A11y Advocacy:
Why We Need to do More Than Just Test for Accessibility

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Abstract

Accessibility is a broad area. It can be applied to many different scenarios and can be met in many different ways. At the end of the day, though, we are dealing with people with challenges and concerns that, let's face it, most if not all of us will face if we live long enough. Accessibility is more than checking off a box that says, "We are compliant". It is advocating for people to be able to effectively participate in daily life as any of us would, with accommodations where necessary.

This paper explores the significance of accessibility advocacy in the context of inclusive design. It highlights the importance of considering diverse user abilities and the benefits of creating accessible products, services, and environments. The discussion focuses on the concept of "A11y" as an abbreviation for accessibility, the principles of inclusive design, the relevance of accessibility to various disability levels, and the guidelines set forth by the Web Content Accessibility Guidelines (WCAG). Additionally, the paper presents ten principles for effective accessibility implementation and discusses the qualities of a HUMBLE accessibility advocate. Finally, it examines useful tools and resources for evaluating accessibility and concludes by emphasizing the long-term impact and personal benefits of incorporating accessibility into design practices.

Biography

Michael has worked on a broad array of technologies and industries including virtual machine software, capacitance touch devices, video game development and distributed database and web applications. He currently works as a software testing trainer with UST xPanxion. He writes a software testing blog called TESTHEAD (http://mkltesthead.com/).

Michael served as a member of the Board of Directors for the Association for Software Testing from 2011-2015. He was their Treasurer and then their President. Currently, he helps teach their Black Box Software Testing classes. Michael is also the current producer and a regular commentator for The Testing Show, a podcast produced for QualiTest (available in Apple Podcasts). For 2023, Michael has been the Marketing Chair for the Pacific Northwest Software Quality Conference.

1. Introduction

As we navigate the ever-changing world that is modern technology, a concept often overlooked in these latest is Accessibility. In the simplest sense of the word, Accessibility is "the quality of being easy to approach, reach, enter, speak with, use, or understand" and "the quality of being usable, reachable, obtainable, etc." That is what dictionary.com uses to describe the term. While it is accurate, there's more to it than that. It's not just a buzzword. It's literally a compass that can guide us into a more inclusive world. We're all, to borrow a line from Prince, "Gathered here today to get through this thing called life." Sooner or later, we are all going to face challenges that make Accessibility a personal matter. Here's the thing; Accessibility isn't just checking off boxes labeled "compliance." It's about making sure the products we create allow everyone, as much as possible, to be a part of this digital world and beyond, no matter their abilities. Accessibility goes considerably farther than the digital realm, but that is my area of experience, so I will have to focus our attention there.

The goal of this paper is not to plow through textbook definitions (though there will certainly be some of those). It's meant to help us see the diverse user abilities that surround us and why making products, services, and spaces with everyone in mind is vital. It's a willingness to take on a promise, to use the principles of inclusive design, follow the threads that connect accessibility to various disabilities (and levels therein), often using the Web Content Accessibility Guidelines (WCAG) to help us navigate along the way.

At the center of this paper and many of my presentations over the years is the "Ten Principles of Accessibility". These principles were first written (at least in this way) by Jeremy Sydik, more than 15 years ago. These are more than just guidelines; they're the cornerstone of Accessibility advocacy. Additionally, I owe a debt of gratitude to friend and colleague Albert Gareev and his introducing me to the mnemonic "HUMBLE" and what it represents. The "HUMBLE A11y" walks in someone else's shoes, unlearns what we think we thought we knew, and develops real empathy to help advocate for those who may not be able to advocate for themselves.

2. Accessibility vs. Inclusive Design: Navigating the Spectrum

As we venture into the realms of Accessibility and Inclusive Design, we have to understand these aren't interchangeable. Accessibility is, to borrow a Marvel metaphor, the "super suit" that ensures everyone – regardless of their abilities – can engage with our product. It involves creating an experience that can leverage assistive technologies. These technologies consist of screen readers, voice commands, closed captioning, assistive touch devices, or any myriad other sets of tools that will allow people to overcome disabilities and interact with our products effectively.

Now, let's meet its cousin, Inclusive Design. An apt metaphor would be to see it as sort of a "master chef", capable of whipping up tastes and dishes that cater to every taste bud in the room. Inclusive design is about crafting products and services that are so user-friendly, they include as many people as possible. The difference is, our chef doesn't have any special tools for this process or a need to use special tools to complete their creations. In fact, their challenge is to make dishes that are as pleasing as possible with a minimum of extra technology, or in some cases, in spite of that technology.

The key here is that Accessibility and Inclusive Design work together. Accessibility tackles the nuts and bolts, making sure that anyone with assistive tech has a smooth ride. Inclusive design helps ensure that everyone feels right at home, or at least as much as possible. They are partners in crime, working together to make sure no one is left out and that everyone can have as seamless and welcoming an environment as possible.

3. What's in a Numeronym: A11y

As I mentioned earlier, that neat little numeronym "a11y", where did that come from? Other than, of course, the specific fact that the number of letters between 'A' and 'y' in Accessibility is eleven. The simple answer is that it was used with short microblogging sites like Twitter, where there was a minimum of characters allowed. In these environments, typing "Accessibility" takes up needed space, so "a11y" became a way to represent that in fewer letters[1].

But here's the real magic: a11y works out to be more than just a string of characters. Localization uses "l10n", internationalization uses "i18n", virtualization uses "v12n". Useful in the same way "a11y" it's but a11y spells out something more meaningful. While we often pronounce "A-eleven-y", we also read it as the word "ally". Reading it as ally creates a symbol that genuinely captures the goals of Accessibility. It's more than shorthand – it's a reminder that behind every line of code or image on a screen, there's a person looking to interact with it. Often a person who has different needs than we might have and that we have a responsibility to help make those experiences for them as effective as possible.

A11y started as a way to save space but has become, in a way, a badge of honor and a call out to those who would write code or test code, or any other element of human interaction. The next time you see that numeronym out in the wild, see it as an invitation to join those who champion accessibility and advocate for it.

4. The Spectrum of Disability

The levels of disability we will deal with as we interact with products is going to vary. We can't just say, "We've checked off the boxes and all is good" because there's a lot more to this than firing up a screen reader and calling it a day.

The most challenging areas are the ones that deal with primary disabilities – these are people who navigate life with persistent challenges and are the ones we most often think about when we think of people with disabilities. These are people with low vision, low hearing, limited mobility, or profound cognitive challenges. Imagine not being able to see the screen you're reading right now or struggling to hear the melodic tone of a friend's or family member's voice. These primary disabilities are also referred to as "chronic" or "persistent," as in they will not be going away. They're part of a person's identity and everyday life, and as such they are a core part of their navigating their way through the products we develop.

In addition to the various primary disabilities, there are also what are called "situational disabilities"[2]. Unlike chronic disabilities, situational disabilities can affect anyone at any time. Have you ever tried to take a call on your phone while attending a rock concert? Not the best use of technology at that moment. How about squinting and struggling to read your phone screen under harsh sunlight? Ever found yourself in a foreign country where the alphabet and language is nothing like your familiar language? These are all situational disabilities, issues that can have an effect on anyone and make them less useful in that environment.

So, what's the takeaway here? Accessibility isn't just about catering to the "obvious." It's about crafting experiences that embrace the full spectrum of human existence – from those who've dealt with these issues from day one to those who face unexpected challenges. Whether it's primary disabilities or those situational curveballs, our goal is the same: design experiences that work as well as possible for everyone.

One of my favorite examples and one I look to often as both a way that inclusive Design and Accessibility standards can be applied to even printed materials is the IKEA Instructions guides that come with most of their products. In most cases, their instructions are very simple, frequently have no words, have images that are portrayed in ways that tend to be easy to interpret, and ultimately do not require multiple languages to make sense of.
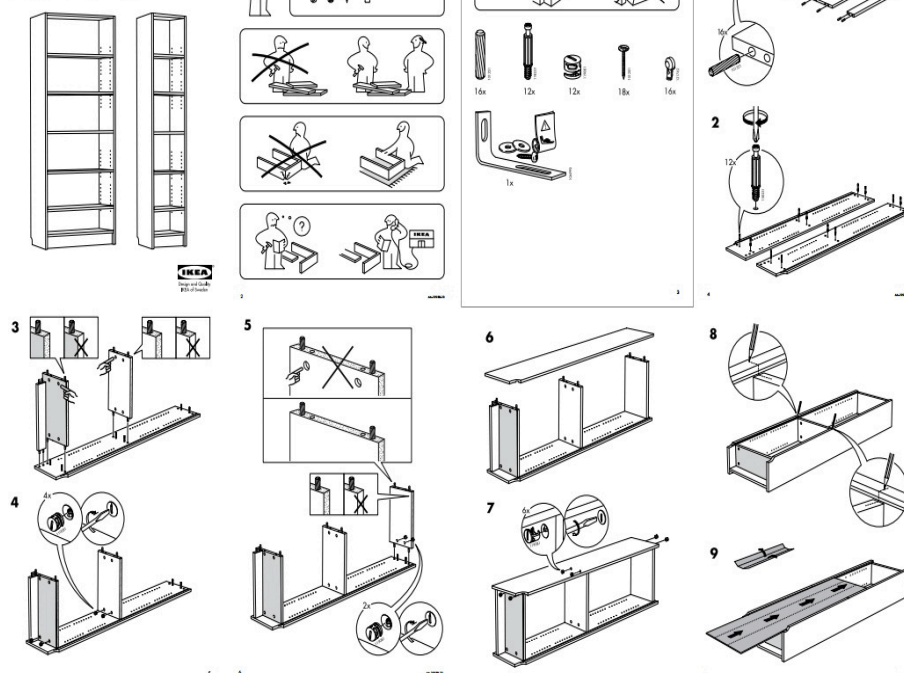
Figure 1. IKEA Billy bookcase assembly instructions

What makes this effective is that the instructions are able to be printed on just a few sheets of paper, with minimal additional details required. One set of instructions effectively works for everyone. Granted, for blind users, this is a hindrance but for everyone else, this is as inclusive as possible.

5. Ten Principles of Web/Mobile Accessibility

Jeremy Sydik's book "Design Accessible Web Sites"[3] focuses on "Ten Principles of Web Accessibility". At the time he wrote the book, mobile devices were a very small part of market access compared to what it is today, but many of the principles that Sydik presented are just as applicable in the mobile space. Those ten principles are:

1. Avoid making assumptions about the physical, mental, and sensory abilities of your users whenever possible.

2. Your users' technologies are capable of sending and receiving text. That's about all you'll ever be able to assume.

3. Users' time and technology belong to them, not to us. You should never take control of either without a really good reason.

4. Provide good text alternatives for any non-text content.

5. Use widely available technologies to reach your audience.

6. Use clear language to communicate your message.

7. Make your sites usable, searchable, and navigable.

8. Design your content for semantic meaning and maintain separation between content and presentation.

9. Progressively enhance your basic content by adding extra features. Allow it to degrade gracefully for users who can't or don't wish to use them.

10. As you encounter new web technologies, apply these same principles when making them accessible.

These principles are helpful when it comes to designing applications and they are also helpful when it comes to framing how they should be tested.

5. The HUMBLE A11y

Talking the talk is one thing, but what about walking the walk? I'll never forget a presentation I participated in with Albert Gareev, my fellow Weekend Testing Americas coordinator close to a decade ago. We had a session devoted to Accessibility and one of the topics we covered was how we can actually get into the minds and bodies of people who deal with disabilities every day. Albert had the perfect acronym to help guide us. That acronym is "HUMBLE," and let me tell you, it's well named.

Again, like a11y, "HUMBLE" is not just a word, it's a roadmap. It's a way of thinking that will have the potential to transform how you see the world around you, specifically in regard to interacting with technology.

First up, "H" stands for Humanize. It's about getting cozy with the emotional side of things. No more one-size-fits-all approach – it's about understanding how these experiences hit home for real people.

Next comes "U" for Unlearn. Shed those device-specific blinders and get comfortable stepping into different habits. If you are used to using your mouse for everything, see how it feels to only use your keyboard. No mouse interaction allowed.

"M" stands for Model. Picture this: personas that put you into the situations and lives of users. It's about seeing, hearing, and feeling the issues firsthand. We're talking behaviors, pace, mental states, etc.

"B" stands for Build – build your knowledge, your testing skills, and the scripts and tools that can help you do the work necessary.

"L" is for Learn. This is the step where we put on our detective hats. What are the barriers? How do users tackle 'em? Are we effective in our abilities when we assume these people's identities and realities?

Finally we get to "E" for Experiment. Put yourself in their shoes – literally. Collaborate with the development team, share feedback, and shape those experiences. It's not just about pixels; it's about real-life moments that matter.

For those who take the time and put forth the effort to practice the principles in the HUMBLE mnemonic, I dare say you will not be able to help but be more effective, understand the situations of your customers, and build products and tools that delight them. Also, getting closer to customer needs and experiences and understanding them better in the general sense is never a bad idea.

6. The Rules of the Road: Understanding WCAG

The Web Content Accessibility Guidelines (WCAG)[4] are not the only guideline in the world of Accessibility. Many different countries have their own standard. The United States, for example, points to Section 508 of the Americans With Disabilities Act[5]. However, the WCAG guidelines are considered to be a global agreement on Accessibility issues and by understanding the WCAG guidelines, developers and testers will have a good grasp on Accessibility and Inclusive Design issues in general, so that local regulations will often fit right into the WGAC guidelines.

It could be said that these guidelines should be considered part of the minimal standards. If we stay ahead of and implement the suggestions, we don't have as much re-factoring to do in our software or systems when new standards come out. However, if we design without considering accessibility, things like WCAG typically become legal requirements and they are terrifyingly large lifts if we want our products to be used.

WCAG is broken up into a series of principles with subsequent qualifications.

First up, pages and apps should be **Perceivable**, where content is presented in ways that every sense can interact with.

Then we have **Operable**, making sure navigation is possible and effective, no matter the tools or devices.

Understandable is the principle of clarity, that all interactions ultimately make sense to everyone.

Robust rounds out these guidelines, helping to make sure that content is stable, regardless of the tech any user might bring to the interactions.

Each of these sections have individual requirements and levels of compliance that we can interact with and confirm meets the levels of compliance desired. There are three ranges of compliance, including A, AA, and AAA. As a developer or tester goes through each subsection, they will be able to determine at which level they are compliant and more importantly, which levels they wish to be compliant. It might seem expected to have all levels be rated at AAA but there are issues here. Often, the guidelines that are rated AAA for one group of users, would be considered too extreme for other users. Often a balance has to be reached, hence the three levels of compliance for each section and subsection. With these differing levels, teams can make judgment calls as to how specifically accessible a site, pad, or app element may be.

7. Tools of the Trade: Accessibility and Inclusive Design in Action

Software developers and designers have a variety of ways available to them to evaluate and use Accessibility and Inclusive Design principles. Several tools can be implemented to help them get the most out of their interactions.

For many who are newcomers to accessibility the "Web Accessibility eValuation Tool," aka WAVE[6], is frequently the first tool they interact with. For good reason, as it is simple to use and it also provides a high level visual view to the issues on any given page, app, or interaction. It is often easy to showcase where issues are and how we might be able to remedy those issues.

Numerous Developer Tools have been created to allow developers and testers a direct way to gauge compliance with WCAG guidelines. Examples include color contrasts, examining semantic meanings, or overall WCAG compliance.

For those curious about interacting with low vision and how to interact with systems under those conditions, Apple's VoiceOver ships for free with MacOS, while "NonVisual Desktop Access" (NVDA) is an

open-source tool available for a variety of platforms. By turning on a screen reader, the user is able to hear the page speak back to them. This in turn offers examples and insights to allow them to make good decisions based on the descriptions provided.

We can't forget our friends out there who are color-blind. Numerous variations of color blindness are present and one sizer does not fit all. Color contrast, with effective hue dynamics, text and images can bet easily identified, untainted by their background canvas.

One of my favorite tools to work with Cognitive disabilities is the "Hemingway" app. This app analyzes the readability of text. This can be helpful for developing content to help people with dyslexia, as well as encouraging greater readability of text in general.

The World Wide Web Consortium (W3C) has a "Before and After"[7] demonstration that shows pages prior to being complaint with WCAG and makes a side by side comparison with pages that are compliant. The source code can be viewed and compared, allowing for Accessibility and Inclusive Design issues and fixes to be examined and reviewed.

Figure 2: W3C Before/After Simulator with Report

To borrow from Heydon Pickering's book, "Inclusive Design Patterns: Coding Accessibility Into Web Design"[8], these are some additional areas can be examined and compared:

- Ensure that images are described with alt tags and that the picture is described meaningfully. Additionally, use alt tags so that repetitive images are not all called out by using the WAI alt decision tree.

- Provide a skip link at the top of the document that will allow users to get to the main content of a page and bypass the navigation menu if desired.

- Use the "lang" attribute in tags to help programs translate or render other languages.

- Make buttons that are scalable and not tied to literal images.

- Use images that have a universal meaning (a smiley face can be rendered once, no translation required).

- Use the div tag sparingly, especially in areas where keyboard focus is important.

- Make content available in a variety of formats. If you have uploaded a video, have an option for closed captioning available. Additionally, include a full transcript of the video's content.

- If using date fields, allow for multiple ways to enter the date (text field and date picker).

- Allow Pinch-to-Zoom to let the user determine the amount of zoom and focus needed to view the page.

- Make touch areas large enough to interact with without requiring rescaling.

- Encourage the use of proportional fonts.

- Write simply and use space to aid reading.

- Review the contrast recommendations in the WCAG guidelines and encourage high contrast designs.

- Web pages may end up in other media, such as PDF files to be printed. Make sure elements that appear on the screen appear on a printed page, too.

- Remember that simple interfaces are usable interfaces. Do not make navigation or discovery more difficult than necessary.

8. Conclusion

Now it's your turn. Would you like to shine a spotlight on design decisions, to be both early and impactful in the areas of accessibility and inclusive design? It's important to realize that once a product gains momentum, changing its design is like steering a ship in a storm. That is to say, not the smoothest experience. For using on Accessibility and Inclusive Design, from the get-go, can help tremendously with giving everyone a voice and being able to effectively use it.

Accessibility and Inclusive Design are, in effect, an example of the "curb cut effect". When we designed curb cuts to help wheelchair users navigate sidewalks, we made life a lot easier for our able bodied population, too. Runners, people with strollers, shopping carts, etc. all get to reap the benefits of that decision. In short, these changes are things that can make even "normal" customers happier.

Embrace the diversity that makes each of us uniquely human. Practice empathy as you dive into design decisions. Ultimately, we should embrace the act of being an a11y. Make accessibility advocacy your position from day one. The person who one day might benefit the most from your foresight may very well be you.

9. References

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