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Okay, Our Courses Are Online, But Are They ADA Compliant?

An Investigation of Faculty Awareness of Accessibility at a Midwestern University

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Introduction

There is little dispute that the proliferation of online learning in higher education has brought profound changes for students, instructors, and the institutions themselves. Indeed, with 6.7 million students taking at least one online course (Allen & Seaman, 2014), a need exists to continually reexamine the medium from the perspectives of those most affected by these rapid transformations in order to address quality assurance and provide performance metrics within distance learning programs. Without continuous data to guide future course development, delivery, and pedagogy, the retention in online courses and programs will inevitably become more problematic and uncertain. As more and more colleges and universities witness unprecedented growth in their web-based offerings, both fully online and blended, one area of frequent neglect is the accessibility of the classes for students with disabilities. Online course sites must be accessible to students with disabilities, but the training of instructors in accessible design has often been an afterthought. As a result, online courses can be a source of reduced instructional quality, as well as a legal vulnerability. The purpose of this study was to investigate the current extent of our faculty's familiarity with the rights, responsibilities, and resources pertaining to the Americans with Disabilities Act (ADA) and Section 508 of the Workforce Rehabilitation Act insofar as compliance and accommodations.

Thurmond (2003) defined *interaction* as “the learner’s engagement with the course content, other learners, the instructor, and the technological medium used in the course... a reciprocal exchange of information” (p. 4). Thus, the ability of all students to achieve such levels of interaction requires the proactive identification and removal of as many barriers to instruction as possible. Approximately 15% of the world's population has a disability that could impact the ability to interact with the Web (World Health Organization, 2011). More specifically, almost 11% of undergraduates (National Council on Disability, 2015), and about 8% of master's and 7% of doctoral students have some type of disability (National Center for Education Statistics, 2009). Such numbers compute to over 2.4 million postsecondary students with a disability attending college in the United States (Accredited Schools Online, 2016). In addition, the role of self-advocacy is often new to postsecondary students with disabilities who have had accommodations

provided, with their parents or guardians serving as advocates prior to enrolling in college (Barnard-Brak, Sulak, Tate, & Lechtenberger, 2010).

While it is true that online courses may provide a more manageable college education for a wide array of students with certain disabilities, the very format of these courses may actually render the classes inaccessible to individuals with vision or hearing impairments. Originally signed in 1990, the ADA was updated in 2010 when the

Department of Justice (DOJ) published the Standards for Accessible Design. These standards affirm that all electronic and information technology must be accessible to people with disabilities. In addition, Section 508 of the Workforce Rehabilitation Act requires federal agencies and their contractors to make their electronic and information technology accessible to those with disabilities. Thus, a public university receiving federal funding through the Assistive Technology Act is required to meet the Section 508 standards.

While institutions of higher learning are legally obligated to provide equal access to online programs for otherwise-qualified persons with disabilities, these requirements extend only to matters of *access* and do not inherently relate to curriculum modifications (Edmonds, 2004).

Given, colleges and universities are accustomed to providing reasonable accommodations in their courses, programs, services, activities, and facilities for on-campus learners with disabilities, yet the ascendance of web-based learning, itself a novel approach to instructional delivery, has presented an immediate challenge and susceptibility for higher education that has evoked a much slower response. Quite frankly, the inaccessibility of web sites is typically invisible to the vast majority of web visitors. Consequently, with insufficient budgets to manage, emerging technologies to implement, and other “more visible” charges to confront, many institutions simply allow web accessibility to slip off of their to-do lists (Joly, 2011). Further, while institutions of higher learning are legally obligated to provide equal access to online programs for otherwise-qualified persons with disabilities, these requirements extend only to matters of *access* and do not inherently relate to curriculum modifications (Edmonds, 2004).

Little case law exists currently, yet several U.S. Department of Education/Office of Civil Rights rulings and out-of-court settlements clearly portend the future track that case law will follow. In 2009, for example, two national organizations representing the blind brought suits against Arizona State University over its use of the Kindle e-reader, saying the device could not be used by blind students. Later, in 2013, the University of California at Berkeley reached a settlement with Disability Rights Advocates to ensure that students with print-related disabilities had access to all necessary materials, while the DOJ settled with Louisiana Tech University over claims that the university used an online learning product that was inaccessible to blind students (Campus Clarity, 2013). Clearly, the impending legal liability is inevitable for institutions, large and small.

In a survey of 183 colleges and universities sponsored by the Western Interstate Commission for Higher Education (WICHE) Cooperative for Educational Telecommunications and the Campus Computing Project, it was revealed that compliance efforts for addressing obstacles for online students with disabilities were largely uncoordinated and often assumed to be the responsibility

of “someone else.” For example, only 16% said their institution has a central office that reviews courses for compliance. One third of respondents suggested that ADA compliance was the charge of individual instructors, while almost a quarter insisted that ultimate responsibility falls to academic departments and programs (Parry, 2010). Linder, Fontaine-Rainen, and Behling (2015) emphasized the importance of articulating who is responsible for online accessibility and policies. Failure to do so creates a “sense of overwhelm at many institutions that are unsure of where to begin with making their online programs and courses accessible for all students” (p. 31).

Background of Our Study

As leaders of several key committees within our college of education tasked with exploring academic innovations, student recruitment and retention at all levels, and distance learning quality assurance, our dedication to this topic has been impelled by several factors. First, our university has witnessed an expansion from 1,130 students taking at least one online course in the fall 2005 to a total of 5,771 in the spring of 2016. Concurrently, the number of online courses offered has burgeoned from 82 in 2005 to 471 in 2016 (Educational Outreach, 2016). Admittedly, when online education was in its inaugural stages, we focused primarily on the sheer logistics of getting the classes online and developing standard course materials to cover content for a general population of students. The need to compete with other institutions often got ahead of thoughtful planning. We were much less contemplative that many individuals with hearing impairment rely upon captioning when watching video presentations, and students with vision impairment utilize assistive technologies such as voice recognition software and screen readers. So, apart from the obvious desire to meet legal expectations, we are now committed to making content easily accessible, comfortable, and effective for a diverse range of students.

Problem Statement

In order to determine the current extent of our faculty’s compliance with ADA guidelines in their online courses, it was crucial to ascertain a starting point from which we could gauge the need for education, professional development, training, and resources so all instructors can best serve their students and support student success. Through the collection of data, we sought to heighten awareness and encourage faculty members to look at and think about how their online programs and courses are consistent with accessible design, thereby providing a real opportunity for continuous improvement in both course design and implementation. We also place high value on the exposure of our preservice teachers to faculty who are modeling student-centered uses of technology while promoting interaction and active engagement for *all* participants, regardless of whether the course is taught online or on campus.

In preparation, we embraced the literature on the four types of interaction that are integral to the online classroom: learner–learner, learner–instructor, learner–content, and learner–interface (Ehrlich, 2002; Navarro & Shoemaker, 2000). Our approach was consistent with Elliott (1991) and his assertion that educational action research enables practitioners to critique structures which shape their practice, and provides the power to negotiate change within the system that maintains them. As Peters and Waterman (1982) pointed out, when a faculty shares a commitment to achieving excellence with a specific focus, then collaboratively studying their practice will not only contribute to the achievement of the shared goal but will have a powerful impact on overall program development.

When considering the critical role that practitioner-initiated research can play in bringing about accessibility in online courses, Seale (2006) argued that instructors know that they should be making distance learning accessible to students with disabilities, but they do not know *how* to make their classes accessible. To begin with, the existing literature has tended to provide arguments about why online learning should be made accessible, yet has failed to provide rich descriptions and details of how practitioners might interpret and implement guidelines, accessibility legislation, standards, and tools in order to develop an accessible online practice. In addition, the practitioner community itself within higher education has neglected to develop its own conceptualizations of what “best practice” is and what factors influence it (Seale, 2006).

A Look at the Literature

Existing literature specifically investigating the accessibility of online learning environments is sporadic at best. Earlier studies found the rate of participation in online courses for persons with disabilities lower than expected, a finding that may be reflective of issues of access (Moisey, 2004; Spindler, 2002; Yu, 2002). However, as awareness increased, data also began to reveal an increased participation by students with impairments. A cross-institutional study of satisfaction with accessibility compliance and services found that, while students perceive their disability to have an overall negative impact on their ability to succeed in online courses, the majority reported that their requests for accommodations were generally met (Roberts, Crittenden, & Crittenden, 2011). Barnard-Brak, Paton, and Sulak (2012) sampled 1,591 institutions of higher education and reported an association between distance education institutional goals aimed to improve distance education outcomes and how often students with disabilities enroll in these distance education courses and request accommodations at their respective institutions. Thus, the importance of an institutional mission and campus-wide commitment cannot be understated.

Accessibility of Higher Education Web Sites

Several studies have been conducted to ascertain the percentages of higher education web sites that are accessible for students with disabilities. Although raw figures have varied, the consensus from the literature is that the number of compliant sites is consistently low. WebAIM (Web Accessibility in Mind), on behalf of the National Center on Disability and Access to Education (NCDAAE), showed only 3% of web pages randomly selected from the web sites of 100 institutions were deemed accessible by demonstrating full compliance with the federal standards of Section 508. Ironically, this was the same percentage revealed when NCDAAE collected similar data in 1998 (Joly, 2011). Smith and Lind (2010) examined the web accessibility of home pages within education departments at institutions accredited by the National Council for Accreditation of Teacher Education and, after AChecker, A-Prompt, JAWS, and Kelvin were utilized to conduct the analysis, a 95% failure rate in Section 508 compliance was reported.

Some improvement was noted when Gunderson (2011) inspected 23,319 web pages from 180 universities using the Functional Accessibility Evaluator (FAE), a web tool for checking compliance with a given set of accessibility standards. After focusing on titles, subheads, forms, data tables, layout tables, and images, it was revealed that 54% of the analyzed web pages complied with those standards. This percentage, however, still reveals that nearly half of web sites are falling short of meeting the requirements of accessibility. Lazar, Dudley-Sponaule, and Greenidge (2004) surveyed 175 webmasters as to why compliance rates are so low. Most

respondents supported the concept of web accessibility, but cited barriers to accessibility such as lack of time, lack of training, lack of managerial support, and inadequate software tools.

The online Internet content of an Earth and environmental science (EES) course used to prepare and retrain North Carolina secondary science teachers in the content of EES was explored to determine if the format and design of the Internet content were appropriate for students with visual disabilities. The course used external web sites on the Internet as the main source of content; hence, the study concentrated on the impact of an online course design on a specific community of learners. Software that identifies types of presentational and design errors was used to evaluate external web sites from different Internet domains in the course. Findings suggested that professors who use the Internet for science content (or other subjects) should be aware of accessibility problems of external Internet web sites and how this will influence curriculum modifications. The astronomical concepts were deemed the most inaccessible, likely bearing from the types of images and data presented (typically images and inferential data collected through radio telescopes). The national standards in science seem to be in direct conflict with appropriate methods for presenting science content online, and the methods for appropriate online science instruction may also be in conflict with the Web Accessibility Guidelines (Veal, Bray, & Flowers, 2005).

Lewis, Yoder, Riley, So, and Yusufali (2007) reported on the Accessibility Institute at the University of Texas at Austin, which created the Student Web Accessibility Project, whereby a team of student evaluators identified accessibility concerns in instructional web sites on campus. The team evaluated 99 web sites, of which 87 had documented areas of noncompliance. Only 12 met all of the Section 508 standards and were deemed to be accessible. The low compliance indicated the need for more education and awareness of accessibility in developing: (a) instructional content, particularly interactive options on instructor web sites that call for student input; (b) graphics; and (c) heading structures. Close to half of the sites were developed through a course management system that provides a template to allow for consistency of presentation across campus, yet does not require an instructor to necessarily have any independent knowledge of web development. Their findings suggest a need for more training and recognition of accessibility issues by faculty, administrators, designers, and others.

Accessibility and Faculty

A case study tracked the introduction of a program known as SeGa (Securing Greater Accessibility), which included the naming of faculty accessibility specialists (AS) to motivate and guide colleagues across the U.K.'s Open University. The specialists promoted a more inclusive course design from the outset of online module production and followed what Mole (2013) described as a social model of disability. The proactive work of the AS demonstrates it is possible to raise awareness about access and foster active participation from instructors in broadening their responsibility for all students (Slater, Pearson, Warren, & Forbes, 2015).

The California Community College System Office conducted a needs assessment to investigate the status of distance education courses system wide. As part of the assessment, 647 distance education faculty completed surveys, and it was found that over a third of the respondents thought that funding is insufficient for developing accessible online courses. They also shared

that two of their greatest obstacles in the process are the inability to provide closed captioning and the lack of release time (Farr, Studier, Sipes, & Coombs, 2009).

Summary

The literature suggests that the willingness of students to enroll in online courses and request accommodations is frequently tied to the quality and prominence of an institution's distance education goals aimed to improve outcomes for those disabled students. The value in creating accessible courses at the production stage is likewise emphasized. There has been little published research on the experiences and perceptions of faculty involving the accessibility of their online courses. Such paucity is likely attributable to the relative newness of the merger between distance education and course accessibility. Still, faculty members are considered "the missing piece" in the attainment of web accessibility in higher education (Smith, Spiegel, & Cox, 2016). So, with our faculty being the most pivotal point of connection in a student's overall online experience, it is imperative to determine both their level of awareness of accessibility guidelines and their need for training and resources to equip them with the knowledge and tools to meet student needs and avoid legal entanglement.

Methodology

How We Conceptualized Our Research

Our probe was grounded in the Web Accessibility Integration Model, espoused by Lazar et al. (2004), which insists that accessible web sites must be sufficiently flexible to be used by assistive technologies. The ultimate objective is to assess whether delivery software applications and online curriculum content meet accessibility requirements and adhere to the principles of legislative compliance. In order to acquire the data necessary to make early evaluative judgments on our progress as a university in meeting such outcomes, we synthesized our roles as teaching professionals with the systematic and reflexive components of practitioner research that are "deeply contextualized and meaningfully embedded in a specific milieu" (Ravitch, 2014, p. 5). Consistent with Shaw and Lunt (2011), we engaged in research to understand our own practices, encourage critical reflection by colleagues, and generate data to better assess current service delivery strategies.

We embraced the idea of "inquiry as stance," whereby we regard inquiry as a habit of mind which assumes "the knowledge and expertise needed to transform teaching and learning resides in the questions, theories, and strategies generated by practitioners and in their interrogations of the knowledge, practices, and theories of others" (Cochran-Smith & Lytle, 2011, p. 20). This study likewise followed the tradition of pragmatic practitioner research described by Gordon (2016), which supports the pragmatist belief of moving from simply describing a phenomenon and determining what can be done about it, to *acting* in a real-life context to bring about change.

Research Design

Survey research is an effective and cost-efficient way to collect information about many individuals in a particular population (Fowler, 2008; Rubin & Babbie, 2013). Because the objective of this study was to make inferences about the attitudes and behaviors of online instructors across our entire university at a single point in time, a survey was the preferred method of data collection due to the potential for rapid turnaround and capacity for wide coverage and broad application. Bachman and Schutt (2007) asserted that survey research is

often the only means available for developing a representative picture of the characteristics of a larger population such as this. However, inasmuch as the survey was investigating the course development practices of multiple instructors throughout varied departments, we had to consider the possibility of social desirability bias, or the tendency of respondents to report what they presume to be acceptable or expected (Fisher, 1993).

Participants

This study was conducted at a growing metropolitan university of more than 15,000 students served by approximately 2,000 faculty and staff on a suburban campus within a tri-state region in the Midwest. With cooperation from the registrar, we obtained the email addresses for the instructors who had taught at least one online course during the spring 2016 semester.

Instrument

An electronic researcher-created survey instrument was utilized for data collection, with 14 fixed-choice items combined with several open-ended questions to provide clarification and actionable insights. According to Babbie (2009), the use of standardized questions enhances reliability, while open-ended questions tend to result in more *valid* responses because respondents are not forced to select from a list of discrete options provided by the researcher. The topics addressed within the survey were influenced by the recommendations of the Office for Civil Rights (OCR), which is responsible for the monitoring and enforcement of federal civil rights legislation in educational institutions. The individual items encompassed the fundamental elements we felt would best inform our practices and benefit our students. The survey (and subsequent “reminder email”) were disseminated to each of the instructors during weeks 14 and 15 of the spring semester.

Data Analysis

Fixed-choice questions were analyzed through simple description that condensed the raw data into frequencies and percentages of responses. Such self-reported items were analyzed separately; therefore, a scale was not developed. An inductive approach was then followed to examine the text generated from narrative responses, with content analysis being the technique employed to compress many words of text into fewer content categories based on explicit rules of coding, which, according to Creswell (2013), allows for the discovery, identification, and labeling of repeated evidence. Open coding involved manually grouping together the frequently occurring keywords to create and organize a schema of categories. We also compared each respondent’s codes to the other respondent’s codes, checked for commonalities and differences, and ultimately produced a matrix of data patterns. Previous coding was then revisited to produce more highly refined themes that formed the basis for findings.

Results

An overall total of 92 faculty members (38% response) returned the survey. Response numbers fluctuated for individual survey items, with various respondents skipping particular questions.

Resources Used Currently in Online Classes

Table 1 identifies those resources or tools that instructors use currently in their online courses.

Table 1

Resources Used in Online Courses

Choices	Response (n = 92)
Word documents	80 (87%)
PDF files	81 (88%)
Videos (YouTube, Kaltura, etc.)	79 (86%)
Audio files (podcasts, MP3, AudioBoom, etc.)	29 (32%)
Screen capture videos (Tegrity, Screencast-o-matic, Jing, etc.)	51 (55%)
Image files	55 (60%)

Accessibility of Word and PDF Documents

The results in this section display findings associated with the accessibility of text-driven documents, typically found in Word or PDF files. Table 2 references the Alt Tag, which adds a text description to an image on the web. The Alt Text within the Alt Tag should let the user know the content and purpose of an image. Alt Text is accessed by screen readers to provide a text equivalent of images.

Table 2

Do Images in My Word or PDF Documents Have Alt Tags Added?

Choices	Response (n = 88)
Yes, all Word and PDF documents have Alt Tags included for images.	8 (9%)
Some of the Word and PDF documents have Alt Tags included for images.	11 (13%)
No, my images do not have Alt Tags included.	24 (27%)
I do not know if my images have Alt Tags included.	45 (51%)

In a related question, instructors were asked if any images they add directly into their course management system itself (such as Blackboard) have an Alt Tag to accompany those images. Twenty-four percent of respondents indicated they do not have Alt Tags added to those images, and 34% did not know if the images had Alt Tags. Sixteen percent of instructors denoted they do have Alt Tags for all of the images they add to the course management system directly, while 9% have Alt Tags for some of the images.

Table 3 is concerned with the display of lists within Word or PDF files and whether bullets/numbers are used as opposed to asterisks or mere indentation to signify the list.

Table 3

Are Bullets/Numbers Used for Lists?

Choices	Response (n = 92)
Yes, all Word and PDF files use bullets/numbers.	39 (42%)
Some of my Word and PDF files use bullets/numbers.	43 (47%)
No, my lists do not use bullets/numbers.	5 (5%)
I do not know if my lists use bullets/numbers.	5 (5%)

As presented in Table 4, respondents were asked to stipulate if tables contained within their Word or PDF files include an identifiable header row, which provides information that helps identify the content of a particular column.

Table 4

Do Tables in My Word or PDF Documents Contain Identified Header Row?

Choices	Response (n = 87)
Yes, all Word and PDF tables have an identified header row.	43 (49%)
Some of the Word and PDF tables have an identified header row.	18 (21%)
No, my Word and PDF tables do not have an identified header row.	14 (16%)
I do not know if my Word and PDF tables have an identified header row.	12 (14%)

Close to 70% of instructors were unaware of the accessibility checker included in Word, which helps to identify where ADA issues exist. Approximately 22% were aware of the feature but had never used it, and 8% were aware of the feature and had actually used it to fix ADA issues in Word documents. In the same way, when instructors were asked if they knew there is an accessibility checker included in Adobe to help identify where ADA issues exist, 80% were unaware of this feature, 13% were aware but had never used the feature, and 7% were aware of the feature and had actually used it to fix ADA issues in Adobe documents.

Accessibility of Audio Recordings

The results in this section display findings associated with the accessibility of resources and instructional tools that rely on audio and/or video. Table 5 is focused on whether faculty members have transcripts posted of audio recordings they use in their courses.

Table 5

Do You Have Transcripts Posted of Audio Recordings Used in Course?

Choices	Response (n = 89)
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Yes, all of my audio files have a transcript included.	9 (10%)
Some of my audio files have a transcript included.	9 (10%)
No, my audio files do not have a transcript included.	25 (28%)
I do not use audio in my course(s).	46 (52%)

Accessibility of Videos and Screen Captures

Table 6 displays the responses to the question, “Do you have transcripts posted of videos used in the course?”

Table 6

Do You Have Transcripts Posted of Videos Used in Course?

Choices	Response (n = 90)
Yes, all of my video files have a transcript included.	8 (9%)
Some of my video files have a transcript included.	15 (17%)
No, my video files do not have a transcript included.	56 (62%)
I do not use video in my course(s).	11 (12%)

Table 7 provides findings for the numbers of instructors who have closed captioning for videos used in their courses.

Table 7

Do You Have Closed Captioning for Videos Used in Course?

Choices	Response (n = 90)
Yes, all of my video files have a transcript included.	8 (9%)
Some of my video files have a transcript included.	29 (32%)
No, my video files do not have a transcript included.	29 (32%)
I do not use video in my course(s).	11 (12%)
I do not know if closed captioning is available for my videos.	13 (14%)

The responses in Table 8 address the number of instructors who have transcripts posted for the screen captures used in their courses.

Table 8

Do You Have Transcripts Posted for Screen Captures Used in Course?

Choices	Response (n = 88)
Yes, all of my screen captures have a transcript included.	5 (6%)
Some of my video files have a transcript included.	7 (8%)
No, my video files do not have a transcript included.	43(49%)
I do not use video in my course(s).	33 (38%)

Table 9 presents the faculty responses for the presence of closed captioning for screen captures used in their online courses.

Table 9

Do You Have Closed Captioning for Screen Captures Used in Course?

Choices	Response (n = 90)
Yes, all of my video files have a transcript included.	4 (4%)
Some of my video files have a transcript included.	8 (9%)
No, my video files do not have a transcript included.	34 (38%)
I do not use video in my course(s).	34 (38%)
I do not know if closed captioning is available for my videos.	10 (11%)

Limitations to Achieving ADA Compliance

As depicted in Table 10, instructors provided feedback on what they perceive as the biggest limitations to making their online courses fully compliant. Respondents could select more than one option.

Table 10

Biggest Limitations to Making Courses Fully ADA Compliant

Choices	Response (n = 88)
Training and knowledge of ADA issues	54 (61%)
Time	51 (58%)
Tools to make the necessary changes	51 (58%)
Financial resources to purchase necessary tools	23 (26%)

For this survey item, several instructors added some notations: “I would need appropriate compensation for the huge amounts of time I would have to invest in doing all these things,” “Too many demands for adjunct faculty to do this,” and “Because I teach geography, my course material is intensely visual, and some components simply would not be adaptable to sight-impaired students.” Finally, when instructors were asked if they had sought assistance from appropriate offices within the university or from instructional designers, 67% indicated they had not.

Responses to Open-Ended Questions

Respondents were encouraged to provide commentary and elaboration regarding ADA compliance in their online courses. Approximately 40% of the instructors provided such input. The following themes emerged from the coded responses:

Experience with ADA compliance. Several of the instructors acknowledged they knew little about ADA compliance: “I have only taught one online course and I wasn’t aware of ADA compliance until after the fact,” “I don’t feel good about my knowledge and worry that I am failing students because of my own lack of knowledge,” “This is totally foreign to me. I would love to become compliant because it is the right thing to do for all students. If I can remove a barrier to learning I am willing to do it,” and “I definitely need more information on how to make my course compliant.”

Accessibility compliance is reactive. Instructors disclosed a large number of comments that alluded to a perception that creating accessibility compliance in a course is attempted *after* a student with a disability enrolls in the course and requests accommodations, and is not a proactive endeavor that precedes the debut of the class. One of them stated:

I have been teaching online courses for several years and have not had one student that asked for ADA-compliant content. Had someone asked, I would gladly have investigated some of these options. I cannot afford to invest the time and energy needed to adapt courses when there is not been a clear need for adaptation.

Similarly, respondents explained, “I have not had any students requiring ADA compliance but I would do whatever is necessary to help them succeed,” and “If I’m notified that I have a student who needs assignments changed on their ability/disability, then I will seek out the information to ensure that the student is able to be a part of the assignment.” Another instructor added: “I generally use resources on a case-by-case basis. Since I don’t have any students, for example, who needed transcripts this semester, I didn’t do them.”

Responsibility for ADA-compliant courses. Instructors provided input as to where they believe the responsibility of developing ADA-compliant courses should lie. According to one respondent:

More needs to be done by the administration to ensure faculty members have tools needed to make the courses ADA-compliant. If making online courses accessible is something that the university is going to prioritize, faculty will need support in getting

their courses appropriately ADA-compliant, rather than just providing a brief training and expecting faculty to go out and do everything on their own. The university needs to provide adequate support for helping online faculty with this. Many faculty are underpaid, overburdened, and undersupported already, and adding all of these accessibility features would be extremely time consuming. Courses should have been designed this way in the first place, but I would venture a guess that most have not been.

Another instructor shared:

I have asked the main programs for assistance and not one person gives me timely assistance in advance. They let me know that someone with a hearing impairment has signed up but NEVER offer to look at my course. They will help when their back is against the wall. I have never even heard of these Alt Tags, etc. that you asked about in the survey. As a professor, this just makes me mad. As the aunt of an adult with hearing impairment, I get even more incensed.

One of the respondents asserted:

Well-constructed online courses are already substantially more work for the instructor than the typical face-to-face class. While I sympathize with the desire to have all courses ADA-compliant, that should NOT be a responsibility added to the long list of responsibilities faculty already have. It should be a responsibility delegated to an appropriate office on campus; that office should work with faculty as these needs arise, but they (not the instructor) should handle whatever technical details are involved in making an online course ADA-compliant. It's great to be able to accommodate all learners, but faculty will never have time to do all of that on their own.

Other comments included: "I'd be so happy to do this, but I arrive at 5:30 each morning to do all the work I already have. I would need to seek outside help to make this happens," and "I would need release time from my course load to initiate these measures."

Discussion of the Findings

The findings of this study suggest that accessibility compliance within online courses has not been achieved, and a lack of familiarity with the requisite expectations is also very much in evidence.

Compliance for Visual Impairments

The respondents revealed a general lack of preparedness in their online courses for students with visual impairments. For example, a mere 9% of instructors have provided Alt Tags for all of the images used within their Word or PDF documents, and only 13% have Alt Tags for some of the images. Perhaps more striking was the discovery that 51% do not know if they have Alt Tags for their images. Similarly, when it comes to images added directly into their course management system, a combined 58% either do not have Alt Tags for these images or do not know if they have Alt Tags for images they are using. Such figures would suggest a need for greater recognition of this process and how to assure the presence of an Alt Tag. The finding that 70% and 80% of the respondents respectively were unaware of the accessibility checkers within Word

The perceived absence of true ownership of the compliance obligation is consistent with the literature that likewise portrays a deficiency in the coordination efforts on many campuses.

and Adobe reveals that faculty members are not taking advantage of tools already embedded in programs they likely use on a regular basis.

Numbers were more promising for other vital components of accessibility for visually impaired students. Regarding the manner in which lists are presented

within Word or PDF documents, asterisks or indention alone can create significant issues for a screen reader, so the use of numbers for ordered lists and bullets for nonordered lists is imperative. For this category, a combined 89% of faculty members expressed that either some or all of their lists do, in fact, use bullets or numbers. When asked if tables contained within their Word or PDF files include an identifiable header row, again, the combined “all” and “some” was slightly over 60%. So, these two areas would appear to be closer toward compliance expectations than others.

Compliance for Hearing Impairments

The subset of ADA expectations that plainly lags behind all others is the accessibility of videos and screen captures with audio. While it is true that we have actively encouraged faculty to bring more audio and video components into their web-based courses, both for instructional purposes and for the development of the instructor’s digital personality, the need for these important additions to be accessible is no less paramount. Otherwise, the course is simply trading one deficiency for another. So, with low rates of conformity in all categories for captioning and the availability of text transcripts, our faculty undoubtedly needs guidance with these design elements, which, admittedly, are among the most laborious tasks associated with achieving online compliance.

Pre or Post

Through the instructors’ comments, one can surmise that many of them view accessibility as an issue to be confronted *after* a student with specific needs appears on the class roll, but not necessarily a responsibility to be addressed in a proactive manner. In short, they provide accommodations on an as-needed basis (Burgstahler, 2012). Yet, according to Case and Davidson (2011), it is much more expensive, time-consuming, and difficult to retrofit a course to make it accessible after a student with a disability has enrolled in the course. The argument is that accessible course design actually benefits all students, and planning ahead allows the time necessary to create effective, manageable materials as opposed to materials created under a last-minute scramble or in the midst of a demanding schedule. Having faculty recognize the value of making online courses accessible at the time of creation may require a campus-wide culture change.

Determining Accountability

The question of who is ultimately responsible for designing or redesigning online courses so they are ADA-compliant was a source of much commentary from the instructors. The perceived absence of true ownership of the compliance obligation is consistent with the literature that likewise portrays a deficiency in the coordination efforts on many campuses. Despite acknowledging the need for courses and materials to be accessible, respondents expressed much concern about the time constraints they face as well as a lack of compensation for a task they

interpret as being beyond the parameters of their regular duties. We assert that much of this indecision and finger pointing is a misguided effort because the responsibility to meet the needs of students with disabilities is truly a collaborative venture, with pertinent stakeholders assuming accountability for the specific layers of the overall process that fall within that stakeholder's expertise or role within the university. To be candid, it is easy to "do nothing" while waiting on another entity to step up and fix the "problem." Even if accessibility is brought about incrementally, any step forward is clearly preferable to a "stand pat" orientation.

These data have allowed us to bring several initiatives to the university to facilitate expediency on this matter, as well as cultivate a more "humanized" instructor presence within online classes.

Web accessibility is comprised of three essential and interdependent components: hardware; software; and the content itself, including text documents, audio, and video. One can make the case that locating a connection port for a refreshable braille display or troubleshooting chat software that is inaccessible to a screen reader are not direct responsibilities of instructors. Rather, they fall under the obligation of administrative, disability, or information technology departments at the institution. However, if a professor attaches a Word document that is incompatible with the screen reader of a sight-impaired student, such would arguably be a liability of that instructor because the creation of content instructional materials is within the purview of the course instructor. For this reason, we implore our faculty members, after receiving appropriate training and resources, to take control of those elements of accessibility that are within their authority, knowledge, and influence. In this way, the task of making online courses accessible becomes somewhat less overwhelming because instructors do not feel as though the entire implementation is under their charge; realistically, it should not be.

Where the Research Has Led Us

While this study was conducted to improve our *own* practice and the practices of colleagues, those beyond our campus may find this faculty information useful for their own accessibility and online endeavors in similar higher education settings. These data have allowed us to bring several initiatives to the university to facilitate expediency on this matter, as well as cultivate a more "humanized" instructor presence within online classes. Our "action items" thus far include the following:

(a) We have created tutorials for distribution across our own college, with availability for other colleges on campus. These tutorials will explain step-by-step how to attain accessibility with hyperlinks, Alt Tags, graphics, text, animation, color, and audio and video. The idea is to demonstrate to faculty how even minor modifications can make a tremendous difference in student accessibility. As an example, we give details in one of the tutorials about not using hyperlinks of the "click here" type. Screen reader users scan a page by tabbing from link to link (without reading the text in-between). With links such as "Click here to download the study guide" and "More on school law," these techniques are useless because there is no explanation or context provided for the link.

(b) As a direct response to our faculty data, we are providing group, one-on-one, and screen capture assistance for instructors in using the accessibility checkers in Word and Adobe. Faculty members are certainly aware that Microsoft Word is a very widely used tool for word processing and the creation of documents. But it can also be a helpful tool for viewing ADA issues. Microsoft Word has a built-in accessibility checker that alerts the user to concerns found within any document. On a Mac, this tool can be found under “Tools,” and then “Check Accessibility.” On a PC, this will be found under “File,” “Info,” “Check for Issues.” This will produce inspection results which will alert the user to any concerns or recommended fixes. These would include unclear hyperlinks, images without alternative text tags (Alt Tags), blank spaces, and more. By clicking on the warnings displayed in the inspection results, Word will take the user to the place in the document where the issue is found. This serves as a huge help in not only showing users where there are issues, but educating and informing them on the types of items a screen reader would have trouble speaking.

Like Word, Adobe has a built-in accessibility checker to aid in identifying and correcting issues within your PDF file. Using Adobe Pro, the user can navigate to “Tools,” and then “Accessibility.” By running a full check, the tool will return with results regarding the document’s accessibility. Like Word, the tool will alert the user to issues with Alt Tags, spacing with tables, unclear hyperlinks, and more. The built-in accessibility tool is essential for faculty who use PDFs to post content to their students. Having the PDF created in an accessible way will ensure no issues when a screen reader is used.

(c) Because the task of developing transcripts for videos and screen captures can be quite cumbersome for instructors, we particularly wanted to point our colleagues toward tools that are open-source, readily available, and straightforward:

- VoiceBase (<https://www.voicebase.com/>) is an online tool that creates machine-generated transcripts for audio or video files. This can be helpful for quickly creating PDF transcripts of any recordings one has in one’s course. VoiceBase allows for over 20 different audio and video file types to be uploaded to the site. Once the files are uploaded, the user is notified via email when the transcript is complete. The user can then see the transcript generated and make changes or modifications based on the text that was created. The PDF transcript is able to be downloaded to be posted via a LMS (Learning Management System), web site, blog, email, etc. The user is given \$60 of free machine-generated transcription, and when their credit is depleted, the price for machine-generated transcription is two cents a minute.
- Voice typing with Google Docs is available through Chrome for desktop, as well as the Docs apps for Apple iOS and Android. If creating a podcast or transcript from scratch, Google Docs has a very helpful feature that will allow the user to generate a transcript as content is spoken. A microphone is required to use this tool. While using Google Chrome, Google Docs has a built-in feature located under “Tools” called “Voice Typing.” When starting a new document, simply choose to start Voice Typing. The program will recognize the microphone, and as the user begins speaking, it will type the text that it hears spoken. It also recognizes punctuation commands such as “comma,” “period,” “new line,” and “new paragraph.” Additionally, it understands editing commands such as “select all,” “cut,” “copy,” “delete last word,” and “insert header.”

The voice recognition is very accurate and does a great job of allowing users to speak their thoughts without having to type a transcript at the same time. This transcript could then be shared, downloaded, or linked to a LMS, web site, and others.

- While most faculty members know that YouTube creates closed captioning for uploaded videos, they may not be as familiar with the option of editing and making changes to those automatic closed captions if inaccuracies are detected in the conversion of various words or phrases. YouTube saves the automatic closed captioning file to the video, and allows the owner of the video to edit words or entire sections of the file. Once the video is uploaded and the automatic closed captioning is complete, the edit option will become available. The owner of the video must first be logged on and then choose to view the video. As the owner, a “CC” button will be visible below the video. Clicking that button will take the user to a “Manage Subtitles and Closed Captions” area. From here the owner can choose to edit the automatic closed captioning that was created. This allows the user the opportunity to correct any mistakes or issues that might have occurred during the closed captioning process. Using this editing feature allows the instructor to take advantage of the automatic closed captioning, while ensuring better accuracy for students.

(d) We have set a goal of becoming more proficient with Universal Design for Learning (UDL) principles and strategies for possible integration into professional development opportunities for faculty. UDL is based on Universal Design, the design of products and environments intended to be usable by all people to the greatest extent possible (Burgstahler & Cory, 2008). Thus, by addressing the needs of students with disabilities, there is an element of equity and inclusiveness that is passed on to others as well. Our belief is that UDL can benefit students with disabilities, but also students of varying abilities, including English as a second language.

(e) We will present our findings and recommendations at an upcoming campus-wide faculty development conference, which focuses on the value of diversity and inclusion to the achievement of academic and institutional excellence.

Limitations and Future Research

Although 38% of online instructors across the university responded to the survey, which allowed us to establish a general trend across our campus, we are still lacking input from many professors. There is the possibility that the group of faculty who participated was largely comprised of those who are more sensitive to, or, perhaps, curious about, the urgency of ADA compliance within their web-based courses, and/or those who are more inclined toward answering email and responding to research surveys in general. For future research, it would be advantageous to segregate the data by content areas in an effort to determine if faculty members who teach particular disciplines, even within the same college, show a greater propensity for ensuring their courses are accessible. For the purposes of this initial study, however, we made a decision that instructors might be less willing to complete the survey if they had concerns that their college or discipline might be made public in the data. It would be extremely valuable to interview faculty across our college, perhaps in a focus group environment, in order to encourage reflection and to garner more in-depth reactions to the challenges of accessibility.

Concluding Thoughts

There is an important distinction between access and success for students with disabilities in higher education (Moisey, 2004). We hope to utilize this practitioner research study to accomplish both. We were provided with critical data that will allow us to assist instructors across our campus with accessible design, address the issues they perceive as barriers, and emphasize the wisdom in being proactive with online development. We also provided a snapshot for the institution as to where we stand at this point in time in our quest to provide educational opportunities for all students. Yes, our first goal was getting our courses online. We are there. Now, let's make them dynamic, rigorous, and accessible for everyone.

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