Achieving Accessibility and Usability in E-Government: The Digital Challenge

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Accessibility and usability have been defined as providing universal access for all, including those individuals with disabilities. Traditionally, this has meant physical access, as illustrated by the use of ramps and elevators in addition to stairs in public buildings and electric lifts on public transportation. A more contemporary and inclusive definition includes access to and use of information. Both definitions are important to consider when addressing the topic of accessibility and usability for those who use government services. As the day-to-day way of conducting government business has become increasingly electronic, people with disabilities and those who are socially and economically disadvantaged are increasingly at risk. The trend toward digital or e-government has presented a new challenge that needs to be addressed to provide inclusive service delivery.

E-government has changed what citizens have come to expect and demand at local, state, and national levels. The rapid advance of the internet into everyday life has brought new ways in which government conducts business. The demand for open government has spurred the call for transparency, participation, collaboration, and increased access by the general public. Therefore, standards for accessibility and usability in e-government are essential, and Section 508 of the United States Department of Health and Human Services Rehabilitation Act of 1973 has proven effective in establishing baseline standards that achieve access for all.

These standards have been formulated at the intersection of information technology (IT) developers, political policy leaders, and citizen-users. Citizen-users, which include those with disabilities and their advocates, are essential to implementing access and usability in two ways. First, their feedback is essential

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Considering the current, unprecedented, world we are living in, universal accessibility and usability is more important than ever. This is needed for education, government, commerce, as well as the general public.

User Testing:

Sit Next to Someone. Watch Them Do Stuff.

Ed Skawinski
PDP Manager

Ed Skawinski

WHAT
Is User Testing?

User testing is one way to measure the usability, or ease-of-use, of a product. Usability is a quality of how easy a product is for its intended audience to use. Usability is also the degree to which a product meets user expectations. There are many ways to measure usability, including surveys, expert evaluations, and focus groups. However, user testing is the most direct and effective method to measure usability. Any product can be user tested. For example, companies conduct user testing for consumer products, websites, web-based programs, video games, and much more. This article will focus on user-testing websites.

WHY
Test Usability?

Usability guru Jakob Nielsen states, "On the Web, usability is a necessary condition for survival."[1] If your website or web-based product (e.g., e-learning) is not easy-to-use, users will be unsatisfied with the experience and may go elsewhere.

You might be thinking, "If I can use it, then it shouldn't be an issue for others." However, one person's experience cannot represent the myriad ways that people use the web or web-based product. Users access the web on different devices and in numerous situations. What may seem obvious to one person may not be obvious to others. Designers and developers shouldn't make decisions based on their perception or use of the product. Instead, they should make informed decisions based on the behavior of users who used (or tried to use) the product. User testing is unique in that the testers (facilitator and observers) are getting as close as possible to what real users do—or try to do—with the product. The data gathered from these tests reduces guessing and opinion-based arguments among design team members. Developers have the data needed to improve their product based on the experiences of the people who will be using the product.

HOW
Do I Conduct a User Test?

Simply put, user testing consists of sitting next to someone to "watch them do stuff."[2] A basic user test for a website would include a user, a computer or other web-enabled device, a facilitator, other observers, and a list of tasks for the user to perform using the website. The user is asked to perform the tasks and "talk through" the steps of completing them.

Let's look at the steps involved in a user test for a website.

[1] Neilsen, J. (2012, January 3). Usability 101: Introduction to Usability. Retrieved from https://www.nngroup.com/articles/usability-101-introduction-to-usability

[2] Chisnell, D. (2008, December 23). Quick Cheap Insightful: Usability Testing in the Wild. Retrieved from https://www.slideshare.net/danachisnell/quick-cheap-insightful-usability-testing-in-the-wild-presentation

Did You Know? ... the difference between[3]

Accessibility:
The degree to which a product or system can be used by people with the widest range of characteristics and capabilities to achieve a specified goal in a specified context of use.

&

Usability:
The ability of users to achieve specified goals with effectiveness, efficiency, and satisfaction.

Effectiveness:
The ability to achieve the objective for which it was designed.

Efficiency:
The resources used to reach a goal are the lowest possible (e.g., fewer clicks, less time).

Satisfaction:
Ability to generate a positive experience for users.

Sample Website User Test

1. **Recruit users.**
   If possible, they should represent your target audience. Compensate users for their time if you are able. Generally, aim for four to six users per test.

2. **Schedule users.**
   Leave enough time between sessions for notetaking and debriefing with your observers.

3. **Welcome the user and explain the test.**
   Use a script to ensure consistency among all users. The script should include telling users that they are not being tested–the user test is a test of the website. Tell users that they can stop the test at any time. Let them know they can ask questions, but that you may choose not to answer.

4. **The user sits down at a computer or with a device and is given the tasks (preferably a printed list).**
   Sit nearby so you can see both the user and the display.

5. **The user works through the tasks and "thinks aloud."**
   This helps you better understand the user's expectations and experience. You may prompt the user as needed but avoid leading the user. Let users fail. Their failure can demonstrate areas where the designers' intentions are not clear. Remember, the website is being tested to see if it matches user expectations.

6. **Be ready to end the test if necessary.**
   Stop the test if the user is completely frustrated or unwilling to continue for any reason.

7. **Ask any additional questions.**
   You may ask additional questions after the user has completed the requested tasks. Generally, you may ask about how well the website met the user's expectations.

8. **Thank the user.**
   Thank the user and provide information about compensation.

9. **Debrief with your observers.**
   Gather overall impressions, ideas, and recommendations. Answer any questions your observers have. Discuss any issues with the test or procedure.

10. **Report your findings, make changes to the website, and test again!**

User testing is the most direct form of usability testing. Data from these tests can not only help improve the website you are testing but also inform design decisions for future projects, which saves development time and money. Ultimately, user testing can help designers and developers create a user-centered work environment that considers users first. *PDP*

[3] ISO/IEC 25010. (n.d.). Retrieved from https://www.iso25000.com/index.php/en/iso-25000-standards/iso-25010?limit=3&start=3

Training With JAWS

**Roger Tadjbakhsh,
PDP Senior Education
Specialist**

Roger Tadjbakhsh

Several years ago, I began working with Job Access With Speech (JAWS). JAWS is a screen reader program developed by Freedom Scientific for computer users whose vision loss prevents them from seeing screen content or being able to navigate with a mouse. The JAWS screen reader (which includes a built-in speech synthesizer) enables an individual who is blind or visually impaired to hear the text displayed on a computer screen. Once installed, JAWS recognizes tags embedded in documents and websites. These tags can indicate the type of object within a document, describe images, and provide access to form fields. By using JAWS-specific hotkeys in conjunction with these tags, a user can read, manage, and update information in a file or a form. At PDP, we teach people how to work with JAWS so that they can perform their jobs, whether it is editing a letter in Word, completing a reimbursement request in Excel or an online proprietary system, or filling out a client intake form in a web-based application.

When working with JAWS, it is important to be mindful of the training challenges that can exist when we compare experienced JAWS users to those who are learning to use JAWS for the first time or using JAWS with new state proprietary applications. I recall working with an experienced user who had configured the JAWS rate of speech for a high setting (i.e., fast speaking). Now the user was using JAWS to read an unfamiliar state system. This combination made it difficult for me to understand the information being read aloud by the computer, while also making it difficult for the trainee to focus on the use of the new application. I quickly learned that reducing the rate of speech to a lower speed resulted in a more effective training and an increased level of comprehension by the trainee.

Whether working with individuals who have vision loss or others who need to understand how JAWS works to develop accessible files and applications, knowing that I can meet their needs is a rewarding experience. My personal training style has also been affected positively. For example, today as a trainer I find more value in clarity and quality of instruction as opposed to the volume of information given. I welcome the opportunity to support screen reader users and help government work better. *PDP*

Tips to Make Training More Accessible

**Carolyn Malloch, Director
UAlbany Disability Resource Center**

Carolyn Malloch

The following are tips on making training more accessible and usable for the individual attendee.

☑ **Survey attendees.**

As part of your registration materials, ask if anyone requires assistance in the following areas:

- **Dietary preference and/or food allergies**
- **Training materials and presentations:**
  For example, "Do you need an assistive listening device or alternative communication assistance, such as American Sign Language or Communication Access Realtime Translation (CART)?"

☑ **Assess the physical space.**

Make sure the trainings are scheduled in buildings that are accessible to people who use wheelchairs or have other mobility disabilities.

☑ **Assess the technical abilities of the space.**

Some buildings have a "loop" built into their audio system that individuals with hearing aids can access to hear people who use a microphone to speak. Make sure speakers use microphones so everyone can hear them, even those presenters who state that they don't need a microphone because they can "talk loudly."

☑ **Allow time to hire interpreters.**

If you are providing American Sign Language access for individuals who are deaf or low hearing, keep in mind that it takes time to schedule a qualified interpreter. You can include a deadline for requesting the service to allow time to schedule the interpreter or cancel if no one needs the service. CART—a real-time captioning service—is provided through a computer and microphone linked with a trained captioner who listens in while transcribing what is being said.

The user reads the typed conversation in real-time on a computer screen. Also, consider that you may have

News & Views

PDP Staff Retirements

Julia Meade

After nearly 16 years with PDP, Julia (Julie) Meade retired on January 30, 2020. Julie joined PDP in February 2004 as a Senior Education Specialist with the Department of Child Welfare. Julie worked on the Case Documentation training team during her entire career at PDP and was an asset to the department and training teams as a coach and mentor for new trainers. Julie's years of experience in the child welfare field and her desire to meet the needs of workers and the families they serve led Julie to provide high-quality training and technical assistance. PDP thanks Julie for her dedication and her contributions.

Julia Meade

Leanne Friedlander

After nearly 16 years with PDP, Leanne Friedlander retired on February 5, 2020. Leanne joined PDP in May 2004 as a Senior Education Specialist with the Department of Computer Training Services. Leanne was responsible for the development of help systems, classroom and virtual classroom trainings, and the preparation of Release Notes for OCFS proprietary systems. She also worked with the Division of Child Care Services, the Bureau of Adult Services, and Information Technology Services staff on systems trainings. Leanne was known for being thorough and detailed, and she was an expert editor. PDP thanks Leanne for her dedicated service, hard work, and contributions.

Leanne Friedlander

Cecilia Archer-Tucker

After 17 years with PDP, Cecilia Archer-Tucker retired on March 31, 2020. Cecilia came to PDP in December 2002 as an Education Specialist and was promoted to a Senior Education Specialist in 2005. During her time with PDP, Cecilia worked in the Department of Temporary Assistance Training and the Department of Child Care Subsidy and Regulated Care Training. Cecilia led a variety of curriculum

Cecilia Archer-Tucker

design/development and training teams, delivered training, coached and mentored staff, and aided the onboarding of new trainers. In addition, Cecilia served PDP as a Development Dimensions International certified trainer and was a contributor to many PDP workgroups and strategic initiatives. PDP thanks Cecilia for her commitment to customer service, dedication, and wonderful contributions. *PDP*

Tips to Make Training More Accessible
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videos that need to be captioned before they are shown in a training or conference. If an important video is demonstrating a process, include a verbal description of that process so an individual who is blind or has low vision knows what is being demonstrated. The audio of the verbal description can be added to the video, just as captioning can be added for an individual who is deaf or hard of hearing.

☑ **Make sure all materials are Section 508 compliant.**

All documents should be checked for the ability of a computer to read the material aloud using a "text-to-speech" program. This is not as easy as simply creating a PDF, Word, or PowerPoint document. To check a Microsoft Word document, go to *File > Info > Inspect Document > Check Accessibility.* This will review the document, inform you of any accessibility problems that might exist, and describe how to fix the problems. To check the accessibility of a PDF in Acrobat Pro, choose *Tools > Accessiblity;* in the secondary toolbar, click *Full Check.* *PDP*

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when conducting usability testing. Second, they hold government accountable for having accessible and usable websites. It is the responsibility of citizen-users to provide clear, specific, and authentic feedback, and it is IT's responsibility to implement the changes with the support of political policy leaders.

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Accomplishing the challenge of meeting these standards has been demanding, and government at all levels has turned to higher education for direction. Higher education has embraced this responsibility and played a role in assisting with the ongoing evolution of digital government to provide for universal access and usability. Higher education has made important contributions in applied research on e-government. The initial version of e-government was an informational "push" model. This model was one-directional and allowed for little transaction between citizen-users and government (e.g., IT professionals and policy leaders). The research findings from higher education influenced the evolution of e-government to a more interactive and highly functioning model well advanced from the push model. Consequently, as increases in IT capacity accelerated over the past decade, so did e-government performance. This has led to the current state of well-directed, interactive, and responsive sites and applications, including the capability of online interactive input from citizen users.

Today, higher education continues to guide the digital transition to e-government beyond its research role by providing other valuable services such as the establishment of benchmarks for e-governance, hosting forums, colloquiums, and seminars that bring together IT experts, scholars, policy makers, executives, and political leaders to exchange ideas about best practice. Additionally, higher education has provided an instructional platform for developing IT professionals and supports the continuing growth of these professionals through ongoing state-of-the-art programs like those offered by the Departments of Computer Science and Electrical and Computer Engineering at the College of Engineering and Applied Sciences, University at Albany.

Eugene Monaco

Digital government has become ubiquitous in a short time, and the transition, like other paradigm shifts, has not been smooth, expedient, nor inclusive. Accessibility and usability are not yet universal. As more citizens rely on technology for business purposes and civic engagement, government must become more proficient in providing these services by means that reach all constituents. The ongoing success of e-government may come to depend on the effectiveness of higher education to work with government on its continuing commitment to the development of websites and web applications that enable participation for all, thereby achieving the goal of universal access and usability. **PDP**