

A QUALITY MATTERS WHITE PAPER

Administrative Supports for Digital Accessibility: Policies and Processes

Authors: Rae Mancilla, Ed.D., & Barbara Frey, D.Ed.

November 5, 2020

RECOMMENDED ACTION PLAN

- Institutional leadership should convene a committee to develop or review an existing digital accessibility policy.
- Administrators should ensure that a digital accessibility policy outlines best practices, stakeholder roles and responsibilities, and compliance guidelines.
- Instructional leaders can prioritize digital accessibility initiatives by allocating a budget for creating instructional materials.



Table of Contents

Abstract	3
Introduction	3
Digital Accessibility Overview	3
Online Learning and Digital Accessibility Policies	4
Administrative Processes for Digital Accessibility	5
Conceptual Framework	6
Methodology	6
Research Questions	6
Procedure	6
Participants	7
Data Analysis.	
Results & Discussion	8
Conclusion	11
References	12
Appendix A: Survey Instrument	15



Abstract

Awareness of digital accessibility in higher education has grown over the past decade and become a priority for institutions offering online programs. A digital accessibility policy sets forth guidelines for the development of inclusive online course materials and mechanisms for compliance. Administrative involvement is also needed for establishing roles and responsibilities in ensuring digital accessibility. This paper summarizes the results of a mixed-methods survey of Quality Matters institutions with a focus on their policies and administrative processes. Results indicated that half of responding institutions did not have a digital accessibility policy; though institutions with a greater online presence were more likely to have a policy. Moreover, three-fourths of institutions did not have a budget for creating digitally accessible materials.

Introduction

Within institutions of higher education, there are now more online than on-campus students (Seaman, Allen, & Seaman, 2018). For the fourteenth year in a row, online enrollments have steadily increased, with more than 6.3 million students taking at least one online course (Seaman, Allen, & Seaman, 2018). Advances in assistive technologies have now enabled students with disabilities to access online education. In fact, many "adult students with disabilities perceive the online environment to be more comfortable than traditional formats and [find] courses more adaptable to their disability and learning preference" (Verdinelli & Kutner, 2016, p.353).

Several key pieces of legislation require that online course materials be made accessible to students with disabilities. These include the Americans with Disabilities Act and the Rehabilitation Act of 1973. Generally, institutional leaders guide the development of digital accessibility policies and administrative procedures to ensure that online course materials are compliant with these legal and ethical standards. Quality Matters and other professional organizations for online learning also advocate for digital accessibility compliance by

raising awareness of best practices and conducting sponsored studies related to this topic. Specifically, this study investigates the formal digital accessibility policies and administrative processes implemented by Quality Matters institutions in order to make online courses inclusive of all learners.

Digital Accessibility Overview

Digital accessibility¹ refers to the design of electronic materials that are usable by all people, regardless of disabilities or environmental constraints (Mankoff, Fait & Tran, 2005; National Federation of the Blind, 2020). Improving the accessibility of digital resources is a global effort, as there are an estimated 650 million individuals with a disability around the world (World Health Organization, 2010). In the United States alone, 61 million people are living with a disability, and this number continues to grow (Centers for Disease Control, 2020). Students in higher education are an important part of this population, with 19% of undergraduates reporting a disability (National Center for Education Statistics, 2018). Common disabilities experienced by students include a specific learning disability, visual impairment, hearing loss, deafness, speech impairment, orthopedic impairment, or health impairment. These coincide with the four categories of disabilities recognized by the U.S. Centers for Disease Control: visual, auditory, cognitive, and motor (Mike & Harrington, 2013).

For students with disabilities, online education provides a viable means to access higher education learning opportunities. Research has shown that many students with disabilities prefer online learning to residential courses due to its flexibility and lack of time constraints (Linder, Fontaine-Rainen, & Behling, 2015; Mike & Harrington, 2013). In fact, "students with disabilities increasingly choose to participate in online courses at higher rates than other student populations," (Coy, Marino & Serianni,

¹ The terms digital accessibility and accessibility are used interchangeably.



2014, p. 63) which emphasizes the need for inclusive online instructional materials. Some research suggests that online courses can pose a barrier to students with disabilities if they cannot gain access to the instructional materials and technology tools (Gierdowski, & Galanek, 2020). As early as 2011, Roberts, Crittenden, & Crittenden's study on the academic success of students with disabilities reported that even though instructors provided accommodations, most students perceived their disability to have a negative impact on their ability to succeed in an online course, program, or certificate. While students with disabilities in higher education are legally protected by state and federal statutes that mandate access to services and resources, institutions continue to struggle to develop policies and practices focused on online learning.

Historically, two major pieces of federal legislation protect students with disabilities on university campuses and within their academic courses - the Rehabilitation Act of 1973 (Sections 504 and 508) and the Americans with Disabilities Act of 1990. Section 504 of the Rehabilitation Act of 1973 prohibits discrimination on the basis of disability in programs that receive federal funding, while Section 508 of the Rehabilitation Act addresses barriers associated with electronic and information technology. The Americans with Disabilities Act of 1990 is civil rights legislation that protects qualified individuals with disabilities from discrimination on the basis of disability in services, programs, and activities. In addition to federal legislation, some states, like California, have enacted laws that require any technology developed, procured, or used by state-funded colleges and universities to be accessible.

Several high-profile lawsuits have highlighted the lack of accessibility in online courses for students with disabilities in higher education (Szpaller, 2012). For example, both Harvard and the Massachusetts Institute of Technology (MIT) were sued by the National Association of the Deaf (NAD) in 2015 for failing to make their video content in online courses accessible to the deaf or hard of hearing through closed captioning (McKenzie, 2019). Such cases illustrate that students with disabilities are no longer willing to wait for access to learning materials when

their peers have immediate access (Rowland, Whiting, & Smith, 2015). Although there is a growing awareness of the need to make digital course materials accessible, many institutions have still not adequately addressed the issue (Thompson, Comden, Ferguson, Burgstahler, & Moore, 2013). In both residential and online delivery formats, common challenges reported by institutions include a lack of faculty awareness of the legal requirements and best practices for supporting students with disabilities online as well as a lack of resources for accommodating the wide range of disabilities (Stevens, Schneider, & Bederman-Miller, 2018; U.S. Government Accountability Office, 2009).

To date, research has been broadly concerned with web accessibility, meaning the accessibility of postsecondary institutional webpages, particularly their homepages. Studies have identified common barriers that make the content of these public-facing pages (e.g., admissions, athletics, financial aid, library) inaccessible for students with disabilities. These barriers include the use of images without alternative text, unstructured headings, uncaptioned audio or video, poor color contrasts, and unformatted tables (Bradbard, Peters, & Caneva, 2010). Webpage developers may refer to a web accessibility policy to guide their practices. Research has shown that the presence of an overarching web accessibility policy leads to higher accessibility ratings (Thompson et al., 2013), yet there is a lack of research on digital accessibility policies in online programs.

Online Learning and Digital Accessibility Policies

American institutions continue to expand their online programming. Online students now comprise over 31.6% of all higher education enrollments, including both undergraduate and graduate learners (Seaman, Allen, & Seaman, 2018). Students with disabilities are among this growing demographic. However, the needs of students with disabilities in online learning continue to be poorly understood by institutional stakeholders (Wynants & Dennis, 2017).



Policies that guide the accessibility of online courses and electronic instructional materials are known as digital accessibility policies. These policies give direction by outlining the practices and procedures to be followed by faculty and staff in compliance with federal and state legislation. Digital accessibility policies are specifically applied to content and systems that students are required to access for their course work, including downloadable documents, embedded media, and activities hosted within the institution's LMS (Kurt, 2019). In addition, digital accessibility policies require the accessibility of all websites and instructional technologies central to learning. Model accessibility policies for online courses might include a statement of commitment, definitions of roles and responsibilities by departmental unit, the scope of the policy, and procedures for monitoring compliance (EDUCAUSE, 2019; see Cornell University example; see Arapahoe Community College example).

Despite their importance for online learners with disabilities, digital accessibility policies are not the norm at most institutions. Early research by Frey and King (2011) on Quality Matters subscribers reported that while most institutions had a disability statement in the syllabus, few (13%) had a disability policy specific to online courses. In 2017, the Online Learning Consortium (OLC) and the WICHE Cooperative for Educational Technologies (WCET) administered a survey of member institutions to gauge their knowledge and awareness of accessibility issues. They found that while most institutions had an official policy (60%), some respondents were unsure whether a policy existed. Larger schools with doctoral programs were most likely to have a formal digital accessibility policy. In a later survey of higher educational professionals responsible for accessibility, Deaton (2018) discovered a strong correlation between institutions with a policy and those with a digital accessibility coordinator. Although the digital accessibility coordinator is a new and undefined role in many organizations, this research highlights the importance of policy in establishing an accessibility infrastructure.

Administrative Processes for Digital Accessibility

Institutional administration plays a key role in advancing the mission of accessibility compliance for online programs. Administrators may include presidents, provosts, deans, coordinators, managers, supervisors, and other campus leaders. These leaders are nested within various campus units, such as academic departments, disability services, digital accessibility, distance learning, centers for teaching excellence, library, information technology, marketing and communications, and more (Cifuentes, Janney, Guerra, & Weir, 2016). Together they establish the institutional culture of accessibility by making it a strategic priority. At a minimum, campus administrators should decide "[...] based on available resources, how online content will be made accessible, and identify departments responsible for compliance with a mandate for reasonable accessibility" (Burke, Clapper, & McRae, 2016, p. 177).

A key factor in strategic planning for digital accessibility is budgeting. A budget is necessary for creating a robust infrastructure for accessibility that maps cycles for course review and evaluation, policy and procedure review, recruitment of experts, training and professional development of faculty and staff, and procurement of technology and tools (W3C, 2020). Budgeting for digital accessibility is a complex task, as "institutions must forecast budgets based on the number of students, staff, and faculty with disabilities, though this can be difficult because specific accommodation needs vary, and some programs or courses may be more or less expensive to accommodate than others" (Deaton, 2018, p. 13). Generally, budgets should provide for purchasing specialized tools, such as screen readers, accessibility checkers, and captioning software, which are necessary for inclusive course design. Similarly, budgets should account for instructional design staff, who support faculty in making courses accessible. Respondents in the WCET and OLC study of 2017 expressed concerns related to the budget for captioning. In institutions without a budget, the responsibility of captioning falls to faculty, who often Conceptual Framework

lack the time and technical skills needed. Overall, research on budgets for creating digitally accessible materials is scarce. In 2010, Frey and King reported that 75% of responding QM institutions did not have a budget for creating accessible materials, which is a key component of accessible online program design.

Institutional administration also plays an important role in establishing a quality assurance process that prioritizes the accessibility of online course materials through regular review cycles. Auditing courses for accessibility involves verifying that media is accompanied by transcripts or captions, high contrast colors are used for text and images, alternative text is provided for images, and content can be navigated using a screen reader (Cifuentes, Janney, Guerra, & Weir, 2016). Common quality assurance rubrics from leading organizations of online learning, such as Quality Matters, the Online Learning Consortium, and the SUNY Course Quality Review also require compliance with digital accessibility benchmarks as part of best practice. The WCET and OLC (2017) study indicated that disability services officers, top administrators, and instructional designers most often oversee the review process. Frey and King (2011) found that half of responding QM institutions did not regularly review courses for digital accessibility compliance, pointing to the need for leadership to be involved not only in policy development but also policy implementation.

Conceptual Framework

This study is grounded in multiple theoretical frameworks that address the importance of digitally accessible course materials. Perhaps the most well-recognized is Universal Design for Learning (UDL), a set of pedagogical principles used to design curriculum with the appropriate supports so that all students can learn (Robinson & Wizer, 2016). These principles coincide with the Web Content Accessibility Guidelines (WCAG) and take into consideration simple and intuitive course design, flexibility in use, perceptible information and more. A closely related model, the Holistic Approach to E-Learning Accessibility (Kelly, Phillips, & Swift, 2004), weights

accessibility as an equal part of course design and delivery, along with learning outcomes, technology, infrastructure, and usability. Together these models emphasize the type of learner-centered and proactive course design that is a hallmark of QM's work in accessibility.

Methodology

QM institutions represent a broad spectrum of institutions of higher education around the world. Data for the current study were drawn from a larger QM-sponsored research project on digital accessibility. This data subset focused on institutional policies and administrative processes that support the digital accessibility of online courses within institutions of higher education.

Research Questions

The following research questions were explored using a mixed-methods survey design:

- What institutional policies (if any) are used by QM institutions to ensure that online or hybrid courses are accessible for students with disabilities?
- What administrative processes (if any) are used by QM institutions to ensure that online or hybrid courses are accessible? (e.g., budgeting, defining roles and responsibilities)

Procedure

Survey participants were identified through a database of active QM Coordinators. One QM Coordinator per institution completed the survey on behalf of the institution. The survey instrument consisted of 30 qualitative and quantitative questions targeting five areas of digital accessibility: institutional policies, administrative processes, technology tools, course development practices, and professional development needs (see Appendix A). It was administered via Qualtrics, a web-based dissemination tool and took approximately 10-15

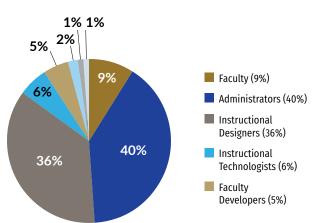


minutes to complete. Regular reminder emails were sent through the listserv to encourage participation. Participation was entirely voluntary; participants could elect into a drawing for one of ten gift cards.

Participants

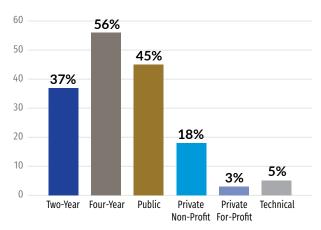
Survey participants were Quality Matters (QM) Coordinators, representing their institutions. The electronic survey was disseminated to 1,721 subscribing colleges and universities who were contacted through the QM database, yielding a response rate of 16%, or 273 respondents. After removing incomplete surveys, there were a total of 209 participants, most of whom were administrators and instructional designers. Faculty comprised a small group of respondents in addition to faculty developers, instructional technologists, disability specialists, and digital accessibility specialists (Figure 1).

Figure 1 Breakdown by Participant Role



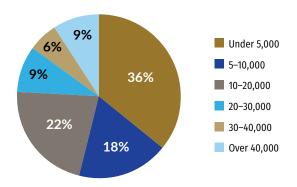
The sample categorized institutions in various ways, by control, degree level, total enrollment, online enrollment, and number of online offerings. Two-year and four-year institutions were well represented, and nearly half of participating institutions were public, followed by private non-profit. Few trade or technical institutions and few private for-profit institutions responded to the survey (Figure 2).

Figure 2 Breakdown by Institutional Control



Institutions ranged in size from small colleges to large universities. Institutional enrollments were generally under 20,000 students. Most respondents were from institutions with fewer than 5,000 total students, followed by institutions with 10,000-20,000 students. Extremely large institutions were less common (Figure 3).

Figure 3 Breakdown by Institutional Size



Slightly over half of the responding institutions had less than 3000 online students, while only 10% indicated more than 11,000 online enrollments. In addition, most institutions (62%) offered less than 400 online courses, while few institutions (9%) offered more than 800 online courses.

Results & Discussion

Data Analysis

Deidentified survey data was exported from Qualtrics into SPSS statistical analysis software (version 26). All incomplete surveys were removed from the dataset. Questions with multiple select options were recoded using dummy codes (UCLA Institute for Digital Research and Education, 2020). Afterward frequency distributions and descriptive statistics were calculated for all quantitative questions and visualizations were generated. When appropriate, Chi-square analyses (Onchiri, 2013) with cross-tabulations were performed to examine relationships among institutional demographics and participant responses.

Qualitative, text-based questions were coded using a combination of inductive (open) and deductive (pre-structured) techniques (Jansen, 2010). Both researchers coded the data independently, then compared their results to reconcile discrepancies and generate a final codebook.

Results & Discussion

Results are organized by two research questions dealing with administrative policies and processes. Due to the growing number of online courses and the diverse student population, administrators are increasingly responsible for creating a culture that promotes inclusiveness in online learning.

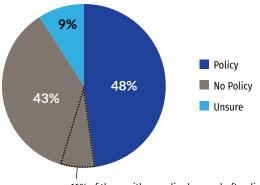
What institutional policies (if any) are used by QM institutions to ensure that online or hybrid courses are accessible for students with disabilities?

Digital accessibility policies are the cornerstone of designing inclusive online course materials. They provide a framework of technical standards guidelines for technology procurement, course review cycles, compliance, and consequences for non-compliance (National Center on Disability and Access to Education, 2020). More importantly, a digital accessibility policy showcases an institution's commitment and prioritization to serve all learners, regardless of ability. Overwhelmingly, QM survey

participants (92%) reported that their online students were made aware of the disability services and resources available to them. According to Frey and King's (2011) survey, the most common location for such policy information is the course syllabus. As early as 2008, the syllabus was considered "a legal document, full of all manner of exhortations, proscriptions, and enunciations of class and institutional policy" (Wasley, 2008, p. 1). QM Specific Review Standard 7.2 also confirms that accessibility policies are clearly stated within the course or an institutional portal for student reference.

Moreover, survey results regarding the digital accessibility of online course materials indicated a balanced distribution of institutions operating with (48%) and without (43%) a formal policy (Figure 4). Of institutions without a policy, nearly 16% had a draft policy. This marks a substantial increase over a 10-year period from Frey and King's (2011) initial benchmarking study, where 13% of QM institutions reported having a digital accessibility policy. The findings align with the WCET/OLC (2017) survey results, where 60% of member institutions reported having a formal policy in place. These results can be attributed to the heightened awareness about digital accessibility as well as to advances in technology that facilitate the creation of accessible online materials (KulKarni, 2019).

Figure 4
Institutions with a Digital Accessibility Policy



16% of those with no policy have a draft policy

Chi-square tests for association were conducted between having a policy and institutional demographics. The control, degree level, and total Results & Discussion

enrollment of an institution had no bearing on whether or not an institutional policy was present. However, there was a statistically significant association between the number of online courses and the presence of an institutional digital accessibility policy, χ2 (5)=13.31, p=.021; institutions with a greater number of online courses were more likely to have a policy. Similarly, there was a positive association between having a digital accessibility policy and the number of online students enrolled at the institution, χ^2 (7)=18.57, p=.010. Specifically, institutions with more online student enrollments were more likely to have a policy. These results reflect prior research on the relationship between both web and digital accessibility policies and an institution's size. In particular, Thompson et al., (2013) noted that doctoral-granting institutions were more likely to operate with a web accessibility policy than Master's colleges and universities. Similarly, the WCET/OLC (2017) study also indicated that doctorallevel institutions with more than 20,000 students enrolled typically had a digital accessibility policy in place. Research by Seaman, Allen, and Seaman (2018) confirms that these large, doctoral-granting institutions comprise the majority of online education enrollments. In sum, an institution's online presence regarding the number of online offerings and students plays a role in whether or not it has a formal policy for digital accessibility.

Policy findings were consistent with the level of priority placed on accessibility reported by the institutions. Specifically, 46% of institutions indicated that accessibility was a high priority, while the remaining institutions were evenly split between medium and low levels of priority, 25% each. Further, a Chi-square test for association was performed between institutional priority and having a policy. The test yielded a very strong, statistically significant association between these two variables, $\chi 2$ (3)=18.807, p=.000, such that those institutions who made accessibility a higher priority were more likely to have a digital accessibility policy. Notably, few institutions monitored compliance with their digital accessibility policy, 24.4%.

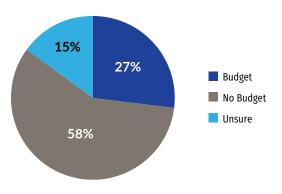
What administrative processes (if any) are used by QM institutions to ensure that online or hybrid courses are accessible?

Guaranteeing the accessibility of courses is the responsibility of all institutional stakeholders (Daniels-Bacchus, 2018). University administration can procure and allocate resources for making digital course materials accessible through a dedicated budget. They may also oversee processes for routinely evaluating course materials to ensure accessibility and compliance with internal policies and legal guidelines.

Survey results indicated that 27% of QM institutions had a budget dedicated to the creation of accessible online course materials (Figure 5). These findings are similar to those obtained by Frey and King (2011), where 25% of QM institutions reported a budget allocated for digital accessibility. This is somewhat surprising given the advancements in technology and increased online enrollments over a 10-year time period. Research further indicates that in 2019, 48% of 4-year institutions and 41% of 2-year institutions increased their budgets for online learning (Bastrikin, 2020); however, it is unclear if these funds were allocated toward digital accessibility efforts. Through a Chi-square test for association results of the present study also indicated that institutions with a greater number of online courses were much more likely to report having a budget, χ^2 (10)=22.671, p=.012. This may be attributed to the need for a more robust online learning infrastructure at institutions with more online course offerings. In these cases, a centralized office for online learning is needed to manage the development and oversight of online education, often requiring a budget for specialized personnel such as instructional designers and digital accessibility coordinators.

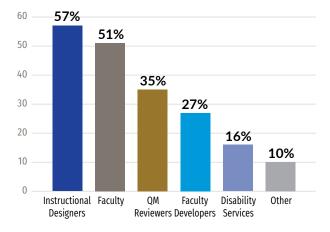
QUALITY MATTERS QM

Figure 5Institutions with a Budget for Digital Accessibility



Overall, institutional responsibility for reviewing courses to ensure the accessibility of materials was evenly distributed among instructional designers and faculty members (Figure 6). This finding is consistent with the OLC/WCET (2017) accessibility study, where smaller institutions, like those in this QM sample, situated the instructional designer as a key overseer of digital accessibility efforts. QM peer reviewers also examined course materials for compliance with accessibility guidelines. Some respondents indicated that faculty developers and disability services specialists assisted in the review process at their institutions. Online Program Management (OPM) providers were also mentioned as course reviewers.

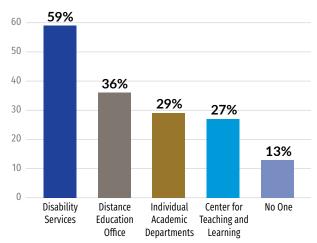
Figure 6Responsibility for Reviewing Courses



Institutions varied in their course review cycles for identifying barriers to accessibility. Results were evenly split between two extremes; 44.5% of institutions reported frequent review cycles of every 1-3 years, while 44.5% reported no review cycle. For the QM course certification program, course reviews are recommended every 3-5 years. Thus, it was somewhat surprising to find institutions with no designated review cycle in this sample. Chi-square analyses indicated that 2-year institutions were more likely to review courses than 4-year institutions, χ^2 (4)=9.898, p=.042. Few institutions reviewed courses to ensure mobile accessibility (26.3%).

At the responding institutions, barriers to accessibility that emerged during the course review cycle were addressed by multiple stakeholders, most commonly the Office of Disability Services and the Distance Education Center (Figure 7). In comparison, the OLC/WCET (2017) respondents (instructional designers, digital learning administrators, faculty, and disability service officers) also recognized the Office of Disability Services as the primary stakeholder in addressing accessibility matters (> 50%). In the present QM study, individual academic departments or schools or the Teaching and Learning Centers enforced accessibility compliance. Overall, most institutions had a mechanism in place for monitoring or addressing accessibility concerns, which is a positive finding.

Figure 7Responsibility for Addressing Accessibility Matters



Conclusion

Conclusion

In this 2020 study, QM member institutions were surveyed regarding their digital accessibility policies and administrative processes for supporting online courses and programs. Results indicated that although QM institutions do recognize accessibility as a priority, many continue to lack a formal policy and mechanisms for evaluating policy compliance. In the face of growing online student enrollments, institutions are urged to take a proactive stance toward policy development by enhancing existing digital accessibility policies or developing new policies to guide praxis. Most participating institutions in this study reported no budget for creating digitally accessible materials for online courses and programs. The Disability Services Office played a key role in addressing accessibility barriers at QM institutions, while instructional designers and faculty members were often responsible for conducting course reviews to identify potential barriers to student access. Findings further indicated the need for institutions to establish a frequent review cadence to maintain and continuously improve upon online courses for a diverse student population. Implications of this research extend to various higher education stakeholders, including, but not limited to, administrators, instructional support staff, and faculty.

Administrators can lead accessibility initiatives by creating a campus-wide digital accessibility policy that can be applied to online instructional materials. This is part of developing a culture of accessibility that includes all university partners. Ideally, policies should comprehensively define the roles and responsibilities of faculty members, instructional support staff, students, and administrators. Institutional leaders can convene committees to evaluate existing digital accessibility policies to identify gaps and areas for improvement. They can also guide their institutions in establishing processes for routinely assessing compliance with the policy. Campus administrators are typically responsible for allocating resources, human and fiscal, to achieve the goal of inclusive courses and programs. Possible needs might include budgeting for closed captioning

of multimedia resources, or the hiring of specialized personnel, such as a digital accessibility coordinator. Finally, leaders can organize events that elevate the significance of digital accessibility on campus for students, faculty, and staff. Events might include job fairs, technical trainings, and professional conferences or memberships. It is further recommended that academic administrators model digital accessibility best practices that cascade through the institution.

Instructional support staff working closely with online courses and programs are well positioned to build awareness for digital accessibility. Instructional designers, in particular, might be included on task forces or committees that shape policy and practices associated with digital accessibility. Since instructional designers are experienced in course development practices that ensure digital accessibility, such as captioning, document design, alternative text, color contrasts, and more, they can train faculty and staff on these topics. They can also establish frequent course review cycles guided by a rubric to efficiently identify barriers to accessibility. Finally, instructional designers might partner with faculty to proactively design new course materials and retrofit existing course materials to maximize their accessibility.

Although faculty were a small subgroup of respondents in this QM study, they actively participated in the course review process to identify accessibility barriers in their instructional materials. Faculty members can strive toward greater digital accessibility by developing knowledge and skills through training. In addition, faculty have direct contact with students and can ensure that they have access to appropriate institutional offices, services, and policies to support their needs. Finally, faculty members can maintain frequent communication with disability services specialists to enrich their understanding of accommodations and inaccessible course materials.

In conclusion, future research is needed to explore change over time, as institutions continue to update and create digital accessibility policies and examine



how policy may drive administrative processes and hiring decisions. Aligning with Quality Matters' guiding principle of continuous improvement, digital accessibility benchmarking research should follow a replication cycle of 5-10 years to capture advancements in technologies and practices. Of particular concern is the limited research regarding budgets for the creation of digitally accessible

materials in online courses and programs. A budgeting forum could be created to facilitate the exchange of information related to how decisions are made, and resources are allocated. Additional studies might explore the emerging role of the digital accessibility coordinator and OPMs applying the QM framework.

References

Bastrikin, A. (2020, April). Online education statistics. *Educationdata.org*. Retrieved from https://educationdata.org/online-education-statistics/

Bradbard, D. A., Peters, C., & Caneva, Y. (2010). Web accessibility policies at land-grant universities. *The Internet and Higher Education*, 13(4), 258-266.

Burke, D. D., Clapper, D., & McRae, D. (2016). Accessible online instruction for students with disabilities: Federal imperatives and the challenge of compliance. *Journal of Law and Education*, 45, 135.

Centers for Disease Control and Prevention. (2020). Disability impacts all of us. https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html

Cifuentes, L., Janney, A., Guerra, L., & Weir, J. (2016). A working model for complying with accessibility guidelines for online learning. *TechTrends*, 60(6), 557-564.

Coy, K., Marino, M. T., & Serianni, B. (2014). Using universal design for learning in synchronous online instruction. *Journal of Special Education Technology*, 29(1), 63-74.

Daniels-Bacchus, G. (2018). Ensuring accessibility is everyone's responsibility. *Community College Journal*, 88(4), 31-31.

EDUCAUSE. (2019). 7 things you should know about accessibility. Retrieved from https://library.educause.edu/-/media/files/library/2019/2/eli7165.pdf

Frey, B. A., & King, D. K. (2011). Quality Matters [TM] accessibility survey: Institutional practices and policies for online courses.

Gierdowski, D. C., & Galanek. J. D. (2020, May). ECAR Study of the technology needs of students with disabilities. Louisville, CO: ECAR.

Jansen, H. (2010). The logic of qualitative survey research and its position in the field of social research methods. In Forum Qualitative Socialforschung/Forum: Qualitative Social Research 11(2).

Kelly, B., Phipps, L., & Swift, E. (2004). Developing a holistic approach for e-learning accessibility. Canadian Journal of Learning and Technology/La revue canadienne de l'apprentissage et de la technologie, 30(3).

Kulkarni, M. (2019). Digital accessibility: Challenges and opportunities. IIMB Management Review, 31(1), 91-98.

Kurt, S. (2019). Moving toward a universally accessible web: Web accessibility and education. *Assistive Technology*, 31(4), 199-208.

Linder, K. E., Fontaine-Rainen, D. L., & Behling, K. (2015). Whose job is it? Key challenges and future directions for online accessibility in US Institutions of Higher Education. *Open Learning: The Journal of Open, Distance and e-Learning*, 30(1), 21-34.

Mankoff, J., Fait, H., & Tran, T. (2005). Is your web page accessible? A comparative study of methods for assessing web page accessibility for the blind. *Chi, Proc. of the SIGCHI conference on Human factors in computing systems*, pp. 41 -50. ACM, New York: April 2–7, 2005.

McKenzie, L. (2019, April 8). Legal battle over captioning continues. Inside Higher Ed.

Mike, D., & Harrington, M. (2013, March). Retrofitting an online graduate course for ADA compliance: the case for universal design for learning. In *Society for Information Technology & Teacher Education International Conference* (pp. 789-794). Association for the Advancement of Computing in Education (AACE).

National Federation of the Blind. (2020). Higher Education Accessibility Online Resource Center. Retrieved July 1, 2020 from https://www.nfb.org

National Center on Disability and Access to Education (2020). Writing a solid web accessibility policy: Cornell gets it right. Retrieved from http://ncdae.org/resources/tips/cornell.php

Online Learning Consortium (OLC) and WICHE Cooperative for Educational Technologies (WCET). (2019, April). Accessibility survey of OLC and WCET members. Retrieved from https://wcet.wiche.edu/initiatives/research/accessibility-survey-olc-wcet-2019

Onchiri, S. (2013). Conceptual model on application of chi-square test in education and social sciences. *Global Journal of Art and Social Science Education*, 1(1), 16-26.

Roberts, J. B., Crittenden, L. A., & Crittenden, J. C. (2011). Students with disabilities and online learning: A cross-institutional study of perceived satisfaction with accessibility compliance and services. *The Internet and Higher Education*, 14(4), 242-250.

Robinson, D. E., & Wizer, D. R. (2016). Universal Design for Learning and the Quality Matters guidelines for the design and implementation of online learning events. *International Journal of Technology in Teaching and Learning*, 12(1), 17-32.

Rowland, C., Whiting, J., & Smith, J. (2015). What do you need to create and maintain web accessibility? Accessible Instructional Design, 4, 13-45.

Seaman, J. E., Allen, I. E., & Seaman, J. (2018). Grade Increase: Tracking distance education in the United States. Babson Survey Research Group.

Stevens, C., Schneider, E., & Bederman-Miller, P. (2018). Identifying faculty perceptions of awareness and preparedness relating to ADA compliance at a small, private college in NE PA. American Journal of Business Education, 11(2), 27-40.

Szpaller, K. (2012). Disabled UM students file complaint over inaccessible online courses. Missoulian.

Thompson, T., Comden, D., Ferguson, S., Burgstahler, S., & Moore, E. J. (2013). Seeking predictors of web accessibility in US higher education institutions. Information Technology and Disabilities, 13(1), 18.

UCLA Institute for Digital Research and Education: Statistical Consulting, (2020). Coding Systems for Categorical Variables in Regression Analysis. Retrieved from https://stats.idre.ucla.edu/spss/faq/coding-systems-forcategorical-variables-in-regression-analysis/

U.S. Department of Education National Center for Education Statistics (2018). Web tables: Characteristics and outcomes of undergraduates with disabilities. Retrieved from https://nces.ed.gov/pubs2018/2018432.pdf

U.S. Government Accountability Office (2009). Higher Education and Disability: Education Needs a Coordinated Approach to Improve Its Assistance to Schools in Supporting Students. Retrieved from https://www.gao.gov/ products/GAO-10-33

Verdinelli, S. & Kutner, D. (2016). Persistence factors among online graduate students with disabilities. Journal of Diversity in Higher Education, 9(4), 353-368.

Wasley, P. (2008). The syllabus becomes a repository of legalese. The Chronicle of Higher Education, 54(27), A1.

World Health Organization. (2011). World Report on Disability. Retrieved from https://www.who.int/disabilities/ world_report/2011/report.pdf?ua=1

Wynants, S. A., & Dennis, J. M. (2017). Embracing Diversity and Accessibility: A Mixed Methods Study of the Impact of an Online Disability Awareness Program. Journal of Postsecondary Education and Disability, 30(1), 33-48.

Appendix A: Survey Instrument

Q1 What is your primary role at your institution?

Note: For the purposes of this survey, "primary" refers to the institution/professional role that accounts for more than 50% of your employment.

Faculty

Instructional technologist Administrator (Dean, Director) Disability service specialist

Faculty developer Instructional designer

Digital Accessibility Specialist/Coordinator

Other, please specify_____

Q2 Which of the following best describes your institution? Select all that apply.

Two-year

Four-year

Technical or trade school

Public

Private, non-profit Private, for-profit

Q3 What is the overall student enrollment at your institution?

Under 5,000 5,001 to 10,000 10,001 to 20,000 20,001 to 30,000 30,001 to 40,000 Over 40,000 Unsure

Q4 How many online courses are offered at your institution?

Less than 200 courses 201 - 400 courses 401 - 600 courses 601 - 800 courses More than 800 courses

Unsure

Q5 Approximately how many students at your institution are enrolled in online courses?

Less than 1,000 1,001-3,000 3,001-5,000 5,001-7,000 7,001-9,000 9,001-11,000 More than 11,000 Unsure

Q6 Does your institution have a formal policy that addresses digital accessibility?

Note: "Digital accessibility" is the ability of electronic materials (ex.; audio, video, documents, images) to be easily navigated and understood by all students, including those with disabilities. This definition will apply throughout the survey.

Yes No Unsure

Q7 Has a digital accessibility policy or similar guidelines been drafted at your institution?

Yes No Unsure

Q8 Is compliance with the digital accessibility policy evaluated?

Yes No Unsure

Q9 Are online students made aware of disability services or resources (in an orientation, course syllabus, etc.)?

Yes No Unsure



Appendix A: Survey Instrument

Q10 Which office/s are responsible for enforcing digital accessibility issues in online courses? [select all that apply]

Disability Services

Teaching and Learning Center
Distance Education Center

Individual academic departments, schools or colleges

Office of Diversity and Inclusion

None

Unsure

Other, please specify_____

Q11 How frequently does your institution review courses for digital accessibility?

Never

Every year

Every 2-3 years

Every 4-5 years

Every 6+ years

Q12 What is your institution's level of priority for making courses digitally accessible for students with disabilities?

High

Medium

Low

Nonexistent

Q13 Who is responsible for reviewing online courses for digital accessibility [select all that apply]?

Faculty

Faculty developer

Instructional designer

Instructional technologist

Administrator

Production team

Quality Matters Reviewers

Quality Assurance Specialist

Disability Services Specialist

Digital Accessibility Specialist/Coordinator

Web developers

Unsure

Other, please specify_____

Q14 Does your institution have a budget for creating digitally accessible course materials?

Yes

No

Unsure

Q15 Which technologies have you used to *create* accessible online course materials?

Q16 Which technologies have you used to *check* the accessibility of online course materials?

Q17 Are accessibility statements provided for vendor or third-party technologies?

Yes

No

Unsure

Q18 Are online course materials reviewed for mobile accessibility?

Yes

No

Unsure

Q19 How frequently are online audio or video components accompanied by transcripts?

Always

Often

Sometimes

Rarely

Never

Q20 How frequently is online video closed captioned?

Always

Often

Sometimes

Rarely

Never

Q21 How is closed captioning created at your institution? Select all that apply.

By faculty developer

By instructional designer

By student worker

By third party, fee-based service

Auto-generated by software

By faculty member

By disability services office

By multimedia specialist

Courses used are already closed captioned

Other, please specify_____

Q22 Which of the following digital accessibility practices are incorporated into the instructional design process for online courses? [select all that apply]

Descriptive hyperlinks

Alternative text

Alternative formats (ex: audio, video, text, images)

Headings

Readable PDFs

Table design

Captioning/transcripts

Document design

Font colors and contrasts

Plain language (ex: familiar language, active voice,

concise sentences)
Keyboard accessibility

Consistent navigation menus

Q23 Rate the level of effort required for each of the following practices.

High Medium Low

Descriptive hyperlinks

Alternative text

Alternative formats (ex: audio, video, text, images)

Headings

Readable PDFs

Table design

Captioning/transcripts

Document design

Font colors and contrasts

Plain language (ex: familiar language, active voice,

concise sentences)
Keyboard accessibility
Consistent navigation menus

Q24 What course development practices have helped your institution to develop digitally accessible online courses?

Q25 What are your greatest challenges in creating digitally accessible course materials?

High Medium Low

Descriptive hyperlinks

Alternative text

Alternative formats (ex: audio, video, text, images)

Headings

Readable PDFs

Table design

Captioning/transcripts

Document design

Font colors and contrasts

Plain language (ex: familiar language, active voice,

concise sentences)

Keyboard accessibility

Consistent navigation menus

Q26 Does your institution offer training on how to develop accessible online courses?

Yes

No

Unsure

Q27 If your institution offers accessibility training, who is the target audience? Select all that apply.

Faculty

Faculty developers

Instructional designers

Instructional technologists

Administrators

Web developers

Other, please specify_____

Q28 If accessibility training is offered, what types are available? Select all that apply.

Mentoring program

Internal course or workshop

External course or workshop (OLC, QM, WebAim)

Online resources

Webinars

Other, please specify_____

Q29 Rank your need for training in the following digital accessibility practices.

Descriptive hyperlinks

Alternative text

Alternative formats (ex: audio, video, text, images)

Headings

Readable PDFs

Table design

Captioning/transcripts

Document design

Font colors and contrasts

Plain language (ex: familiar language, active voice,

concise sentences)

Keyboard accessibility

Quality Matters Standard 8

Consistent navigation menus

Q30 What can Quality Matters do to support you in developing digitally accessible online course materials?

Q34 What is the name of your institution (optional)?