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# 1

## Universal Design in a Digital World

"Web accessibility enables everyone to utilize websites, regardless of personal capability or technology used."

(Glenda Watson Hyatt, 2009)

"In the Maguire case we now have a firm worldwide precedent that inaccessible Web sites can be and are illegal."

(Joe Clark, 2002)

When Russian programmer Dmitry Sklyarov, an employee of Moscow-based ElcomSoft, travelled to the United States in 2001 to demonstrate the Advanced eBook Processor at the Def Con hacker show in Las Vegas, he was arrested by the FBI (Federal Bureau of Investigation) under the United States' Digital Millennium Copyright Act (DMCA). The DMCA criminalizes technologies which circumvent a program's access controls (such as DRM) with regard to their copyright — Sklyarov's software was designed to remove such restrictions on Adobe eBook format files, thereby allowing them to be accessed on other platforms. Sklyarov's arrest attracted considerable media attention and an international internet movement — freeSklyarov — swept the blogosphere. When Sklyarov was found not guilty — in large part due to the complicated nature of the DMCA — the extent of control that publishers could expect when releasing their content digitally became tenuous. The disability community likewise became concerned about the implications these legal measures would have on the development and use of such assistive technologies — although not their primary motivation, and not referred to in court documents nor in ElcomSoft's (Katalov, 2001) press release, the Advanced eBook Processor benefited people with disability as it enabled the copying of Adobe eBooks into more accessible formats.

The legal ramifications of manipulating data in order to access it are of significance to many people with disability. Wilkinson feared that the case represented a precedent:

developers of screen readers or other access software who find ways to access data may face prosecution themselves if the methods they use or the access they provide is deemed to constitute an infringement of the intellectual property rights of the companies that develop and own major operating systems. (Wilkinson, 2001)

The ElcomSoft case highlighted the way that corporations seek to maximize their profits by trying to force consumers to buy their products — even though these may not be in a format appropriate to their needs. The ability to access Adobe eBooks on different platforms is an example of universal design and a recognition of consumer demand; the Advanced eBook Processor benefited both people with disability and those without. Universal design is a core tenet of accessibility for people with disability, both within and outside the digital arena. While guidelines should be established to benefit as many people as possible, universal design is a broad concept which allows for accessibility on an individual level through adaptation. As Greg Vanderheiden suggests:

if you want to talk about accessibility, you have to talk about a single person. You can never talk about something being accessible to all people ... So, you can't create a one page fits all. But you can create a one page that can be adapted to fit a very, very wide variety. (quoted in Ellcessor, 2010)

Accessibility and usability are important features of universal design. While accessibility enables people with disability to access the web, usability refers to simple and straightforward web content that can be used by all with minimal specialized knowledge (Ellcessor, 2010). This book seeks to explore accessibility and usability in the context of web 2.0 platforms and connections, and to question the ways disability is reproduced and created in them. Before considering specific case studies and the ways in which they relate to a cultural construction of disability in later chapters, in this chapter, first, we develop a critical understanding of the forces that are driving universal design in the online environment and we examine popular perceptions about the potential internet technology holds for greater participation in social life for the disability community. Second, we examine the W3C, the main organization responsible for setting internet standards. Following this, we turn to various legal challenges in relation to accessibility and the ways they have been influenced by conflicting and confusing government policy. In the next section of the chapter, we suggest that recent changes in community expectations have reconfigured the way accessibility is understood and approached, this is highlighted with case studies, including the Sydney Olympics website and that of Target.com in the United States. Finally, we assess a new term in web accessibility — “accessibility 2.0” — the capacity to access information in the format of choice when working within the largely unstructured environment of user-generated content.

### Driving Universal Design in the Online Environment

Despite a more widespread awareness of accessibility amongst web developers, as web 2.0 becomes increasingly complex and reliant on graphics and diversity of content, accommodating for the needs of people with disability could potentially become a low priority due to perceived financial and time constraints. While it can be argued that the web is more accessible now than even just a few years ago, most new advances in technology are usually inaccessible at the inception stage. Rather than being an integral part of their roll-out, accessibility only comes later, usually as a reaction to demand and not by way of proactive intention. Joshua Miele, a research scientist at the Smith-Kettlewell Rehabilitation Engineering Research Center believes that people designing new technologies should change their approach and make a serious commitment to universal design and in-depth planning in the initial stages. Miele, as cited by Martinez-Cabrera (2010), claims this “really would be an amazing new world.”

This “new world” discourse is invoked by both people with disability and the popular press. As Glenda Watson Hyatt (aka the left thumb blogger) articulates: “For someone who has always struggled to communicate verbally and who has often felt isolated and alone when in group gatherings, social networking has opened a world to me” (Watson Hyatt, 2008). While Watson Hyatt is an avid accessibility and disability advocate, the popular press, by comparison, does not usually consider the social responsibility nor civil rights requirement to make the web fully accessible — nor indeed recognize the flow-on benefits for able-bodied users (Ellcessor, 2010). By suggesting that the web enables access to the complete range of social activity for all — including work, sex, education, and recreation — these popular articles disregard the problems frequently faced by people with disability trying to access this new world. For example, online shopping is frequently celebrated in the popular press. Although we agree that the advent of online shopping has improved the lives of people with disability in life-affirming and radical ways, this says more about how difficult it was to access offline shopping than it does about how easy it is to access the online version. By accepting systemic inaccessibility, people with disability are manipulated into reaffirming the “normality” of their oppressor and, by extension, their own perceived difference. Low-profile accessibility issues — such as inaccessible blogs or missing alternative texts (alt text) for images and scans — must be addressed alongside more high-profile cases of inaccessible websites such as Target.com or the Sydney 2000 Olympic Games.

The increasing use of DRM software to protect online content from copyright infringement further complicates any attempt to access the information in alternative formats. Sklyarov's arrest for breaching the DMCA motivated disability activists to consider the exclusionary nature of DRM, despite copyright allowances for people with print impairments:



Mr Sklyarov's case broke new legal ground and has been controversial for several reasons. Among these reasons are its potentially profound implications for those writing access software for use by people with disability. EFF [Electronic Frontier Foundation] Intellectual Property Attorney Robin Gross states, "Dmitry programmed a format converter which has many legitimate uses, including enabling the blind to hear e-books ... The idea that he faced prison for this is outrageous." (Wilkinson, 2001)

The severe consequences of violating the DMCA foreshadowed a potential for further problems for people with disability attempting to access information via new technology. Digital rights management has consequences for those reconfiguring portals and platforms in different ways and it is time for web designers and programmers, as well as legislators and corporate leaders, to address this issue. The Advanced eBook Processor had been used by both people with vision impairments, seeking to access inaccessible documents and others who wanted to copy an eBook from one computer to another. The case represented an astonishing deployment of criminal law to enforce copyright, particularly since a national (US) law was used to charge someone from another country. Many countries seek to regulate and influence the development of new media by passing laws such as the DMCA and the Australian Broadcast Services Amendment (Online Services) Bill 1999. While these laws are technically limited to a single sovereign territory, they still have the capacity to affect those who reside in, or wish to do business with, that territory. Although not an American citizen, Sklyarov was charged with several offenses including conspiracy, trafficking, and copyright infringement (Wilkinson, 2001). This was despite the fact that these offenses were allegedly committed in Russia — outside the jurisdiction of United States' law.

The manipulation of data was central to the grand jury's decision to indict Sklyarov. As all accessibility software involves the manipulation of data, the fear is that unless permission is explicitly granted in each instance, any developer of accessibility software could face the same fate as Sklyarov (although in 2002, a jury found that ElcomSoft had not wilfully violated United States' law). The legal system chose to foreground compliance with copyright legislation, even though this negated anti-discrimination initiatives. This cavalier disregard for the impact on people with disability is not really new in society, but many expected better now that guidelines exist to address this issue.

Invoking disability law in the online arena has been problematic due to both its subjectivity and confusion concerning governance. Accessibility operates in two ways — legal and professional. Voluntary guidelines around web accessibility are recommended by the Web Accessibility Initiative (WAI) section of the W3C, while legal standards in the United States are governed by Section 508 of the Rehabilitation Act, which applies to Federal agencies and their contractors in

the United States, and by the Americans with Disabilities Act (ADA). In 2006, more than 70 percent of commercial sites failed to meet either the recommendations of the WAI or the requirements of Section 508 (Ellcessor, 2010: 291). The various branches of the internet public service such as the W3C influence the discourse of accessibility. Yet while these bodies often argue that they make technical rather than political decisions, the two are intimately linked.

### World Wide Web Consortium (W3C)

Tim Berners-Lee established the W3C in 1994 in order to maintain consistency and compatibility across the internet. It aims to enhance the web's functionality through universality and operates on a broad scale to develop guidelines and specifications by means of consensus and endorsement from the wider community. However, the W3C is a technical organization and its guidelines for accessibility, although encouraged, are not legally enforced. Without dispute, accessibility is regarded as an important factor. According to the 1999 WAI guidelines, web content developers should scrutinize and prioritize aspects of the online environment in terms of the degree of impact on prospective users. Three accessibility priorities were established:

- [Priority 1]: A Web content developer *must* satisfy this checkpoint. Otherwise, one or more groups will find it impossible to access information in the document. Satisfying this checkpoint is a basic requirement for some groups to be able to use Web documents.
- [Priority 2]: A Web content developer *should* satisfy this checkpoint. Otherwise, one or more groups will find it difficult to access information in the document. Satisfying this checkpoint will remove significant barriers to accessing Web documents.
- [Priority 3]: A Web content developer *may* address this checkpoint. Otherwise, one or more groups will find it somewhat difficult to access information in the document. Satisfying this checkpoint will improve access to Web documents. (W3C, 1999)

Each priority group delineates a large number of checkpoints. For example, Priority 1 is divided into seven sections and has a total of 16 checkpoints, encompassing features such as providing a text equivalent for non-text elements. Using style sheets and logical tab orders come under Priorities 2 and 3 respectively. The sliding scale of these priorities has been embraced to a greater or lesser extent by the various companies and individuals developing content for the web. The categorization was endorsed by the White House in 1997 and following a recent update is now known as the Web Content Accessibility Guidelines (WCAG) 1.0.

While many Australian universities initially adopted Priority 1, in the last few years several have taken up adopting Priority 2 as well. Yet an accessibility



audit of a number of Australian university websites in 2003 found that 98 percent failed to meet basic criteria. When this audit was repeated in 2007, inaccessibility had increased to 100 percent (Alexander and Rippon, 2007). This disappointing result reveals a problematic tendency of accessibility being most devalued in the environments where it is most required. The full inclusion of people with disability in the tertiary arena is vital for social change to occur on a broader level — both through the education of people with disability and through exposure to diversity for all people.

This lack of compliance is partially due to the fact that the WCAG 1.0 guidelines were developed in 1999 within the web environment at that time. In this decade of enormous web change, developers have found it difficult to apply these rather specific and prescriptive categorizations within the web 2.0 environment. Unfortunately, WCAG 1.0 did not account for rapidly changing technology, such as JavaScript, nor encourage web developers to build accessibility into the early design phases.

The perceived deficiencies of WCAG 1.0 led to the development and release of WCAG 2.0 in 2009. Unlike WCAG 1.0 priorities, which could be only effectively applied to html, WCAG 2.0 is designed with web 2.0 applications in mind (Kelly *et al.*, 2007). WCAG 2.0 is guided by the acronym, POUR — perceivable, operable, understandable, and robust:

**Perceivable:** Content must be perceivable through sight, hearing or touch ... One of the main keys to accessibility is ensuring that content is transformable from one format into another, enabling your ... readers to perceive it in multiple ways.

**Operable:** Content must be navigable or operable by various input methods. This means content must not be device dependent; for example, not mouse only.

**Understandable:** Content and navigation must be understandable by your readers. This means writing the content in plain language and using consistent and intuitive navigation.

**Robust:** Robust content works across operating systems, different browsers, and even on mobile devices. Your ... readers should be able to choose their own technologies to access read and interact on your [site]. This allows them to customize their technologies to meet their needs. Web content that requires a certain technology ... may exclude visitors who either don't want to use that technology or cannot use it because of their disability. (Watson Hyatt, 2009)

WCAG 2.0 aims to guide web designers both now and in the future and encourages the use of complementary “technology specific” documents. Thus, WCAG 2.0 encourages flexibility and considers the needs and capabilities of individual users. POUR seeks to put people at the center of the accessibility process. While WCAG 1.0 focused on technique, WCAG 2.0 emphasizes principles in a way that allows greater flexibility and puts users' needs first. Technical documents specific to certain devices and code are available as attachments.

## Legal Challenges

Legal challenges in the area of web accessibility have been scant, in part due to the differences amongst jurisdictions and interpretations of the law. Here, we outline some of the significant laws and legal challenges regarding web accessibility and the ways companies, organizations for the disabled, and individuals have responded.

Effective communication and access to public spaces are central to the legal discourse of accessibility, both on the web and otherwise. Section 508 of the United States' Rehabilitation Act 1973 is the legal standard for web accessibility. The Act legislated against the exclusion of people, otherwise suitably qualified, on the basis of their disability (Ellcessor, 2010). Earlier in the Act, Section 504 evidences a rights-based approach to disability by legislating against discrimination and exclusion on the basis of disability (Ellcessor, 2010: 292).

Similarly, Section 255 of the Telecommunications Act came into effect in the United States in 1996. It applies to manufacturers of telecommunications equipment and requires that they consider ways to ensure accessibility and usability from the initial design process and that they outline ways the product can be used by people with disability when “readily achievable” (United States Access Board, 2010b). Section 255 posits that people with disability should be able to access the same information as easily as those without disability and, importantly, without having to use accommodating technology (Ellcessor, 2010: 300–301). If accessibility and usability are not readily achievable (defined as able to be accomplished without excessive cost), then the manufacturer must ensure the equipment can be accessed by peripheral devices commonly used by people with disability (Access Board, 1998).

In 2008, the United Nations expanded its definition of accessibility to position internet accessibility in line with the built environment (e.g. roads, buildings, etc). The W3C provided input and members of W3C were part of the ad hoc committee that established the UN Convention on the Rights of Persons with Disabilities. While it is acknowledged that there are a number of different organizations attempting to improve digital standards, the W3C study illustrates that these standards can be overlooked, if not actively ignored, in actual web design.

Australia is currently at the forefront of the international community in relation to promoting accessibility (Accessify, 2009). In Australia, the legal requirement in relation to web accessibility is clear. Section 24 of the Disability Discrimination Act (1992) [hereafter, DDA], like Section 508 of the Rehabilitation Act in the United States, proceeds from a social constructivist standpoint:

### 24 Goods, services and facilities

- (1) It is unlawful for a person who, whether for payment or not, provides goods or services, or makes facilities available, to discriminate against another person on the ground of the other person's disability or a disability of any of that other person's associates:



- (a) by refusing to provide the other person with those goods or services or to make those facilities available to the other person; or
  - (b) in the terms or conditions on which the first-mentioned person provides the other person with those goods or services or makes those facilities available to the other person; or
  - (c) in the manner in which the first-mentioned person provides the other person with those goods or services or makes those facilities available to the other person.
- (2) This section does not render it unlawful to discriminate against a person on the ground of the person's disability if the provision of the goods or services, or making facilities available, would impose unjustifiable hardship on the person who provides the goods or services or makes the facilities available. (Australian Government, 1992b)

Like Sections 504 and 508 of the United States' Rehabilitation Act, Section 24 of the Australian DDA mandates that if goods and services are available to people without disability, then people with disability must be afforded the same access.

### Changing Expectations

In the first successful legal challenge to an organization for discriminating on the basis of disability through an inaccessible website, Bruce Maguire was awarded AUD 20,000 in damages. Under Australia's Disability Discrimination Act, it was found that the inaccessibility of the Sydney Olympics website resulted in an unjustifiable hardship to Maguire (Worthington, 2000).

The Sydney 2000 website was an important public space for people to engage with the Olympics. It provided news, latest results, and ticketing information. Maguire requested the ticketing information be provided to him in Braille and the Sydney Organising Committee for the Olympic Games (SOCOG) refused, suggesting that he get his wife to read it aloud to him or that he call a helpline that they might establish for people with vision impairments (Lobez, 1999). Both options would involve Maguire listening to another person for several hours. For Maguire, who also has a hearing impairment, Braille provides a "greater sense of engagement with the text" (Hudson, 2009). The complaint requested that the SOCOG:

include alt text on all images and image map links on the website;  
ensure access from the Schedule page to the Index of Sports; and  
ensure access to the Results Tables on the website during the Olympic Games.  
(Worthington, 2000)

The SOCOG refused mediation and argued that the initial AUD 2,000 set-up cost to produce the document in Braille was an unjustifiable hardship on their part. While Part 2 of Section 24 of the DDA does allow exemptions if the cost of allowing access for people with disability poses an unjustifiable hardship on the

company, in this case the Human Rights and Equal Opportunity Commissioner (HREOC) found that this did not apply. Since the ticketing system for the Sydney Olympics cost several million dollars, it was unreasonable for them not to provide the alternative format at the stated cost of AUD 2,000. The Commissioner argued that the SOCOG should have thought about web accessibility when they began setting up their website, emphasizing that it would have been easy to do and beneficial for a number of people.

This kind of oversight is common and results in the internet being a disabling rather than enabling technology for many people with disability. Yet digital technologies are often presented as a way to eradicate disability as it is socially constructed, while issues regarding access are ignored or glossed over. This issue will be problematic as long as disability remains part of the private sphere rather than a civil rights or public sphere issue. Interestingly, Maguire was subjected to a backlash from both the general Australian community as well as those with disability. Maguire recalls the views expressed by both people with disability and those without following a talkback radio interview in which he argued that access to information was a right not a privilege:

One woman said, "I don't know what it must be like to be blind, and my heart goes out to them — but he should get someone to read him the book". Shortly after this, a blind man rang in and said, "That Maguire's nothing but a b\_\_\_\_\_ troublemaker: doesn't he realize that we just have to accept things and not rock the boat". (HREOC, 2003)

When disability is individualized in these ways, the broader community is absolved of the responsibility of access — individuals and their families must find ways to cope largely unsupported. Maguire further explains that:

In their different ways, these two callers were expressing the same underlying belief: while disability may be part of the reality of human experience, any suggestion that people with a disability can or have the right to participate with full equality is subversive. (HREOC, 2003)

Although he lodged the complaint for personal reasons, for Maguire this radio interview revealed that the broader impact was significant because everyone should have a right to public spaces, including the internet. The importance of laws such as the DDA should not be underestimated (HREOC, 2003).

The internet will only become accessible when the civil rights discourse of social models of disability is extended to the web as a public space:

The web is not a *barrier* to people with disabilities, it is the *solution*. The web has the potential to revolutionize the day-to-day lives of millions of people with disabilities by increasing their ability to independently access information, communication, entertainment, commerce and other aspects of life that most people take for granted. However, for the web to reach its full potential for people with disabilities, *web developers must commit to always designing with accessibility in*



*mind.* Failure to do so risks turning a revolutionary solution into yet another barrier in the lives of people with disabilities. (WebAIM, 2010a: italics in original)

Maguire's successful case against the SOCOG set an international precedent which has assisted people with disability to pursue their right to access information online. More recently, in 2006 the Californian arm of the National Federation of the Blind (NFB) pursued civil action against Target.com in the United States under the Americans with Disabilities Act (ADA), the California Unruh Civil Rights Act, and the California Disabled Persons Act. They claimed that Target's inaccessible website was denying people with vision impairment the opportunity to access their goods and services online (Disability Rights Advocates, 2010). In 2008, Target reached an undisclosed settlement and pledged a commitment to accessibility. This favorable outcome for the NFB has raised not only community awareness but also the expectations of improved accessibility.

As part of the confidential settlement package, Target was required to make changes to its website and internal guidelines under the direction of the NFB (Arnold, 2008). Target.com is now recognized by the NFB as meeting the requirements of making the site equally usable by blind and sighted users. Indeed, the NFB has awarded Target a Nonvisual Accessibility Web Certification. Although Target.com is one of the first major retail websites to implement web accessibility, issues with keyboard navigation and color contrast remain a barrier for users with low vision or people who are keyboard dependent (Dolson, 2010). It is also significant to note that this renewed interest in accessibility is the result of legal action rather than an implementation of universal design. Accessibility is, however, receiving greater attention recently with other online retailers, including CVS and Staples, agreeing to adhere to accessibility standards as part of out-of-court settlements (Martinez-Cabrera, 2010).

Some in the disability and accessibility community were disappointed with the fact that the complaint was settled rather than proceeding to a legal resolution. This meant that there is still no precedent in the United States. Early attempts to sue companies in the United States for inaccessible websites under the ADA were thwarted when the advocacy group, Access Now attempted to bring a suit against Southwest Airlines. The judge presiding over the 2002 case refused to expand the definition of public accommodation beyond the physical built environment: "To expand the ADA to cover 'virtual' spaces would be to create new rights without well-defined standards. The plain and unambiguous language of the statute and relevant regulations does not include internet websites" (McCullagh, 2002). However, as far back as 1999, this kind of view was contested: "For the rights of the disabled to mean anything in today's world, they must be extended to cyberspace no less than to parking spaces ... The Internet is a new and critical kind of public space" (A More Accessible Internet, 1999 quoted in Ellcessor 2010). In 2010, the equivalence between the public space of the built environment and the public space of the web is becoming more widely

accepted. The UN Convention on the Rights of People with Disabilities now describes cyberspace as equal to public space and encourages private entities and the media to make websites accessible to people with disability as a basic right (United Nations, 2006).

In the United States, the Section 508 Amendment to the Rehabilitation Act 1973 was first introduced in 1986 in recognition of technological advancements in communications technologies. In 1998, it was amended in such a way as to allow for both the elimination of barriers and the encouragement of new and accessible technologies. It requires that websites be made accessible to people with disability. There are six criteria that must be adhered to in order to achieve a minimum level of accessibility.

These criteria address a range of different impairments and disabling aspects of website design and they deal with both software applications and operating systems. One example is that a website should be easily navigable using a keyboard without a mouse as some people with physical dexterity impairment are unable to use a mouse. Similarly, people with vision impairments may exclusively use a keyboard and not a mouse. The importance of allowing for the use of screenreaders or Braille display through the inclusion of alt text is recognized via a focus on web-based information and applications. In the telecommunications sphere, there is an emphasis on the importance of compatibility with hearing supports, hearing aids, cochlear implants, assistive listening devices, and telephone typewriters (TTYs). The ability to adjust volume is noted to be important. Further, more than one media must be available via a variety of video and multimedia products. Self-contained, closed products — including information kiosks, calculators, and fax machines for example — address embedded software and allow for assistive technology.

These criteria are wide-ranging with respect to the types of disability they address. In addition, they give general users options as to how they access the web, for example, volume control and choice of media (video, text, slide show, etc). However, it is ineffective to rely solely on legislation to ensure accessibility, especially when it applies only to a certain group of websites. Despite relevant laws, accessibility protocols are still often set aside. Particularly in light of the trend toward user-generated content, the only way that accessibility will be guaranteed is if the principles of universal design become widely accepted as a fundamental part of web design.

It is difficult to apply much of the disability discrimination legislation to the web 2.0 environment because they were established prior to the wide uptake of the web in homes, government, and business. Although the first case of successful litigation against an inaccessible website occurred in Australia, there were no further attempts at corrective litigation in that country until 2009 when Les Karr initiated action against Virgin Blue, and also signaled his intention to similarly sue Yahoo Seven and the Australian Competition and Consumer Commission websites.



Motivated by his experiences as a person with vision impairment trying to navigate the online environment, in 2008 Karr began the onerous task of examining 30,000 websites to test their accessibility for people with vision impairments. He believed about 99 percent of websites to be inaccessible and initiated contact with several sites via their online contact information. After explaining the difficulties he, as a vision-impaired visitor, experienced with the particular site, he outlined the WCAG principles and encouraged the organization to bring the site up to standard. Only if the response was not favorable did he consider making a complaint to the Human Rights and Equal Opportunity Commission under the DDA.

Kerr did pursue action against Virgin Blue, citing difficulties in relation to color contrast and hard-coded text size. However, unlike Maguire's experiences with SOCOG, Virgin Blue agreed to mediation and made the necessary changes. This was applauded by the Australian Disability Discrimination Commissioner, Graeme Innes:

Travel is something that we are all doing more and more of, and it is important that people with disability can participate equally in this activity ... Virgin Blue have been working productively with peak disability and advocacy organisations to improve access and their Independent Travel Criteria. The result is a policy which is far less restrictive.... Australians with disability make up 20 percent of the population, so I am pleased that this significant segment of the travelling market will now be able to share in use of Virgin's facilities more equitably ... I congratulate Virgin Blue on these changes, and the way that they have worked with people with disability to achieve a positive result. (Australian Human Rights Commission, 2009)

While it is good to see attitudes to accessibility on the web changing, this does raise some continuing questions. Why is it that these laws and regulations work, whether by design or practice, only in situations where a complaint is brought either by individuals with disability or by organizations outside of government acting on their behalf such as the NFB? In many cases, these laws and regulations seem to require that they are policed and enforced by the very people who are excluded from accessing the sites that require modification. While the FBI were active in seeking out and prosecuting Dmitry Sklyarov for breaching United States' laws relating to copyright, there seems to be no equivalent extra-jurisdictional enforcement of laws and regulations relating to accessibility.

The Australian Human Rights Commission takes W3C compliance into consideration when mediating disputes regarding web inaccessibility. WCAG 1.0 was the internationally-recognized standard for accessibility; this standard is now moved into its second generation with WCAG 2.0 and focuses on principles rather than technical specifications. By encouraging sites to follow the POUR principles, WCAG 2.0 is not invalidated by technological advancement. Like Berners-Lee's vision for the web, these guidelines highlight the importance of accessing the same information in different ways and using different adaptive

technologies. They also fit into a core feature of web 2.0 whereby software is above the level of a single device (O'Reilly, 2005). This has become increasingly important as more people access the web, using a range of different portable devices. Robust sites which allow users to control and access information in a variety of ways are particularly important in the era of the mobile web.

At the time of writing, Section 508 is open for public discussion (for more, see Chapter 8). The move to update the Act is in response to the high level of non-compliance (including by the White House) and the emergence of social networking in e-government. Section 508 requires that all Federal online content is accessible to people with disability (Walker, 2010). As local governments look to moving their online content to Facebook and other social networking platforms (Townes, 2010), the accessibility of social networking sites is becoming increasingly important as a measure of Section 508 compliance. This update is long overdue.

### Accessibility 2.0

Particularly in light of the expanding ethos of user-generated content, the spotlight on web accessibility must move beyond the domain of government regulation. This concept has been termed "accessibility 2.0." We use this term to refer to the capacity to access information in the format of choice when working within the largely unstructured environment of user-generated content. The philosophy of web 2.0 is to relinquish control by sharing ideas and building on what came before. In this way, web 2.0 invites collaboration and participation, with the only barrier to full democratic engagement being a problem of access. Allowing users to access information in the ways they want without restrictions is both robust and future-directed. It is also markedly different from the previous generation of broadcast communications where audiences were dictated to by broadcasters. Web 2.0 flourished where the early web failed because sites gave users control. The phenomenon will be discussed further in Chapter 4.

Unfortunately, compliance with the standards suggested by the W3C is voluntary and there is no fully effective way to enforce it. The differing interpretations of legislation amongst judges and jurisdictions make it doubly problematic, with some areas recognizing disability discrimination acts and others arguing that online spaces do not fall within the definition of public spaces and are therefore deemed to be exempt. Further, most disability discrimination acts were established prior to the advent of the World Wide Web era and their concepts do not easily translate.

Kelly *et al.* (2007) argue that accessibility options can sometimes get in the way of a satisfying user experience and that people should have choice about how information is accessed. An accessibility 2.0 approach describes "a renewed approach to accessibility, which builds on previous work but prioritizes the



importance of the user.” Accessibility 2.0 follows a social understanding of disability by focusing on the purpose of the resource. It assumes different people use the web in different ways and that accessibility is a process rather than a finite solution. Although accessibility 2.0 is lauded for moving beyond regulations and groups such as W3C and WCAG, this does not imply that there is no value in either their existence or the guidelines they have developed. Indeed WCAG 2.0, with its emphasis on principles rather than prescriptions, was actually a step toward the notions of accessibility 2.0 by allowing users to control the way information is accessed.

Accessibility 2.0 has been credited with moving beyond content in recognition of a web environment in which people both read and write. However, this presents an entirely new challenge to web designers who are trying to “do the right thing” by following web content checklists. Brian Kelly, who possibly first coined the term accessibility 2.0, anticipates a new set of resistance from the group that, historically, has supported the implementation of accessibility most forcefully:

But how ... should we address the conservatism we’re likely to face within the institutions which have adopted an approach to web accessibility which is based on simple conformance with checklists which simply cover the Web content? And what about the Web developers and content creators who, possibly for a period of almost 10 years, have prided themselves on implementing such guidelines? How should we change this culture? (Kelly, 2008)

Perhaps part of the answer is that everyone has a role to play in the future of accessibility, from government and policy makers, to hardware and software creators and finally, the web 2.0 community and the people actually accessing the sites.

Toolkits must be better developed in order to anticipate ways to allow for different impairments because there are many web developers and no one single way to ensure accessibility for everyone. For example, some websites, with the social networking site MySpace being the obvious example, automatically load audio. In this example the problem could be seen to be emanating from the creator of the MySpace page, or the browser (such as Internet Explorer or Firefox) or the operating system. As this interferes with the functioning of screenreading software, an accessibility 2.0 approach, in conjunction with WCAG 2.0, would see web standards implemented in a way to block the automatic loading of sound without impacting on the functioning of the screenreader (Popov, 2006), yet without having to turn off all audio.

As in the case of Dmitry Sklyarov and his Advanced eBook Processor, it seems that, sadly, the needs of the disability community are deemed to be of no consequence:

But what about the fate of all those blind people who now won’t be able to read e-books because Adobe will have disabled the read-aloud feature at some pub-

lisher’s request? Typically, publishers ask Adobe to disable that feature when they fear it might violate their contracts relating to an existing audio version of the same book. But when you think about it, in those circumstances it might actually make more sense for a blind person to pay \$15 to buy the audio book — a tape of a professional actor or the author of the work reading the book aloud — rather than pay \$8 for an e-book and \$99 for circumvention software, in order to hear voice-simulation software articulating the words in a robotic monotone. (McCullagh, 2001)

Even in 2010, when accessibility to print materials for people with disability is more widely understood by publishers, libraries, and universities, this argument does not actually reflect the real world situation. Publishers regularly lock pdfs (Portable Document Format) of their book prints without providing an audio book alternative and DRM is introduced to force device-specific access. If people with disability were to do as McCullagh (2001) suggests then they could be forced to purchase a new eBook reader for every book they read. That would be clearly unfair and disabling — text-to-voice software is an important accessibility and usability feature.

Usability is an important feature of accessibility 2.0 and borrows from recent developments in human computer interaction (HCI):

The original and abiding technical focus of HCI is on the concept of *usability*. This concept was originally articulated naively in the slogan “easy to learn, easy to use”. The blunt simplicity of this conceptualization gave HCI an edgy and prominent identity in computing. It served to hold the field together, and to help it influence computer science and technology development more broadly and effectively. However, inside HCI the concept of usability has been reconstructed continually, and has become increasingly rich and intriguingly problematic. Usability now often subsumes qualities like fun, well-being, collective efficacy, aesthetic tension, enhanced creativity, support for human development, and many others. (Carroll, 2009)

In the web 2.0 era, usability is not just about being able to use a site, it now embraces the concept of fun. But some have questioned whether this creativity is compatible with the prescriptions about accessibility. However, Lembree argues against the portrayal of accessibility as detrimental to fun:

I think there’s a misconception that a “Web 2.0” site or app [application] can’t be cool or fun and be accessible at the same time. On the contrary, I find that it’s quite possible. It’s mostly a matter of planning it from the beginning, and implementing progressive enhancement. (quoted in Accessify, 2009)

Glenda Watson Hyatt (2009) acknowledges the balancing act between creativity/aesthetics and usability/accessibility but affirms that site visitors’ preferences should be paramount. People must be able to access information in any way they choose:

[balance] your blog’s aesthetics with usability and accessibility. Which do you value? Which is more beneficial to your readers? That is not to say a blog needs to



be butt ugly to be accessible. Find the balance. Perhaps ask your readers what works best for them. (Watson Hyatt, 2009)

## **Conclusion**

Web 2.0 is governed by a user-centric approach that assumes technological innovation and that users will access the same information in different ways. Although the web as a platform is a web 2.0 concept, its origins are in Tim Berners-Lee's vision of the web as a platform to share information. Berners-Lee suggested that accessibility, regardless of disability, was a crucial aspect and established the W3C and WAI to ensure this vision was realized. WCAG 1.0 and 2.0, although released ten years apart, reveal much about the increasing value of universal design and differences amongst users and their access choices and requirements.

Legislation in both the United States and Australia embody civil rights terminology. Emerging alongside the W3C, their origins are in non-web telecommunications and accessible environments. This has been problematic to implement yet has resulted in some positive outcomes for accessibility. Despite initial reluctance, the public space of the web is now being conceptualized in the same way as the public space of the built environment.

Accessibility 2.0 embraces the underpinning philosophy of web 2.0 — the undeniable right of user choice — and could prove more effective than W3C in forcing large corporations to embrace accessibility. This is particularly important when we start to realize that new bottlenecks of resistance are emerging to thwart user choice of format. Although web 2.0 sites encourage community collaboration via user-generated content, surprisingly, many still attempt to force users to access information in a particular way. For example, Apple, whom we consider in-depth in the next chapter, has greatly improved their accessibility following user outrage. Yet they continue to operate outside of standards and dictate which technology users must adopt.

At the start of the century Sklyarov was arrested, but was not convicted for circumventing DRM to grant a higher level of access, similarly at that time Maguire successfully pursued his action against SOCOG over the inaccessibility of their website. However by 2007, all Australian universities had websites that were no longer compliant with the WCAG guidelines. The legal action against Target.com was also successful in making the company's web presence more accessible and similar agreements have been reached with both CVS and Staples. However, all these outcomes required legal action to be taken. It seems that heading into the second decade of the twenty-first century that we do indeed stand at a crossroads in relation to web accessibility. The great potential that access to digital communications technologies provides, particularly for people with disability, remains in danger of being unrealized, yet there are many positive signs and developments.