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A longitudinal study of state government homepage accessibility in Maryland and the role of web page templates for improving accessibility

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ABSTRACT

It is well documented that government agencies, at all levels, continue to have problems ensuring that government web sites follow laws related to web accessibility for people with disabilities. Although there are a number of published studies on government web accessibility that are point-in-time, there are no published studies consisting of a longitudinal analysis of state-level government web site accessibility. This paper contributes to the research literature in three ways: 1) an accessibility inspection of 25 Maryland state government homepages in 2012 which involved 150 human inspections of web pages, 2) a comparison of the results from 2012 to a similar accessibility evaluation in 2009, and 3) a discussion of the role of a web page template, which was introduced in Maryland state government shortly after the 2009 evaluation. The data from this longitudinal evaluation leads to the conclusion that web page templates do tend to result in more accessible sites within state government.

1. Introduction

Since the mid-1990s, many government agencies, both at the state and federal level, have been distributing information to the public via web sites (Bertot, Jaeger, Shuler, Simmons, & Grimes, 2009). Due to recent budget cuts and the increased diffusion and presence of smart phones, government agencies often do not answer the phone or provide the level of citizen interaction as much as they did in the past, instead pointing people to their web sites (Bertot & Jaeger, 2008). In this context, the accessibility and usability of public information on government web sites is of increased importance. When a web site is designed using accessibility guidelines, it meets the needs of a broad range of users. Accessible web sites typically meet the needs of people with perceptual impairments (low vision or blind, deaf or hard of hearing), motor impairments (limited or no use of hands for pointing or typing), and some cognitive impairments. Accessible web sites (which are essentially web sites that are flexible to the user's technology and environment) also tend to increase usability for users of mobile devices (Henry & Arch, n.d.).

US state and federal laws clearly require that government web sites follow design regulations to ensure that the widest range of people are able to access government information online. At the US federal level, Section 508 of the Rehabilitation Act requires that all federal technology developed or procured, be accessible for people with disabilities, including federal web sites. The technical standards for Section 508 at the federal level have been in effect since 2001, and they were based on the Web Content Accessibility Guidelines (WCAG) 1.0, an international standard since 1999. Since 2008, the Web Content Accessibility Guidelines (WCAG) 2.0 has been the international standard.[1] The US Access Board is in the process of updating the Section 508 standards to meet the newest international standards (WCAG 2.0), and in the most recent draft, the U.S. Access Board has indicated simply that WCAG 2.0 would become the new standard for web sites covered under the US Federal Section 508.[2] The US Access Board recently indicated that they expect to release a notice of proposed rulemaking on the new Section 508 standards, in June 2013.

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[1] http://www.w3.org/TR/WCAG20/.
[2] http://www.access-board.gov/508.htm.

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At the state level, most US states have a state-level equivalent to Section 508, often adopting the same web accessibility technical standards as Section 508.[3] Furthermore, the US Department of Justice has indicated, as early as 2003, that since state and local governments are covered under the Americans with Disabilities Act (ADA),[4] state and local government web sites must be accessible for people with disabilities. In a recent notice, the Department of Justice stated that the rulemaking for state and local government websites (under Title II of the ADA) will be separated out from the rulemaking for web sites of public accommodations (Title III of the ADA), and the next notice of proposed rulemaking for state and local government web sites will be issued in July 2013.[5]

While a number of data collection efforts have occurred relating to a point-in-time evaluation of state-level accessibility (see Section 1.1 of this paper), there have not been any longitudinal studies of state-level web accessibility. Furthermore, no studies at either the US federal or state level have examined the impact of introducing a web page template into governmental use. The purpose of this project was to compare the accessibility of Maryland State web site homepages in 2009 and 2012, to determine how accessibility levels have changed over time, and whether the introduction of web page templates by the state of Maryland in 2009 had any impact on accessibility levels.

1.1. Inaccessible government web sites

Despite the existence of web accessibility requirements in the US for federal and state web sites, government web sites continue to have inaccessibility problems and violate laws that, in some cases, have been in existence for more than a decade (Fagen & Fagen, 2004; Goette, Collier, & Whilte, 2006; Jaeger, 2006; Olalere & Lazar, 2011; Rubaii-Barrett & Wise, 2008). There are many reasons often given for why government web sites continue to be inaccessible. Some potential reasons cited include: no ongoing compliance activities by government agencies, accessibility responsibility and activity distributed throughout state and federal government (i.e. no clear "accessibility czar" or similar concept), no openness or transparency requirements of how/if agencies perform the necessary accessibility activities, accessibility responsibilities are often added to the job responsibilities of someone who already has full-time job responsibilities, and there are no existing government guidelines on process and policy related to accessibility, only technical specifications (Lazar & Jaeger, 2011; Olalere & Lazar, 2011). There is also the ongoing issue that web developers are simply not familiar with accessibility guidelines, because their formal and on-the-job training has not included a comprehensive exposure towards developing interfaces with accessibility in mind (Jaeger, 2011).

One important type of data that is generally missing from the discussion of government web site accessibility is a longitudinal study. While longitudinal studies of web accessibility have taken place for the web in general (Hackett, Parmento, & Zeng, 2004) and metropolitan areas (Lazar & Greenidge, 2006), longitudinal studies have not been published related to the accessibility of government web sites. Having longitudinal studies would be helpful in understanding how web site accessibility changes over time, and for understanding what factors help to move the accessibility needle in the right direction. It would seem that this type of data should be available from government agencies, but compliance activities at the U.S. federal level had simply stopped between 2003 and 2010 (so no data exists), and no data is yet publicly available from 2010 to 2012 for comparison purposes. At the state level, no such data is publicly available, and it's unknown if such longitudinal data even exists for any states. Limited published research exists about state-level web site accessibility: Yu and Parmanto found that no state web sites met the WCAG 1.0 criteria, but that state government web sites generally had fewer accessibility barriers than Federal web sites (Yu & Parmanto, 2011). Youngblood and Mackiewicz found that many of the municipal web sites within Alabama had accessibility problems (Youngblood & Mackiewicz, 2012). Rubaii-Barrett and Wise found that US states with stronger web site accessibility statements also tend to have more accessible web sites (Rubaii-Barrett & Wise, 2008). Goette, Collier and Whilte found that, in 2004 approximately a third of the state government home pages had at least one WCAG priority level 1 accessibility violation, and therefore were not accessible (Goette et al., 2006). Fagen and Fagen, found that in 2002, only 3/50 state legislature web sites were fully accessible (Fagen & Fagen, 2004).

1.2. Background of 2009 study

There was a unique opportunity for a longitudinal study within the state of Maryland. An evaluation study of 15 Maryland state government web sites was performed in the spring of 2009, right before a new web page template was introduced throughout state government (Lazar et al., 2010). Maryland has had a regulation in effect since 2005, the Maryland IT Non-Visual Access Regulations, requiring the accessibility of state web sites, using technical standards identical to the existing Section 508 web guidelines (1194.22) at the US federal Level (which have been public since 2001), which are loosely based on the WCAG 1.0 standards (which have been public since 1999). The Maryland state web page template was introduced around the time of the 2009 evaluation study, and a number of state agencies have adopted the template since then.[6] While the template is not required, it is highly suggested that when state agencies re-design their site, that they use the template. Fig. 1 shows the template from the Maryland Department of Information Technology. The template instructions state that the design, functionality, and content must comply with the Maryland regulations for non-visual accessibility. A statement of accessibility must be displayed on the web page footer, best practices of universal usability must be followed, sites should undergo usability testing, sites should be evaluated for code compliance via the W3C, color contrast should be tested, and the site should be functional without images.

During the 2009 study, a set of 15 Maryland government homepages were selected for evaluation: five web sites that focused specifically on people with disabilities and 10 general state web sites. By comparing the accessibility of Maryland State web sites in 2009 and 2012, it is possible to determine how accessibility levels have changed over time, and whether the introduction of web page templates by the state of Maryland in 2009 has had any impact on accessibility levels.

In the 2009 study, multiple human evaluators individually evaluated each agency home page for accessibility, using an expert inspection method (only the homepage was inspected, not the rest of the site). This method involves a three-step approach, checking a web page using a screen reader, navigating using a keyboard-only approach, and then inspecting the code for compliance with each paragraph of the Maryland state regulations. Only homepages were evaluated, because they are often the most accessible, and if users with disabilities encounter major problems on the homepage, it becomes less likely that they will be able to even access much of the content on other pages of the site, so homepages are of the utmost

[3] http://accessibility.gtri.gatech.edu/sitid/stateLawAtGlance.php contains a list of US state-level web accessibility laws.

[4] http://www.ada.gov/websites2.htm.

[5] http://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201210&RIN=1190-AA65.

[6] Information about the Maryland Department of Information Technology page template is available at: http://doit.maryland.gov/webcom/Pages/Standards.aspx.