did indicate that it was not the webmaster's responsibility, pointing to either the web developer or to upper management.

Sample of answers:

> It is everyone's responsibility to ensure that we do all we can for the handicapped.
>
> You do not get accessibility without a joint effort from numerous people with different responsibilities.
>
> It's in everyone's best interest but not everyone has all the answers. All can contribute.
>
> The Internet must be available to all and all IT professionals have a responsibility to ensure it's achieved.
>
> If the site is to be truly accessible everyone should be involved/concerned/responsible.
>
> The developer is responsible
>
> None of the above! Upper management has to mandate it and lead it.

Question 13 asked "What factors would influence you to make your current site (government, corporate, and/or personal) accessible for users with visual impairments?"

Sample of responses:

> Knowing that a significant portion of my user population has visual impairment would be most influential.
>
> If the government told us that we had to [make our site accessible].
>
> If such users would show interest-contact us, we would respond
>
> If it's the law
>
> Tax breaks and other financial incentives to make it feasible and attractive to businesses.
>
> Legislation would move it [accessibility] up my priority list.
>
> Nothing less than [government] mandate. I am sympathetic with visually impaired users, but they are a minority group.

For those survey respondents that answered this question, 20 respondents indicated that government requirements would influence them the most, 19 respondents said that their web site already is accessible, 16 respondents said that knowing that users with visual impairment are using their site would influence them, eight respondents said outside funding would influence them, seven respondents said that outside pressure from management or clients would influence them, four respondents said that training would influence them, and four respondents said that better accessibility software tools would influence them.

Question 14 asked "When you make updates to your website, do you consider the factor of making the site accessible to all users?"

> Yes, but we are limited as to time and resources. We do as much as we can.
>
> Yes, unfortunately. Without having to consider such matters, our sites would be better.
>
> We are redesigning our site and making it accessible is one of our priorities.
>
> It's always on the back of our mind, but our guidelines are not really good at this point.
>
> For my clients, I emphasize the importance of making a site accessible.
>
> It crosses my mind, but I don't know what it would take.

No. We only [design for] those who routinely visit the site.

For those survey respondents that answered this question, 104 respondents indicated that when they update their site, they do consider accessibility; 28 respondents indicated that they do not consider accessibility; and 16 respondents indicated that they try to consider accessibility.

All four open-ended questions provided glimpses into the world of the webmaster. Webmasters cited challenges to accessibility such as technical challenges, convincing management and clients of the need for accessibility, and trying to strike a balance between good graphical design and accessibility. Nearly all respondents indicated that accessibility is a group goal, that webmasters alone cannot solve the problem, and that accessibility must be incorporated throughout the development and maintenance lifecycle. More government regulations, or knowing that users with disabilities were using their web sites, seemed to be the greatest incentives to webmasters to make their sites accessible.

While most webmasters either are trying to make their sites accessible, or want to make their sites accessible given better resources (e.g. funding, training, software tools, etc.), there were a few respondents to the survey that scoffed at accessibility, considering it unnecessary, inappropriate, and an intrusion into their graphical design sensibilities. This is surprising, but it might be something important to note, that even if government policy is stronger, even if software tools are better, and guidelines are clearer, there still might be some opposition to making web sites accessible.

4.4. Ethical dimensions of web accessibility

Question 15 of the survey asked: "Do you consider ethics in planning and/or updating your current websites? Why? Or, Why not?"

The question was added to determine how computer professionals would respond to the issue of ethics and web design. The research team deliberately did not give an explanation of the definition of ethics or what we were implying regarding this question. This was done to help insure the desired outcome from the respondents without injecting personal biases from the researchers.

Ethics, when applied to technology-related issues, is recognized as cyberethics. Cyberethics is defined as ethical quandaries with a technological dimension (Spinello, 2003). There is a plethora of viewpoints regarding the subject of cyberethics (Scharff & Dusek, 2003). For instance, one major question that many professionals within and without the computer community consider is the following: *Is cyberethics different from "regular" ethics?* Ethics can be defined as making a choice between right and wrong in a situation that involves a dilemma (Pence, 2000). This definition can be applied to anything including circumstances involving computer technology (Johnson, 2001, p. 4).

Another major question professionals consider is the following: *Is cyberethics important?* According to Tavani (in press), "Few would dispute the claim that the use of cybertechnology has had a significant impact on our moral, legal, and social systems. Some also believe, however, that cybertechnology had introduced new and unique moral problems (p. 6)."

The replies to this question are significant because they allow the researchers a window to webmasters' perceptions of how they apply ethics.

4.5. Responses

Out of the 175 responses to this question, 166 respondents replied yes. The following are some sample statements from respondents:

> Yes, in the sense that I will not use material that is not mine unless I have permission from the owner to use it. I also avoid violating the privacy of other individuals.

> Absolutely. It's my job as an information professional to consider ethics in planning/or updating my current websites.

> Yes. I work for a web development firm, and I think our website makes a statement as to our philosophies about accessible web development design.

> Yes, because ethically sound businesses garner trust.

> Yes. If I don't do that, how can I say that I try to be ethical in everything I do?

Of the 175 respondents, seven respondents indicated that they did not consider ethics. ""The following are some sample responses:

> We deliver facts not religion.

> No I have never heard of this before this survey.

> To be honest, I haven't really thought of building my web pages as an ethical issue. I just see it as part of my job.

> No, we make client directed updates, they can think about ethics.

> I do, but sadly the powers that be do not. Websites are designed by people who care less about blind people and they are paid by executives that only give a crap about flashy wizzy useless content that disabled people can barely use.

Of the responses, two responses were not clearly yes or no.
Here are the responses:

> I find that question insulting. If you're implying that not creating a visually impaired version of our site is 'unethical'

> Ethics? What do you mean by that? This question is too vague to be answered, and I don't want to guess what you might mean by it...

Most respondents viewed web accessibility as an ethical issue. Other respondents pointed to ethics as the responsibility of the client, or the concern of others. And finally, a few respondents seemed honestly insulted by the question. While ethical analyses of the issue of web accessibility have generally pointed to web accessibility being a matter of ethics (Dudley-Sponaugle & Lazar, 2003), some respondents might not have wanted to consider the fact that their behavior, while they viewed it as justified, was possibly unethical.

5. Conclusion

Given that tools and guidelines are available to help in building accessible web sites, and given that public policy generally supports web accessibility, it is surprising that so many web sites are inaccessible. This study is a first step in understanding why so many web sites remain inaccessible. Most webmasters that responded to the survey supported the concept of web accessibility, but cited roadblocks to accessibility such as lack of time, lack of training, lack of managerial support, lack of client support, inadequate software tools, and confusing accessibility guidelines. However, there were some webmasters that outright objected to the idea that web sites should be accessible, did not like the interference in "their" web design, and would only make web sites accessible if the government forced them to. Future research should examine each of these topics in more depth, and also examine the perceptions of web accessibility held by other stakeholders, such as web developers, managers, and clients.

Appendix A

Section 508 Guidelines for web accessibility

a. A text equivalent for every non-text element shall be provided (e.g. via "alt", "longdesc", or in element content).
b. Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.
c. Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup.
d. Documents shall be organized so they are readable without requiring an associated style sheet.
e. Redundant text links shall be provided for each active region of a server-side image map.
f. Client-side image maps shall be provided instead of Server-side image maps except where the regions cannot be defined with an available geometric shape.
g. Row and column headers shall be identified for data tables.
h. Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers.

i. Frames shall be titled with text that facilitates frame identification and navigation.
j. Pages shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.
k. A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.
l. When pages utilize scripting languages to display content, or to create interface elements, the information provided by the script shall be identified with functional text that can be read by assistive technology.
m. When a web page requires that an applet, plug-in or other application be present on the client system to interpret page content, the page must provide a link to a plug-in or applet that complies with §1194.21(a) through (l).
n. When electronic forms are designed to be completed on-line, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.
p. A method shall be provided that permits users to skip repetitive navigation links.
q. When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.

(from http://www.section508.gov)

Appendix B

Survey For Webmasters
Survey Questions for Web Masters
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Demographics
What is your gender?
__Male
__Female
What is your age?
__18–24
__25–35
__36–45
__46–60
__60–70
__70+

Choose your organizational area:
__Health Care
__Government
__Corporate
__Education
__Other: _____
How would you classify your computing experience?
__Expert
__Intermediate
__Novice
__Not Sure
How many hours a week do you spend on the web?
__0
__1
__2–4
__5–6
__7–10
__more than 10 hours
Questions
1. Have you ever created a website that is accessible for users with visual impairments?
__Yes
__No
__Not Sure
2. Are you familiar with the Section 508 laws by the U. S. Federal government or similar laws from other governments around the world (i.e., Portugal, Canada, England, Australia)?
__Yes
__No
__Not Sure
3. Is your website subject to the U.S. Federal Government's rules on accessibility?
__Yes
__No
__Not Sure
4. Is the website that you are currently overseeing accessible to users with visual impairments?
__Yes
__No
__Not Sure
5. Are you aware that there are software tools that can check your website to see if it is accessible, and provide useful feedback?
__Yes
__No
__Not Sure
6. Have you ever used a free web-based accessibility tool, e.g., Bobby?

__Yes
__No
__Not Sure
7. Have you ever used a non-web-based accessibility tool, e.g., A-Prompt, INFOCUS, PageScreamer?
__Yes
__No
__Not Sure
8. Have you ever tested your website using a screen reader? (A screen reader reads the text out loud in computer-synthesized speech.)
__Yes
__No
__Not Sure
9. Does your organization have any plans to make your website accessible to users with visual impairments in the future?
__Yes
__No
__Not Sure
10. Are you familiar with any of the following accessibility guidelines from the Web Accessibility Initiative? (Check all that apply):
__Web Content Accessibility Guidelines
__Authoring Tool Accessibility Guidelines
__User Agent Accessibility Guidelines
__Not familiar with any accessibility guidelines
11. What do you think is the biggest challenge of making a website accessible for users with visual impairments? Explain.
12. Who do you think should be responsible for making a website accessible for users with visual impairments? (Check all that apply.)
__Webmaster
__Systems Analyst/Engineer
__Programmer
__Help Desk Manager
__Disability Compliance Office
Why?

_____
13. What factors would influence you to make your current site (government, corporate, and/or personal) accessible for users with visual impairments?

_____
14. When you make updates to your website, do you consider the factor of making the site accessible to all users?

_____
15. Do you consider ethics in planning and/or updating your current websites? Why or Why not?

_____

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