



State of Accessibility in U.S. Higher Ed Institutions

Jiatyan Chen^(✉)

Stanford University, Stanford, CA 94305, USA
jiatyan@stanford.edu

Abstract. This paper will discuss the requirements and environment surrounding accessibility in Higher Ed institutions in the U.S., and their attempts to tackle these challenges. We will go on a panorama tour of the structure and culture of large universities and their constituents; touch on how accessibility fits into teaching, research and administration responsibilities; cover perspectives from legal, students, faculty, support staff; and take a look at policies, operations and culture impacting accessibility efforts.

Keywords: Higher Education · Accessibility

1 Introduction

The 2015/2016 complaints brought against UC Berkeley [1], Harvard and MIT [2] about captioning for their public online courses attracted much attention from the media and Higher Ed. These cases are but a sample filed against education institutions, with both having very limited scope compared some wide-reaching lawsuits.

Since the Americans with Disabilities Act of 1990 (ADA) was passed, the number of cases against Higher Ed institutions has doubled between each decade (tabulated from the cases listed on Higher Ed Accessibility Lawsuits, Complaints, and Settlements [3]):

1990–1999 1
2000–2010 16
2011–present 35

Most of the complaints against educational institutions are not captured by the above website. There are a lot more complaints being resolved without high-profile media coverage. For example, since 2014, Marcie Lipsitt (a Michigan civil rights advocate) has filed 1,800 complaints across the country with the U.S. Department of Education Office for Civil Rights (OCR) [4]. In addition, a search for “+web +accessibility” on the website of U.S. Department of Education Office for Civil Rights (OCR) returned 1,292 resolutions reached since 1st of October 2013 [5]. And across all industries, “[t]he number of website accessibility lawsuits filed in federal court since the beginning of 2015 has surged to at least 751 as of 15th of August 2017, with at least 432 of those filed in just the first eight and a half months of 2017.” [6]

So what is web accessibility, and how does it come to affect the Higher Education space?

The Americans with Disabilities Act of 1990 (ADA) is a non-discrimination law in the U.S. which covers both the Public sector and specific sections of the Private sector [7]. Another non-discrimination law is Section 504 of the U.S. Rehabilitation Act of 1973 (Section 504) which covers programs and activities receiving Federal financial assistance [8]. Universities in the U.S. are affected by both pieces of legislations, with the U.S. Department of Justice (DOJ) and the OCR holding the responsibility for enforcing these legislations.

Accessible, as defined by numerous lawsuits and agreements, means “a person with a disability is afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and equally integrated manner, with substantially equivalent ease of use” [9–14].

Many of these lawsuits and agreements were opened through complaints by plaintiffs with disabilities, who were unable to use covered services provided by the defendant, and were unable to find timely and acceptable resolutions. Most of the complaints centered around the online services and content provided by the universities. These include public access pages such as information about the universities and application forms, open course content, campus information, and a clear path to request for assistance. For enrolled students, the complaint focused on the timely access of course content for them to keep pace with their course schedule and assessments.

When the ADA was passed in 1990, accessibility of the Web was not specifically called out. The Web has matured since the 90’s, and our society has become dependent on its widespread use. Many services have shifted to web-first, conducting business online, and requiring extra steps or compensation for using their phone or paper services. As such, the DOJ issued Dear Colleague letters in 2010, 2011 and 2014 to clarify that the Web is covered by ADA, “Requiring use of an emerging technology in a classroom environment when the technology is inaccessible to an entire population of individuals with disabilities – individuals with visual disabilities – is discrimination prohibited by the Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973 (Section 504) unless those individuals are provided accommodations or modifications that permit them to receive all the educational benefits provided by the technology in an equally effective and equally integrated manner.” [15–17]

However, in the absence of specific regulations regarding web content, there are still cases being argued in the courts interpreting the applicability of ADA for the Web [18]. And although both the DOJ and OCR have clarified their interpretations through the Dear Colleague letters, universities are slow to address this requirement due to various reasons, including: Increased demand and expectation, a plethora of content, inaccessible tools, lack of knowledge, missing processes, and a culture of dismissing accessibility for more appealing and more urgent topics.

2 Current State

2.1 Increasing Demand and Expectation

The current generation of college-aged students have more than two decades of growing up with the provisions of ADA—they know which accommodation to expect, and know how to request them. And with the increasingly aging population, senior citizens are also demanding their rights for accommodations under the provisions of ADA. Since the availability of cheap computing machines as of the 1990s, and interconnectedness as of the 2000s, the shift from business services from paper and phone to online self-service has accelerated. It is expected nowadays that a service or business has an online presence, and some businesses are even requiring customer to pay extra for alternate in-person or phone services. The Web has matured from a hobbyist toy to a ubiquitous mainstream mode of communication. Societies now demand and depend on it. Nevertheless, when compared to those who build essentials such as medical equipment, buildings, and vehicles, the designers and programmers for websites and applications have yet to improve the rigor in their craft when constructing websites and web services.

Universities spend years establishing smooth systems to support their work of teaching and generating knowledge. As such, it is the nature of these long-running processes to accumulate undetected accessibility debt in both the computing systems they use and the content they published. Lawsuits targeted at one failure opens the door for external investigations, identifying more areas with inaccessible functions. To fix them, however, challenges a university's setup. For example, a university has already paid for the long-term investment of inaccessible systems such as a decade-old financial system, hooked into multiple registration systems and personnel databases, with the development completed years ago and only retaining a skeleton crew for maintenance. In comparison, a fast-moving start-up company still has the original software engineers actively developing its one-year-old product, making it easier for the start-up company to adjust their product to address changing accessibility concerns. Also, the continuous expense of universities are typically focused on its faculty and staff, teaching courses, and generating data to fulfill the teaching and research missions of the university, rather than redevelopment of existing functional systems to address the evolving requirements for Accessibility.

The demands for accessibility at universities are primarily on services related to

- **Classes:** Browsing its course catalog, registering, paying, attending the classes, being assessed, and receiving credits;
- **Activities:** Attending student events, residential life, campus activities, as well as student organisations;
- **Public programs:** Public lectures and events, access to its libraries, public areas, building and facilities;
- **Research:** Participation in studies, and distribution of results;
- **Administrative work** to keep the university running, such as computing, dining, financial, transportation, facilities, HR, security, and administrative support.

Reviewing a sample of complaints listed on Higher Ed Accessibility Lawsuits, Complaints, and Settlements [3], there is a full range of accessibility complaints covering access to course syllabus, the availability of alt-format textbook and course material, time extension for exams, accessible online open courseware, ability to enter buildings, alternative methods for withdrawing money from ATMs, and payment methods for classes and meals. Researchers are also scrambling to comply with requirements of the funding agencies (usually the federal government) as accessibility requirements make their way into submission guidelines and publication of their research findings.

2.2 Content and Tools

Universities have served for centuries to learn and educate, to curate and create knowledge through research, and to serve society. An artifact of these pillars is published content, increasingly in electronic form. This electronic content is delivered via content management systems (CMS) or learning management systems (LMS). These publishing platforms shield the users from the need to be proficient with the technical knowledge of constructing a web page, and let them concentrate on the actual subject matter content of their publication. However, no matter how brilliant a CMS or LMS system technologists build, this system cannot correct fundamentally problematic content that was entered into the system—the creation of content is the responsibility of subject matter experts. Typical causes of inaccessible content are: Incorrect use of formatting settings, lack of captions for images and charts, and poor choice of colors and fonts. All of which are due to human decisions during the process of editing, rather than a programmable switch.

To compound the problem, universities output a large percentage of STEM content (science, technology, engineering and mathematics), which are notoriously difficult to make accessible and require specific Accessibility help pages [19, 20]. Libraries, in support of research and teaching, also purchase equivalently inaccessible products sourced from other universities and academic journals.

The other aspect contributing to accessibility issues is the use of tools like multimedia, interactive learning modules, and emerging technologies. The availability of tools lowering the production cost of videos overlaps with the resurgence of multi-modal learning theories, making it easy to implement what used to be a rarity in class—recorded lectures, screen captures, animations, podcasts, and flipped-classrooms—where students are required to view the lectures prior to face-to-face class discussions. However, most of these recordings are missing closed captioning or transcripts for their audio track. And instructors, looking for the best up-to-date material to broaden their students' learning experience and making learning more interesting, are eager to adopt interactive learning modules and learning games created by textbook publishers and other educators, not realizing that the modules and games may not have undergone rigorous assessment for accessibility. Faculty are also encouraged to experiment with various learning solutions as new tools and platforms become available. However, many of the tools and platforms start off as prototypes or start-ups, and were, by design, developed with a limited audience in mind. While a lot of them end up failing in the market, some garner sufficient adoption sufficiently to be picked up for use as

university functions, and only then would the universities discover that these tools shut out a portion of the population.

In addition, universities are connected to the world and the societies they serve. In our interconnected world, faculty routinely need to use time-sensitive content not created under their control, such as articles, media feeds, free video, discussion forums, and social networks. These content help students stay relevant and engaged in the subjects. Many of these content creators are not obligated to provide accessible content, and even when they are willing to remediate, the delays impede the schedule of the classes. Even if an instructor follows Universal Design for Learning (UDL) principles in course preparation, we cannot expect them to be omniscient on handling a current event.

2.3 Knowledge and Skills

The lack of accessibility knowledge is not unique to Higher Ed. Technology companies in Silicon Valley found that they have, on average, five accessibility specialists to 5,000 technical positions [21]. Universities main information technology (IT) organisations draw from the same pool and mirror the same distribution as that of the industry. Universities also face limited flexibility in staffing due to

- Limited budget to fully staff positions and so accessibility skills are either sidelined or treated as a partial responsibility;
- Lower compensation leading to fewer selection of knowledgeable candidates, and
- Fewer turnovers leading to tendency to stay with the outmoded knowledge and processes.

Often, the few accessibility specialists working at universities have are spread thin resource-wise, and can afford only limited time for the high-profile IT projects. They may only be available for participating in very selected development cycles, and are only able to conduct the most critical tests. This means a lot projects and functions can fall through the cracks.

Besides technical staff, universities also deploy a large army of content authors. These authors can range from faculty writing course material, researchers publishing findings, administrative staff circulating memos, communicators publicizing articles, producers editing videos, and service staff updating schedules and menus. Accessibility is not mentioned as a writing requirement, much less listed as one of their job responsibilities, and many of them only play author on a part-time basis. Often, they are not aware of the few steps and choices they can adopt in their processes to create accessible content when authoring, and end up collectively contributing to a large amount of inaccessible content.

The last group of university personnel who might contribute to accessibility issues is the staff member who lacks knowledge on how to handle accessibility or accommodation requests, or the staff member who knows how to proactively avoid such requests. This covers people responding to help requests, as well as people selecting goods and services. Having never heard of a screen reader, a help desk staff is unable to direct an accessibility request to the correct office. Without checking for accessibility compliance, the purchaser of computer systems would have put their universities in vulnerable positions when accessibility features are needed. There is at least one lawsuit stemming

from a faculty misunderstanding and failing to respond adequately to an accommodation request, and the university having to remediate all their inaccessible systems and content. (See the complaints and agreements for Louisiana Tech University [22], Miami University [23, 24], and Pennsylvania State University [25, 26].)

2.4 Policy and Practice

Documented procedures or instructions of how to get things done and moved through a complex system is a proven method of coordinating standards and setting expectations for a group, ensuring continuity despite staff turnover, and checking that details don't fall through the cracks. Documenting these procedures take effort, and often politics, and thus is not attempted frequently, and rarely comprehensively.

Compared to other functions of a university, accessibility compliance is relatively new. Following the process for Title IX and IT security, most universities are still in the process of determining a policy; finding a way to detect, measure and monitor its compliance; and planning and training its staff in the production of accessible content and software, and on responding to requests. Additionally, the university has to plan for remediating its existing inaccessible content and software. More often than not, accessibility becomes a risk management issue rather than a civil rights issue, as universities have to adhere to more than 200 compliance regulations, affecting equal opportunity, research, financial, admissions, export control, copyrights, and IT [27].

As accessibility touches many parts of a university system, to integrate it into the university processes means inserting procedures into existing budgeting, procurement, production, publication, development, auditing, and reporting processes. Each of these injections minimally requires identifying the appropriate processes, convincing the right people, securing the funding, planning and writing the procedures, and training the relevant staff. As a bigger challenge, these conversations have to occur separately at multiple local levels (school, college, and department), as most large universities delegate most operational decision to the deans and unit managers. For example, outreach messages and video lectures are generally produced by separate departments and individual instructors, and each of these productions likely published on the individual's YouTube channel. While the university's name may be included when posting, these YouTube channels are associated with the respective department or instructor, and are not official university channels that the university is able to supervise. Such is the decentralised nature of university work. Stipulating that the productions now need to pay a captioning service or investing five times the length of the video [28, 29] to self-caption is a major disruption to the production process and budget.

Looking outwards, universities outsource a variety of services and to many vendor software and personnel who do not need to conform to ADA requirements, and the burden is on the universities to ensure that they only source from compliant suppliers. Some of the suppliers have a monopoly in their niche markets and are reluctant to take on accessibility responsibilities. Notable examples come from publishers of journals, financial systems, and college applications software. The archives of a major Higher Ed Accessibility mailing list, EDUCAUSE ITACCESS, indicates that conversations about vendor product accessibility started in 2007, as early as the list's inception [30]. Lacking accessible options for its core services, universities turn to managing

accessibility with short-term workarounds, kicking the proverbial can down the road in the hopes that there will be an accessible solution when someone really needs this function. Dealing with large vendors also put universities in weak negotiation positions—these companies have standard take-it-or-leave-it contracts and non-disclosure agreements, leaving universities unable to compel the companies to produce accessible software, nor share the findings of their accessibility tests with other universities.

2.5 Culture

Formalizing processes moves slowly. Changing the culture beneath moves even slower.

We have discussed how, in a decentralised authority model used by universities, there is no central gate where Accessibility may be detected and fixed. Unlike ethnics or women’s studies, disability and accessibility awareness is not specifically introduced in schools. Most of us are unfamiliar with persons with disability, do not know how to interact with them, and end up treating them as outsiders or trying our best to ignore this 19% [31] of the population. While both universities and companies face the similar challenge of having to train staff, university trainings have to cover a wider spread of topics compared to a company’s narrower focus on either technology or production.

When we talk about accessibility, the easiest example is, “to enable those who are blind,” and, unfortunately, faculty has firmly connected “blind” to “disability services”, with a typical response of, “We have an office to handle it. I don’t need to know nor worry about it.” Although disability services have overlapping skills with Accessibility, their main charge is towards *individual* accommodation, whereas Accessibility is to get everyone’s material to a minimum standard so that these accommodations may be made. These messages need to be adjusted to highlight the difference between Accessibility and Accommodations, and that having accessible material benefits beyond those who are willing to ask for help.

Other than changing the messaging, any established workflow has inertia and any changes require overcoming this inherent resistance. It is understandable that adding Accessibility requirements means learning new things and changing workflows, thereby introducing complexity to a well-oiled routine. Contrary to what people have come to believe, this change cannot be passed off wholesale to IT or disability services, and includes explaining that Accessibility is a shared responsibility that requires everyone to know and be aware of it. While many universities are working to undo this established misconception by having supervisors issue directives, establishing peer pressure, and providing skills training to enable people to be self-sufficient, they are just taking the first steps towards building this momentum.

Accessibility, like plumbing in buildings or security in IT, is a hidden foundation, not a shining star that attracts attention. Accessibility is working well when there are minimal complaints that can be swiftly resolved, incurring no damage to the university’s reputation. Unfortunately, there is usually not a lot of resources dedicated to support accessibility work unless (negative) attention has been drawn to it. Accessibility coordinators have to tightly balance resources allocated in each area, and maintain enough visibility to be on the minds of university administrators and managers for their continual support.

3 Short Term Solutions

The spate of lawsuits and settlements between 2014 and 2016 has increased the visibility of Accessibility in the Higher Ed space. Those paying attention took to re-examining their legal obligations and making decisions about scope and actions. Many started enacting policies and allocating some resources, often in the form of shifting an existing staff's job scope to handle Accessibility part-time. While this quick-fix is a step forward, often this staff member was left in an impossible position of not having sufficient resources nor formal authority to be effective. Other universities chose to go through the formal arduous process of creating official positions and assigning reporting lines, resulting in the increased number of job postings for Accessibility coordinator positions observed in 2016 and 2017. This coordinator usually reports to a committee with representatives from high level of governance. For example, the most recent settlement with Miami University [32] stipulated three positions to effectively conduct business—a coordinator/lead, a technologist, and an assistive technology (AT) specialist, reporting to a University Accessibility Committee, in addition to a direct report to the Vice President of IT and the Office of Equity and Equal Opportunity. In other settlement agreements, the coordinators are to have “responsibility and commensurate authority, to coordinate the University’s EIT Accessibility Policy and procedures” [33, 26]. That said, it is normal for there to be just a one or two Accessibility personnel covering the responsibilities for all these positions.

In a central position, one of the major projects of an Accessibility coordinator would be to conduct an inventory of the electronic & IT (EIT) assets residing in both central and decentralized units. These assets include websites, software applications, digital documents, instructional material, library journals, and multimedia. The next step is determining how much accessibility gap there is. This can be accomplished by running automated scans as well as performing manual tests on said assets. Between inventorying EIT assets and assessing the accessibility gap, the Accessibility coordinator is able to provide information to each decentralised local unit so that they can create remediation plans for their different mix of assets, with the understanding that all current and future projects are to be developed as fully accessible projects.

Most central Accessibility units also act as a university-wide resource by monitoring compliance, coordinating training and outreach sessions, acting as consultants for prioritizing remediation, answering technical questions, performing AT testing, and helping with user reports of inaccessibility.

Another essential step towards addressing Accessibility issues is to set up a grievance process and make this information publicly available. Having an Accessibility policy and method for escalating a complaint posted on key university websites, allows anyone having accessibility problems on any university webpage to quickly get help and turn the remediation spotlight on these problem pages.

Having set up a way of reporting problems and a plan in place to fix them internally, the remaining major area which impacts Accessibility is procurement. As the IT industry matures, universities become more dependent on externally sourced transactional software and services, since it is no longer cost-efficient to maintain an in-house development shop for something which industry can do cheaper and at scale. When

Accessibility staff are able to work with various purchasing agents on evaluating the compliance of each product, they can help strengthen the contract language to compel the vendor to correct Accessibility defects. More often than not, the business unit purchasing an inaccessible software has to provide a Equally Effective Alternative Access Plan [34] on how it intends to respond to an accommodation request. This makes the business unit aware of that they have a gap in their service and should choose an accessible product if possible.

The above outlines similar approaches some universities have instituted. Universities are also pursuing additional separate efforts. For example, the University of Illinois at Urbana/Champaign builds accessibility scanners [35] and runs both short technical courses [36] and graduate certificate programs [37]; the University of Colorado Boulder has a Universal Design for Learning course [38]; and the Utah State University has a center on disability, WebAIM, maintaining an extensive collection of up-to-date information about web accessibility and also provides in-depth training [39]. The University of Washington has a HCI research center on accessible technology [40] and an NSF funded program, Access Computing, which connect students projects to persons with disability [41]. Michigan State University has a usability and accessibility research center [42] and hosts student conferences [43]. Various universities are also collaborating with their vendors to test vendor products as well as teach vendors how to design and write accessible products. Yet others are collaborating within Higher Ed to share product evaluations [44] and engage vendors collectively to have a stronger negotiation position in securing vendor agreement in supplying accessible products. EDUCAUSE, a Higher Ed technology association has produced an IT Accessibility Risk Statements and Evidence paper [45] as an advisory to IT leaders as they make planning and budgeting decisions.

4 Long Term Solutions

Imagine that we suddenly realize that we have to change our narrow doorway to accommodate wheelchairs entering the building. We would need to rip out the existing door, tear down part of the wall, maybe re-route electricals, re-certify the structural integrity of the building, pay for and re-install a new door, and level or install a ramp in the entrance area. If only our architect had known that and factored wheelchair access into the original design and engineering.

We have unintentionally created a culture and system which produces inaccessible products. It will take years to restructure and re-learn. There are discussions and pilot projects started to explore viability. We have to address the people, the environment and the system.

One of the causes we can easily identify is the lack of Accessibility knowledge in people producing our web and electronic assets these days—programmers, designers and content producers. It can be traced back to a lack of training and exposure during their school years and environment. And their teachers were also unaware of this topic. Currently, there is a joint effort by the high tech industry and Higher Ed called Teach Access [46] that helps to insert Accessibility topics into the undergraduate curriculum.

The goal is to train a lot of people to know a little, in addition to our existing method of training a few people who know a lot. Teach Access is working with standards committees to clarify accessibility statements in undergraduate curricula, training faculty, organising student events, and participating in classes. Decentralising Accessibility knowledge will put more eyes and minds in the production process, with a two-fold benefit that Accessibility considerations may be identified early in the development process, and be more effective in using the limited number of specialists for solving really thorny problems.

Even if not taught as a skill, more exposure to Accessibility as a topic in ethics or social studies classes will bring awareness and help the students feel comfortable in talking and caring about the diverse needs of everyone. As institutions for learning, universities have the obligation and the ideal environment and structure to introduce social consciousness to both their student and staff.

Another way to make Accessibility widespread is to build it into the system, making it automatic and thus invisible and natural. With planning and resources, Accessibility checkpoints may be built into the development life cycle, requiring that every project include a team member knowledgeable about Accessibility guidelines, and to get a final Accessibility check before each version is released. Adding specific Accessibility checklists to production processes will create habits on consistent alt-text for images and closed captions (subtitles) for videos. Besides having individuals manually add Accessibility into these processes through planning and checklists, the tools used in development, project management and content production can have a significant nudge effect if Accessibility affordances are built in. For example, if a WYSIWYG editor automatically prompts for alt-text while explaining in its just-in-time help the purpose of alt-text, it enables the user to consistently provide pertinent alt-text immediately, rather than returning to add them later.

A third area where accessibility concerns can be addressed requires that universities treat Accessibility as important as other compliance and risk management issue, devoting the same executive support and resources to it as IT security, privacy, or Title IX (discrimination). Moving beyond a single university, universities can also commit to a collective goal of sharing product evaluation information and allocating a small amount of resource to establish, manage, and maintain a central repository for the shared information. Having product compliance information helps each other (a) put pressure on vendors and, (b) avoid duplicating evaluation efforts. Most of the road block is not the lack of information, but rather the lack of resources in maintaining a central repository and the fear of lawsuits from vendors. Very lightweight contributions from numerous institution will enable a consortium to devote resources in maintaining a structure to host these findings that can be used by all as reference.

5 Conclusion

Web, mobile and other online electronic information, while still maturing, has already become the vanguard of equity as our society progresses. Universities are in a prime position to shape this progress for the better. Accessibility has come far in what it has

achieved in the past 10 years. If universities keeping building on our awareness programs and actively including it into our teachings and processes, we are in good shape towards a more inclusive and equitable society, where everyone of all ages and abilities can benefit.

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