

## A Socio-Legal Framework for Improving the Accessibility of Research Articles for People With Disabilities

Brian Wentz

Jonathan Lazar

Paul T. Jaeger

Ursula Gorham

Follow this and additional works at: <https://digitalcommons.law.umaryland.edu/jbtl>



Part of the [Disability Law Commons](#)

---

### Recommended Citation

Brian Wentz, Jonathan Lazar, Paul T. Jaeger, & Ursula Gorham, *A Socio-Legal Framework for Improving the Accessibility of Research Articles for People With Disabilities*, 16 J. Bus. & Tech. L. 223 (2021)  
Available at: <https://digitalcommons.law.umaryland.edu/jbtl/vol16/iss2/3>

This Article is brought to you for free and open access by the Academic Journals at DigitalCommons@UM Carey Law. It has been accepted for inclusion in Journal of Business & Technology Law by an authorized editor of DigitalCommons@UM Carey Law. For more information, please contact [smccarty@law.umaryland.edu](mailto:smccarty@law.umaryland.edu).

# A Socio-Legal Framework for Improving the Accessibility of Research Articles for People With Disabilities

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM\*©

## I. Introduction

Within the context of scholarly research articles, the concept of open access generally refers to content that is published online, free, and immediately available.<sup>1</sup> There has been much recent discussion, research, and debate over open access to research, noting that the lack of open access can limit the availability of articles to many researchers, as well as the general public.<sup>2</sup> Within the United States, these discussions have primarily focused on the economic perspective—can individuals and institutions afford access to the research publications, and what is the economic impact of providing access free of charge? There have even been proposals to eliminate the copyright for academic works.<sup>3</sup> Even if this economic barrier is removed, however, there is a key point that is generally left out of discussions of open access: is there really open and immediate access for everyone, if scholars and

---

© Brian Wentz, Jonathan Lazar, Paul T. Jaeger & Ursula Gorham, 2021.

\* Brian Wentz, DSc, is an Associate Professor of Management Information Systems at Shippensburg University of Pennsylvania. He is also the Research Advisor for My Blind Spot, in NYC. Jonathan Lazar, PhD, LL.M. is a Professor in the College of Information Studies at the University of Maryland, where he serves as Associate Director of the Trace Research and Development Center and as a core faculty member in the Human-Computer Interaction Lab. Paul T. Jaeger, PhD, JD, is a Professor in the College of Information Studies and Co-Chair of the President's Commission on Disability Issues at the University of Maryland. He is also the Co-Editor of the journal *Library Quarterly*. Ursula Gorham, PhD, JD, is a Senior Lecturer in the College of Information Studies at the University of Maryland. She is also the Director of the Master of Library and Information Science program. She is admitted to practice law in Maryland and previously served as a law clerk in Maryland appellate and federal bankruptcy courts.

1. *Open Access*, SPARC, <https://sparcopen.org/open-access/> (last visited Jul. 29, 2020).

2. See Jonathan P. Tennant et al., *The academic, economic and societal impacts of Open Access: an evidence-based review*, F1000RESEARCH, <https://f1000research.com/articles/5-632> (last updated Sept. 21, 2016); see also Carol Tenopir et al., *What Motivates Authors of Scholarly Articles? The Importance of Journal Attributes and Potential Audience on Publication Choice*, 4 PUBL'NS 22 (2016), <https://www.mdpi.com/2304-6775/4/3/22/htm>.

3. Steven Shavell, *Should Copyright Of Academic Works Be Abolished?*, 2 J. LEGAL ANALYSIS 301, 313–18 (Mar. 1, 2010), <https://academic.oup.com/jla/article/2/1/301/846841>.

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

students with disabilities cannot access and use research articles? This article addresses the often-overlooked question of whether research publications are accessible for people with disabilities.

This article presents a socio-legal framework for understanding the stakeholders involved with the accessibility of research publications, specifically discussing content creators,<sup>4</sup> content publishers,<sup>5</sup> and content purchasers.<sup>6</sup> Specifically, the article presents the idea that while U.S. disability rights laws have been used to enforce accessibility upon content purchasers, the existing legal framework for disability rights in the U.S.<sup>7</sup> could also be used to enforce accessibility upon content creators and publishers, for which there is no case law yet.

## II. Background Literature

### A. Open Access to Research

How is open access defined, and are people with disabilities conceptually included in the definition? Harvard University's Peter Suber was an early researcher and proponent of open access; however, in his writings on the topic, he argued that open access should focus on pricing and permissions rather than universal access or "[h]andicap access barriers," as he crudely refers to accessibility for people with disabilities.<sup>8</sup> Suber's definition is narrower than some other contemporary definitions of open access (including the Budapest Open Access Initiative, in which Suber was involved) that refer to access by any user.<sup>9</sup> Suber's research and articles also noted the connection between public funding and open access, and he has directly opposed the idea of embargo periods for open access, where the open access version of the article is not immediately available.<sup>10</sup>

In the context of publicly funded research, the open access movement intersects with the broader universe of open government. The guiding principles of open government, as set forth in Open Government Directive issued by President Barack

---

4. See *infra* Section IV.A.

5. See *infra* Section IV.B.

6. See *infra* Section IV.C.

7. See *infra* Part IV.

8. PETER SUBER, OPEN ACCESS, 27 (2012).

9. *Ten Years on from the Budapest Open Access Initiative: Setting the Default to Open*, BUDAPEST OPEN ACCESS INITIATIVE, (Sept. 12, 2012), <https://www.budapestopenaccessinitiative.org/boai-10-recommendations>.

10. See Mikael Laakso & Bo-Christer Björk, *Delayed Open Access - an overlooked high-impact category of openly available scientific literature*, 64 J. AM. SOC'Y FOR INFO. SCI. AND TECH. 1323 (2013).

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

Obama in December 2009,<sup>11</sup> are: 1) *Transparency*: Agencies should treat information as a national asset and empower the public with the information needed to hold the government accountable; 2) *Participation*: Agencies should inform and improve government decision-making by tapping into the citizenry's collective expertise through proactive engagement; and 3) *Collaboration*: Agencies should cooperate among themselves and with nonprofits, businesses, academia, and the public to better accomplish the work of the government.<sup>12</sup> It is the first of these principles – transparency – that underlies the movement for open access to publicly funded research. Within the United States, in 2005, the National Institutes of Health (NIH) became the first federal agency to adopt a voluntary public access policy for peer-reviewed literature.<sup>13</sup> The *Federal Research Public Access Act of 2006 (FRPAA)*<sup>14</sup> sought to not only codify the NIH's policy but also to expand its scope so that it applied to the 11 executive branch agencies that have research expenditures in excess of \$100 million. Under FRPAA, researchers would be required to submit final peer-reviewed articles into an agency or agency-approved repository within six months of publication.<sup>15</sup>

While FRPAA never came up for a vote, the *Consolidated Appropriations Act of 2008*<sup>16</sup> created a mandatory policy for NIH, requiring “all investigators funded by the NIH submit or have submitted for them to the National Library of Medicine's PubMed Central an electronic version of their final, peer-reviewed manuscripts upon acceptance for publication, to be made publicly available no later than 12 months after the official date of publication[.]”<sup>17</sup>

The spirit of FRPAA was also clearly reflected in a February 2013 memorandum, “Increasing Access to the Results of Federally Funded Scientific Research” (the OSTP Memorandum), issued by the Director of the White House Office of Science and Technology Policy to all agency and department heads.<sup>18</sup> Pursuant to the OSTP Memorandum,<sup>19</sup> federal agencies with more than \$100 million in the annual conduct

---

11. Barack Obama, *Memorandum for the Heads of Executive Departments and Agencies, Transparency and Open Government*, OBAMA WHITE HOUSE ARCHIVES, (Jan. 21, 2009), <https://obamawhitehouse.archives.gov/the-press-office/transparency-and-open-government>.

12. *Id.*

13. Adam Kriesberg et al., *An Analysis of Federal Policy on Public Access to Scientific Research Data*, 16 DATA SCI. J. 27 (2017); see also Ray English & Molly Raphael, *The Next Big Library Legislative Issue*, 37 AM. LIBRS. 30, 32 (Sept. 2006).

14. S. 2695, 109th Cong. (2006).

15. *Id.*

16. H.R. Res. 2764, 110th Cong. (2008) (enacted).

17. *Id.*

18. John P. Holdren, *Memorandum for the Heads of Executive Departments and Agencies, Increasing Access to the Results of Federally Funded Scientific Research*, OBAMA WHITE HOUSE ARCHIVES (Feb. 22, 2013), [https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp\\_public\\_access\\_memo\\_2013.pdf](https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf).

19. *Id.*

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

of research and development were required to develop plans to increase public access to the results of federally funded research published in peer-reviewed publications.<sup>20</sup> The OSTP Memorandum, unlike legislative efforts in this area, also called upon the agencies to maximize access to digitally formed data resulting from research supported by the federal government.<sup>21</sup>

Agencies' progress in developing and implementing these plans has been mixed,<sup>22</sup> thus calling into question the extent to which the OSTP Memorandum has been able to achieve the goals of the FRPAA. Further, as noted by the Scholarly Publishing and Academic Resources Coalition (SPARC),<sup>23</sup> the OSTP Memorandum is "not permanent law and can be changed."<sup>24</sup> In addition, without the power of law, federal agencies and departments can ignore an executive order – or move so slowly on implementation as to render it essentially useless.<sup>25</sup> Since the issuance of the OSTP Memorandum, there have been renewed legislative efforts to mandate the release of federally funded research such as the FRPAA. For example, the Fair Access to Science and Technology Research (FASTR) Act—introduced in 2013,<sup>26</sup> 2015,<sup>27</sup> and 2017<sup>28</sup> – retained the requirements that federal agencies with annual extramural research expenditures of over \$100 million develop an open access policy and make research manuscripts stemming from such funded research available after a specified embargo period.<sup>29</sup> Despite the ongoing efforts of its proponents, the FASTR Act never gained sufficient momentum to become law, and legislation focused on public access to federally funded research has not been introduced in Congress since 2017.<sup>30</sup>

It is worth noting, however, that efforts in a handful of states have been more successful.<sup>31</sup> In 2013, Illinois passed a law, called the Open Access to Research Articles Act,<sup>32</sup> that required public colleges and universities to develop open access policies within one year.<sup>33</sup> In 2014, California passed an open access law, requiring

---

20. *Id.*

21. *Id.*

22. Kriesberg et al., *supra* note 13; English & Raphael, *supra* note 13, at 32.

23. *FASTR Legislation Would Ensure Permanency of Public Access to Scientific Research*, SPARC (July 26, 2017), <https://sparcopen.org/news/2017/fastr-reintroduction/>.

24. *Id.*

25. *Id.*

26. H.R. 708, 113th Cong. (2013); S. 350, 113th Cong. (2013).

27. H.R. 1477, 114th Cong. (2015); S. 779, 114th Cong. (2015).

28. H.R. 3427, 115th Cong. (2017); S. 1701, 115th Cong. (2017).

29. H.R. 3427, 115th Cong. (2017); S. 1701, 115th Cong. (2017).

30. H.R. 3427, 115th Cong. (2017); S. 1701, 115th Cong. (2017).

31. See Julie L. Kimbrough & Laura N. Gasaway, *Publication of Government-Funded Research, Open Access, and the Public Interest*, 18 VAND. J. ENT. & TECH. L. 267, 292 (2016).

32. 2013 Ill. Laws 295.

33. *Id.*

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

all peer-reviewed, scientific research funded by the state of California Department of Health to be made available to the public after a 12-month embargo period.<sup>34</sup> California then expanded this law in 2018,<sup>35</sup> extending its coverage to include research funded by *any* state agency.<sup>36</sup>

Underlying each of these legislative efforts is the idea that citizens should not have to “pay twice” to access research that has been funded by their taxpayer dollars (once to fund the research, and a second time to access the publication).<sup>37</sup> For individuals with a disability, there is an additional consideration – do they have to pay a *third* time to make government funded research accessible? And, is this higher cost equivalent to a *disability tax*?

To investigate these questions, it is important to understand the specific barriers to open access faced by individuals with disabilities. For a digital research article to be accessible for people with disabilities, the entire content of the article must be readable regardless of the tool being used to “read” the article (for example, screen reader software or any other type of assistive technology).<sup>38</sup> Digital versions of scholarly articles are typically in HTML, EPUB, and most often PDF format.<sup>39</sup> Two aspects of accessibility for people with disabilities are the format itself (is every aspect of the format accessible?) and the way the content is designed within that format (is the table, chart, graph, or other component within the article designed in a way that will be the most accessible for the assistive technology?). Both HTML and EPUB3 format for articles are relatively easy to make accessible: you would either follow the Web Content Accessibility guidelines (for HTML content),<sup>40</sup> or the EPUB3 accessibility guidelines,<sup>41</sup> both of which are issued by the Web Accessibility Initiative.<sup>42</sup> For research articles, accessibility would include guidance related to

---

34. 2014 Cal. Stat. ch. 789.

35. 2018 Cal Stat. ch. 296.

36. *Id.*

37. Marcia M. Boumil & Deeb N. Salem, *In...and Out: Open Access Publishing in Scientific Journals*, 23 QUALITY MGMT. HEALTHCARE 133 (2014).

38. *Introduction to Web Accessibility*, W3C, <https://www.w3.org/WAI/fundamentals/accessibility-intro/> (last updated June 5, 2019); *Accessibility, Usability, and Inclusion*, W3C, <https://www.w3.org/WAI/fundamentals/accessibility-usability-inclusion/> (last updated May 6, 2016).

39. See JONATHAN LAZAR ET AL., ENSURING DIGITAL ACCESSIBILITY THROUGH PROCESS AND POLICY, 62, 72 (2015). See also Rajkumar et al., *infra* note 47.

40. *Web Content Accessibility Guidelines (WCAG) Overview*, W3C, <https://www.w3.org/WAI/standards-guidelines/wcag/> (last updated Oct. 17, 2020).

41. Romain Deltour et al., *EPUB Accessibility 1.0*, W3C (Jan. 25, 2017), <https://www.w3.org/Submission/epub-a11y/>.

42. W3C, <https://www.w3.org/WAI/> (last visited Feb. 17, 2021).

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

providing text alternatives for non-text content and creating accessible tables and graphs.<sup>43</sup>

While much of the general accessibility guidance from WCAG would apply to PDF, the unique nature of this format requires additional guidance, such as PDF U /A (Universal Accessibility),<sup>44</sup> which has accessibility recommendations that are unique to this format.<sup>45</sup> PDF U/A extends the guidance from WCAG to file format requirements that are prescriptive to PDF (for example, tables have headings, per WCAG but also have a “scope”).<sup>46</sup> Unlike for HTML and EPUB3, which have many tools available to assist, there are a very limited number of software tools available to assist content creators in making accessible PDF files,<sup>47</sup> and these tools are hard to use.<sup>48</sup> As a result, it can take longer to make a research article in PDF format accessible as compared to HTML or EPUB3.<sup>49</sup> The following section illustrates some of the ways that this challenge is beginning to be addressed within STEM education.<sup>50</sup>

*B. Accessibility within Education*

In 2019, the U.S. employment rate for people with disabilities was 19.3% versus 66.3% for people without a reported disability.<sup>51</sup> For people with disabilities, who already face many other barriers to education and employment, full and equal access to scholarly articles can present an additional barrier if those articles are not accessible.<sup>52</sup> The next few paragraphs describe research article accessibility related to STEM publications as an example for two key reasons: 1) STEM articles are generally the most complex to make accessible, in terms of the complex figures and formulas, and 2) there is already a base of literature on the accessibility of STEM-related research articles. Research articles that are primarily textual, such as those in law journals, are technically easier to make accessible than articles related to STEM

43. Silvia Mirri et al., *Toward accessible graphs in HTML-based scientific articles*, 14<sup>TH</sup> IEEE ANNUAL CONSUMER COMM'NS & NETWORKING CONF. 1067, 1067 (2017).

44. *ISO 14289-1:2014(en)*, ISO (July 2014), <https://www.iso.org/obp/ui/#iso:std:iso:14289:-1:ed-2:v1:en>.

45. *Id.*

46. *HTML 5.2, W3C*, <https://www.w3.org/TR/html52/single-page.html> (last updated Jan. 28, 2021).

47. Aravind Jembu Rajkumar et al., *PDF Accessibility of Research Papers: What Tools are Needed for Assessment and Remediation?*, PROC. OF THE 53RD HAW. INT'L CONF. ON SYS. SCI. 4185, 4192 (2020).

48. *Id.*

49. *Id.*

50. *See infra* Section II.B.

51. *Persons with a Disability: Labor Force Characteristics Summary*, U.S. BUREAU OF LAB. STAT. (Feb. 26, 2020, 10:00 AM), <https://www.bls.gov/news.release/disabl.nr0.htm>.

52. *See infra* Section II.C.

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

topics, so the same approaches used in STEM could easily apply in legal publications.

Improving accessibility within STEM education has been the subject of recent research and discussion. The University of Washington's AccessEngineering<sup>53</sup> and AccessComputing<sup>54</sup> initiatives are noteworthy examples of a comprehensive effort by academia to create STEM education that is focused on increased participation by people with disabilities. The AccessEngineering initiative integrates universal design and disability-related content into engineering courses and works to attract more diversity to the engineering programs at the University of Washington.<sup>55</sup> The AccessComputing initiative focuses on both K-12 and higher education environments, providing sample curriculum and tools to emphasize accessibility and inclusion.<sup>56</sup> Another notable example is the "Teach Access"<sup>57</sup> initiative, which provides examples, tools, and research to support teaching about accessibility within computing courses.<sup>58</sup>

There are many examples of classroom-based solutions for STEM accessibility. These include a chemistry course where an accessible thermometer was designed to be used as a tool that could be fully accessed by sighted and blind students<sup>59</sup> and a chemistry sensor hub designed using open source components that provides text-to-speech capabilities.<sup>60</sup> A blind professor of Mathematics developed MathSpeak,<sup>61</sup> which allows people with print disabilities to fully access mathematical problems that would otherwise be ambiguous.<sup>62</sup> MathJax<sup>63</sup> is another example of an accessible solution to otherwise complex mathematical expressions.<sup>64</sup> Other research<sup>65</sup> focused

53. *Access Eng'g*, DO-IT, <https://www.washington.edu/doit/programs/accessengineering/overview> (last visited Feb. 18, 2021).

54. *The Alliance for Access to Computing Careers*, ACCESS COMPUTING, <https://www.washington.edu/accesscomputing/about> (last visited Feb. 18, 2021).

55. *Access Eng'g*, *supra* note 53, at 11.

56. *The Alliance for Access to Computing Careers*, *supra* note 54, at 11.

57. *Resources*, TEACH ACCESS, <https://teachaccess.org/resources/> (last visited Feb. 20, 2021).

58. *Id.*

59. Felipe A. Vitoriano et al., *Promoting Inclusive Chemistry Teaching by Developing an Accessible Thermometer for Students with Visual Disabilities*, 93 J. OF CHEM. EDUC., 2046, 2047 (2016).

60. Ronald Soong et al., *Combining the Maker Movement with Accessibility Needs in an Undergraduate Laboratory: A Cost-Effective Text-to-Speech Multipurpose, Universal Chemistry Sensor Hub (MUCSH) for Students with Disabilities*, 93 J. OF CHEM. EDUC., 2268, 2268 (2018).

61. Mick Isaacson et al., *Increasing STEM Accessibility in Students with Print Disabilities through MathSpeak*, 14 J. OF SCI. EDUC. FOR STUDENTS WITH DISABILITIES, 25, 25 (2010).

62. *Id.*

63. David Cervone et al., *New Accessibility Features in MathJax*, J. OF TECH. & PERSONS WITH DISABILITIES, 167, 168 (2016).

64. *Id.*

65. Donal Fitzpatrick et al., *Producing Accessible Statistics Diagrams in R*, PROC. OF THE 14TH WEB FOR ALL CONF., (2017).



*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

on ways to make data diagrams produced by the R programming environment accessible to screen reader users.<sup>66</sup> The findings from such research may provide some of the answers for providing accessible research articles for challenging material, such as chemistry, engineering, computer science, and mathematics. Another way to approach this challenge is through initiatives that propose universal design structures for making STEM university programs more accessible for students with disabilities. One example of this approach proposes an infrastructure for STEM video content that automatically embeds captions and transcripts.<sup>67</sup> Yet, none of these classroom-based initiatives for accessibility help lead to equity, if the STEM-related publications required for reading assignments are not accessible.

While students with disabilities are just as likely to select STEM majors as the overall population,<sup>68</sup> only 7% of graduate students in STEM fields report a disability.<sup>69</sup> The lack of individuals with disabilities pursuing graduate education impacts the STEM professions more broadly. Only 10% of employed scientists and engineers report one or more disabilities.<sup>70</sup> While there is not readily available broader data,<sup>71</sup> extremely low representation of people with disabilities as researchers and professors in academia (for example, 1.5% of the faculty at UC Berkeley as of 2017) is another point of concern.<sup>72</sup>

*C. Inaccessibility of Research Articles*

What then is the impact when a graduate student considers entering a field that requires extensive reading of scholarly articles? Our focus on STEM-related research is due to the body of existing research about STEM article accessibility. However, the same lessons related to accessibility and the impact of inaccessibility should apply to other disciplines as well. A 2015 paper<sup>73</sup> revealed that out of 1,811 papers published by several computing conferences (ASSETS 2014, W4A 2014, and CHI

66. *Id.*

67. Leyla Zhuhadar et al., *A Universal Design Infrastructure for Multimodal Presentation of Materials in STEM Programs*, PROC. OF THE 24TH INT'L CONF. ON WORLD WIDE WEB 569, 574 (2015).

68. *Women, Minorities, and Persons with Disabilities in Sci. and Eng 'g*, NCSES, <https://nces.nsf.gov/pubs/nsf19304/digest/enrollment#undergraduate-enrollment> (last visited Feb. 26, 2021).

69. *Women, Minorities, and Persons with Disabilities in Sci. and Eng 'g*, NCSES, <https://nces.nsf.gov/pubs/nsf19304/digest/enrollment#graduate-enrollment> (last visited Feb. 26, 2021).

70. *Women, Minorities, and Persons with Disabilities in Sci. and Eng 'g*, NCSES, <https://nces.nsf.gov/pubs/nsf19304/digest/employment> (last visited Feb. 26, 2021).

71. Joseph Grigely, *The Neglected Demographic: Faculty Member With Disabilities*, THE CHRON. OF HIGHER EDUC. (June 27, 2017), [https://www.chronicle.com/article/the-neglected-demographic-faculty-members-with-disabilities/?bc\\_nonce=ps8xj97hcul2jlv8878&cid=reg\\_wall\\_signup](https://www.chronicle.com/article/the-neglected-demographic-faculty-members-with-disabilities/?bc_nonce=ps8xj97hcul2jlv8878&cid=reg_wall_signup).

72. *Id.*

73. Erin Brady et al., *Creating Accessible PDFs for Conference Proceedings*, W4A '15: PROC. OF THE 12TH WEB FOR ALL CONF. (2015).

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

2015), only a small percentage were accessible.<sup>74</sup> The same study<sup>75</sup> reflected on the process of creating a STEM conference paper in an accessible format, highlighting that the lack of easy to use tools (specifically the tools for generating PDF documents) plays a significant role in why authors encounter challenges with creating accessible scholarly articles.<sup>76</sup> Another study on research paper accessibility<sup>77</sup> again highlighted the complexity of the PDF format as a major barrier to creating more accessible research papers.<sup>78</sup> A broader research project<sup>79</sup> highlighted how improved accessibility (including digital content and scholarly articles) could improve the inclusivity of computing-related conferences and the field of computing in general.<sup>80</sup>

One conference<sup>81</sup> went to significant effort to ensure that their papers were published in an accessible format, noting the need for conferences to have a committee dedicated to ensuring accessibility in the publishing process.<sup>82</sup> There has also been an emerging awareness<sup>83</sup> of the need for more accessible STEM research, providing details of how a professional organization (ACM SIGCHI) works to plan for accessibility prior to their annual conference (CHI).<sup>84</sup> This discussion, however, is focused on the conference itself, rather than the proceedings from the conference.<sup>85</sup>

More recent research has analyzed the challenges with the lack of PDF accessibility for STEM research articles.<sup>86</sup> Through a survey, interviews, and usability testing with STEM content contributors (authors), this research<sup>87</sup> sought to identify ways that research articles in PDF format can be more accessible and usable. Several participants stated that they should not be responsible for PDF document accessibility, since it did not impact “their” target audience.<sup>88</sup> The researchers

74. *Id.*

75. *Id.*

76. *Id.*

77. Jeffrey P. Bigham et al., *An Uninteresting Tour Through Why Our Research Papers Aren't Accessible*, PROC. OF THE 2016 CHI CONF. EXTENDED ABSTRACTS ON HUMAN FACTORS IN COMPUTING SYS. (2016).

78. *Id.*

79. Jonathan Lazar et al., *Making the Field of Computing More Inclusive*, 60 COMM'C'N OF THE ACM 50 (2017).

80. *Id.* at 51–54.

81. *Software Dev. and Technologies for Enhancing Accessibility and Fighting Info-exclusion*, DSAI'16, <http://www.dsai.ws/2016/> (last visited Feb. 28, 2021).

82. Mireia Ribera et al., *Publishing Accessible Proceedings: The DSAI 2016 Case Study*, 19 UNIVERSAL ACCESS INFO. SOC'Y 557, 565 (2020).

83. Helena Mentis et al., *Supporting Accessibility at SIGCHI Conferences*, INTERACTIONS, May–Jun. 2020, at 68, 69.

84. *Id.* at 68.

85. *Id.*

86. Rajkumar et al., *supra* note 47, at 4191.

87. *Id.* at 4187.

88. *Id.* at 4190.

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

suggested that more notification and encouragement (or requirements) from publishers regarding accessibility might encourage content creators to try to create accessible PDFs.<sup>89</sup>

The recent global events related to the COVID-19 pandemic<sup>90</sup> have highlighted the significant role that digital technologies play in our lives, particularly during times of emergency.<sup>91</sup> During this crisis, many students, faculty members, and researchers have had limited on-site access to their academic institutions and organizations. In recognition of the fact that being open access and online is the only way to ensure access to scholarly research articles,<sup>92</sup> some digital libraries and scholarly resources have defaulted to being open access during the pandemic (e.g., the Association for Computing Machinery digital library,<sup>93</sup> the Association for Science Education<sup>94</sup> journals, and JSTOR<sup>95</sup>).

However, when scholarly articles in digital libraries are not accessible for everyone to use, this façade of open access during a time of crisis is only an illusion. If content creators think that other stakeholders, such as content publishers, should have the responsibility for research paper accessibility, how do the content publishers feel about this topic? This paper focuses on two research questions designed to explore the role of content publishers, journals, and journal editors in making research publications accessible. Our first research question for this project is: 1) Do journals have policies or instructions that ensure that scholarly research articles are accessible for people with disabilities?<sup>96</sup> We hypothesize that a majority of journals do not have policies or instructions to ensure that scholarly research articles are accessible for people with disabilities. Our second research question asks: 2) Is there

89. *Id.* at 4191–92.

90. *See Identifying the Source of the Outbreak*, CTRS. FOR DISEASE CONTROL AND PREVENTION (Jul. 1, 2020), <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/about-epidemiology/identifying-source-outbreak.html>; *see also Coronavirus Disease 2019 (COVID-19)*, CTRS. FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/coronavirus/2019-ncov/index.html> (last visited Mar. 13, 2021).

91. Wu He et al., *Information Technology Solutions, Challenges, and Suggestions for Tackling the COVID-19 Pandemic*, 57 INT'L J. INFO. MGMT., Apr. 2021, at 1, 1.

92. Jack Grove, *Coronavirus May Be Encouraging Publishers to Pursue Open Access*, INSIDE HIGHER ED (May 15, 2020, 3:00 AM), <https://www.insidehighered.com/news/2020/05/15/coronavirus-may-be-encouraging-publishers-pursue-open-access>.

93. Cherri Pancake, *Open Access to ACM Digital Library During Coronavirus Pandemic*, ASS'N FOR COMPUTING MACH. (Mar. 30, 2020), <https://www.acm.org/articles/bulletins/2020/march/dl-access-during-covid-19>.

94. *ASE Journals Made Open Access to Support Educators During Covid-19 Pandemic*, ASS'N FOR SCI. EDUC. (Apr. 3, 2020), <https://www.ase.org.uk/news/ase-journals-made-open-access-support-educators-during-covid-19-pandemic>.

95. *Expanded Access to JSTOR During COVID-19 Crisis*, JSTOR (Apr. 15, 2020), <https://about.jstor.org/news/expanded-access-to-jstor-during-covid-19-crisis/>.

96. *See infra* Section III.C.

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

a legal foundation that requires stakeholders to publish research articles that are accessible for people with disabilities?<sup>97</sup> We hypothesize that an existing legal framework requires a majority of stakeholders to publish research articles that are accessible for people with disabilities.

### III. Survey of Journal Editors

We constructed a survey of policies or instructions that ensure accessibility in order to collect data that could help to contextualize and strengthen our legal framework. We selected STEM-related journals because of the longer history of existing research regarding STEM article accessibility.<sup>98</sup> However, the same findings can be generalized to other disciplines. Because journal processes and submission details are not always available to the general public (sometimes it may be necessary to register or sign into the journal), a survey of journal editors was determined to be the most effective way to collect this information.

#### A. Survey Structure

We first compiled a list of STEM societies/organizations in the United States and their respective journals. This list was based on the National Science Foundation (NSF) definition of STEM, which includes mathematics, natural sciences, engineering, computer and information sciences, and the social and behavioral sciences (i.e., psychology, economics, sociology, and political science).<sup>99</sup> We then reviewed a variety of web-based lists, such as the list maintained by the Purdue Libraries and School of Information Studies<sup>100</sup> and search terms that included “Scientific Societies in the United States,” “Learned Societies in the United States,” “Stem Organizations,” and “Scientific Organizations in the United States” to compile a list of 70 STEM societies/organizations and a total of 214 journal editors.

The survey was designed using the Qualtrics survey tool,<sup>101</sup> and it was then manually inspected for web accessibility compliance with the Web Content Accessibility (WCAG) guidelines<sup>102</sup> and compatibility with screen reader software (using JAWS). This inspection led to changing some settings, such as the contrast of

---

97. See *infra* Part IV.

98. See, e.g., Brady, *supra* note 73, at 1; see also Lazar, *supra* note 79, at 51–52.

99. HEATHER B. GONZALEZ & JEFFREY J. KUENZI, CONG. RSCH. SERV., R42642, SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM) EDUCATION: A PRIMER 2 (2012), <https://fas.org/sgp/crs/misc/R42642.pdf>.

100. *STEM Education Resources: Organizations (State, National, International)*, PURDUE UNIV. (Oct. 13, 2020), <https://guides.lib.purdue.edu/c.php?g=352162&p=2374960>.

101. *Online Survey Software*, QUALTRICS, <https://www.qualtrics.com/core-xm/survey-software/> (last visited Feb. 3, 2021).

102. W3C, *supra* note 42; JAWS, FREEDOM SCI., <https://www.freedomscientific.com/products/software/jaws/> (last visited Mar. 8, 2021).

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

text and buttons on the screen and format options for the buttons used to submit responses and go to the next question. These changes were all implemented through options in the Qualtrics tool.

The survey link was then emailed to the 214 STEM journal editors on November 25, 2019, and the survey remained open through December 27, 2019. No compensation of any type was provided to respondents. Six of the email contacts were returned as invalid, which resulted in final population frame of 208. The survey was structured as a brief online survey with the following questions (up to five questions, depending on the skip logic).

1. [Yes] or [No]: Does your journal have a policy or instructions regarding accessible formatting (for people with disabilities) of articles submitted for publication? For example, there might be instructions on how to format a document, diagrams, tables, images, etc. in a way that makes them more accessible.
2. [Edit text box]: If you do have a policy or instructions, can you briefly describe that?
3. [Yes] or [No]: Do you currently inspect articles that have been accepted for publication to make certain that they are accessible (for people with disabilities)? For example, you might use specific software to do this, hire a company to do this, or ask users with disabilities to review the article for accessibility.
4. [Edit text box]: If you do inspect articles for accessibility, can you describe how you do that?
5. [Edit text box]: Please share any comments with us regarding publishing articles in an accessible format:

*B. Survey Results*

The survey was intentionally brief, with an emphasis on confidentiality and anonymity, as the researchers sought to collect preliminary data from the greatest number of respondents. The length of a survey is a factor that contributes towards higher response rates.<sup>103</sup> We received 45 valid responses to the survey, which is an overall response rate of 21.6%. Given that it was 21.6% of the entire population (rather than a sample), this is considered an excellent response rate.<sup>104</sup>

For Question #1, “Does your journal have a policy or instructions regarding accessible formatting (for people with disabilities) of articles submitted for publication?,” 87% of respondents (39/45) reported that their journal does not have

103. See Weimiao Fan & Zheng Yan, *Factors Affecting Response Rates of the Web Survey: A Systematic Review*, 26 COMPS. HUM. BEHAV. 132, 133 (2010).

104. JONATHAN LAZAR ET AL., *RESEARCH METHODS IN HUMAN-COMPUTER INTERACTION* 113 (2d ed. 2017).

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

a policy or instructions for accessible formatting of articles submitted for publication. This pivotal question is the first indication that the majority of STEM publications do not currently have a policy for making research publications accessible for people with disabilities.

For Question #2, 13% of the respondents (6/45) reported a policy or instructions for accessible formatting and were able to describe the policy or instructions. The following are summarized descriptions of the responses to Question #2:

- Make images or graph colors accessible for people with color blindness
- Work with the online host to ensure WCAG compliance for the website
- Offer a template that encourages alternate text for images
- Provide instructions on how and why to write alternate text for images and tables
- Work towards removing the content from presentation, to allow for multiple presentation formats
- Provide instructions on how to make graphs accessible for people with color blindness
- Require black and white figures to make downloading faster
- Help with submitting an article if the author is unable to submit it

One response noted small figure/file sizes so that articles are more “accessible to download,” indicating that there is sometimes a lack of understanding of what accessibility for people with disabilities would entail. The other responses described practices that solve one or more pieces of the problem. However, there appeared to be a lack of comprehensive policies or instructions for the manuscripts themselves.

For Question #3, “Do you currently inspect articles that have been accepted for publication to make certain that they are accessible (for people with disabilities)?”, 93% of the respondents (42/45) replied that they do not. This response is not surprising given the responses to Question #1, in that most do not have any policy or requirement. The lack of a policy or requirement would certainly create an environment in which articles would not be inspected for accessibility prior to publication.

Of the 7% (3/45) responding to Question #4, “If you do inspect articles for accessibility, can you describe how you do that?”, two respondents described avoiding small font sizes and barriers for individuals with color blindness through a combination of software and testing by individuals with disabilities. Another respondent noted that the editorial review process proofs for general accessibility, and the final output includes both PDF and HTML formats for flexibility.

For Question #5, “Please share any comments with us regarding publishing articles in an accessible format” themes such as the following (ordered by rate of occurrence), are paraphrased in Table 1:

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

**Table 1: Open feedback regarding publishing articles in an accessible format**

Feedback	Times Mentioned
Low control over accessibility—it is under the control of the publisher or a larger organization, or it should be the responsibility of the publisher	10
We have not yet paid attention to this, but we should	5
It hasn't been an issue in time spent as an editor, or I don't see it as an issue	4
I'm interested and willing to do this if there were some general, easy-to-apply guidelines	3
Students are dropping out of graduate studies in the sciences because of the lack of journal accessibility	1

Some specific statements regarding the responsibility for ensuring accessibility included:

*"...I assume this would be an issue to be tackled at the publisher level, as many smaller journals depend heavily on their publisher for matters such as this due to a variety of reasons,"*

*"We are a web only publication. The publisher handles all the typesetting and editing."*

The key findings of this survey reveal that most STEM journals currently do not have policies or instructions in place for ensuring accessibility of their articles for people with disabilities. There is almost no accessibility review prior to publication, and there is a sense that the responsibility for ensuring accessibility is outside of their control.

### *C. Discussion of Survey Results*

As most authors will have interaction only with the submission requirements and editors of the journals, it is important for there to be policies and instructions related to accessibility during this first step of the review and publication process. It is also important that, regardless of policies and instructions to authors, there is verification of accessibility prior to publication. The fact that most editors are unaware of any such procedure suggests that most scholarly articles are being published without any guarantee of accessibility. The comments related to the lack of obligation at an

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

editorial level to ensure a level of accessibility is also a critical component in understanding the breadth of this challenge.

The perspective that accessibility is the responsibility of a different stakeholder involved in the scholarly article publication process bears a striking similarity to the finding of a survey where participants (content authors) highlighted a lack of control over creating accessible PDFs. There was a similar suggestion that, “it was the responsibility of the publisher.”<sup>105</sup> One of the open comments from Question #5 illustrates this with:

*“I edit a journal that is managed by my professional association and is published by [publisher’s name here]. As such, my degree of control over things like this is shockingly low” and the comment “I do assume that this is done during production of the articles, which is done by publishing professionals.”*

This could be related to a lack of awareness or understanding of the role that the initial submission and editorial process could provide. The discussion of such an obligation and responsibility will be further explored in our legal analysis and discussion. The consideration of whether content purchasers (e.g., libraries, universities, etc.) have any obligation to ensure procurement of accessible content (for purchased content) will also be further analyzed. The perspective that this is not even something to consider is also a reason for concern. This perspective is evidenced by the following comments:

*“I really don’t understand the fact here. We publish the call for papers, program and the papers online. So, we don’t have any hardcopy version to be adjusted for people with [a] disability (like braille).”*

*“The issue hasn’t arisen in my 20 years as editors except that we avoid color schemes unfavorable to color blind individuals.”*

This indicates a lack of comprehension regarding the wider accessibility barriers that can impact people with disabilities, as well as an assumption that people with other disabilities simply are not reading or trying to access these scholarly articles. The idea that everything is probably already accessible was evident by responses such as:

*“I am not entirely sure what you mean, I would suppose for blind people, but pdfs can be read aloud automatically (text to voice). We are just an electronic journal.”*

*“All articles for our journal are published online. There are no print versions.”*

---

105. Rajkumar et al., *supra* note 47, at 4193.



*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

*“All articles are electronic and [can] be blow[n] up [for] easier reading or potentially read out loud with software.”*

The underlying assumption here is that if something is electronic, it must be accessible. This view is concerning, as it does not reflect the significant body of knowledge regarding online content and accessibility.

The open feedback from the respondents, together with the results of Questions 2 and 4, support the conclusion that the majority of journals do not have a clear policy of process for ensuring that scholarly articles are accessible for people with disabilities. There is no consistent inspection for accessibility prior to publication, and the editors of publications expect that the publishers are themselves addressing this or should be the ones responsible for accessible articles. This view, however, stands in stark contrast to the process discussed by multiple researchers.<sup>106</sup> As laid out by these researchers, the process should involve the authors themselves and therefore also the front-end of the review and publication process (editors).<sup>107</sup> The research also reveals a lack of awareness of the necessity of accessibility as well a lack of understanding regarding the current extent of inaccessibility.<sup>108</sup> The problem is further compounded by an uncertainty regarding how to proceed – what are the needs of the broader community of people with disabilities and what aspects of accessibility best address those needs?

#### IV. Legal Framework

There is an established U.S. legal history of ensuring equal access to information for people with disabilities, developed through both statutory law and case law, including key appellate cases.<sup>109</sup> For instance, when it comes to transforming printed materials to be accessible for individuals with print-related disabilities, the Chafee

106. See, e.g., *id.* (observing the difference in approaches regarding accessibility for different conferences sponsored by the same professional organization); Brady et al., *supra* note 73, at 1 (observing that some conferences provide guidelines to authors on making accessible PDFs); Bigham, *supra* note 77, at 622–23 (noting that publishers are dependent on authors to make papers accessible); Ribera et al., *supra* note 82, at 562–63 (describing efforts by conference organizers to provide accessibility guidelines to authors).

107. See Ribera et al., *supra* note 82, at 565; see generally Rajkumar et al., *supra* note 47, at 4191–92.

108. See Rajkumar et al., *supra* note 47, at 4191; see also Brady et al., *supra* note 73, at 2; Bigham et al., *supra* note 77, at 626–27.

109. See *Robles v. Domino’s Pizza, LLC*, 913 F.3d 898, 905 (9th Cir. 2019) (holding that federal law requires a pizzeria to make its website accessible to blind patrons); see also *Authors Guild, Inc. v. HathiTrust*, 755 F.3d 87, 103 (2d Cir. 2014) (holding that the fair use exception to copyright law permits libraries to make copyrighted works available to print-disabled patrons in digital form, even though the work is not transformative).

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

Amendment to the U.S. Copyright Act<sup>110</sup> provides exemptions of copyright law, allowing for copyright works to be reproduced in formats that are accessible for individuals with print-related disabilities (those who have trouble seeing print, physically handling print, or cognitively processing print).<sup>111</sup>

*Notwithstanding the provisions of section 106, it is not an infringement of copyright for an authorized entity to reproduce or to distribute in the United States copies or phonorecords of a previously published literary work or of a previously published musical work that has been fixed in the form of text or notation if such copies or phonorecords are reproduced or distributed in accessible formats exclusively for use by eligible persons.*<sup>112</sup>

Limitations to these copyright exemptions include requirements that these alternate-format versions be created only by authorized entities (“...a nonprofit organization or a governmental agency that has a primary mission to provide specialized services relating to training, education, or adaptive reading or information access needs of blind or other persons with disabilities;”)<sup>113</sup> and that the materials be made available only to an individual who:

(A) is blind;

(B) has a visual impairment or perceptual or reading disability that cannot be improved to give visual function substantially equivalent to that of a person who has no such impairment or disability and so is unable to read printed works to substantially the same degree as a person without an impairment or disability; or

(C) is otherwise unable, through physical disability, to hold or manipulate a book or to focus or move the eyes to the extent that would be normally acceptable for reading,<sup>114</sup>

The idea of characterizing the making of accessible formats as a form of fair use has even shown up in a U.S. Supreme Court case:

*“Making a copy of a copyrighted work for the convenience of a blind person is expressly identified by the House Committee Report as an*

---

110. 17 U.S.C. § 121 (2018); *see generally* *Authors Guild*, 755 F.3d at 102 (“[T]he Chafee Amendment illustrates Congress’s intent that copyright law make appropriate accommodations for the blind and print disabled.”).

111. *Id.*

112. *Id.* § 121(a).

113. *Id.* § 121(d)(2).

114. *Id.* § 121(d)(3).

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

*example of fair use, with no suggestion that anything more than a purpose to entertain or to inform need motivate the copying.*"<sup>115</sup>

In addition, the U.S. has signed and ratified the Marrakesh Treaty<sup>116</sup> to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired or Otherwise Print Disabled (generally known as the "Marrakesh Treaty").<sup>117</sup> It was ratified by the U.S. in February 2019 and entered into effect in May 2019.<sup>118</sup> The Marrakesh Treaty has two key components relevant to the current discussion of research articles:

*Article 4.1(a): Contracting Parties shall provide in their national copyright laws for a limitation or exception to the right of reproduction, the right of distribution, and the right of making available to the public as provided by the WIPO Copyright Treaty (WCT), to facilitate the availability of works in accessible format copies for beneficiary persons. The limitation or exception provided in national law should permit changes needed to make the work accessible in the alternative format.*<sup>119</sup>

Article 4 of the Marrakesh treaty<sup>120</sup> requires the types of copyright exemptions that are already available in Chafee Amendment to the U.S. Copyright Act.<sup>121</sup>

*Article 5.1: Contracting Parties shall provide that if an accessible format copy is made under a limitation or exception or pursuant to operation of law, that accessible format copy may be distributed or made available by*

115. *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 455 n.40 (1984).

116. *United States of America Joins WIPO's Marrakesh Treaty as 50<sup>th</sup> Member in Major Advance for the Blind Community*, WORLD INTELL. PROP. ORG. (Feb. 8, 2019), [https://www.wipo.int/pressroom/en/articles/2019/article\\_0002.html](https://www.wipo.int/pressroom/en/articles/2019/article_0002.html).

117. Marrakesh Treaty to Facilitate Access to Published Works by Persons Who Are Blind, Visually Impaired, or Otherwise Print Disabled, June 27, 2013, S. TREATY DOC. NO. 114-6 (2016) [hereinafter Marrakesh Treaty]; WORLD INTELL. PROP. ORG., *supra* note 116.

118. *Ratification by the United States of America*, WORLD INTELL. PROP. ORG. (Feb. 8, 2019), [https://www.wipo.int/treaties/en/notifications/marrakesh/treaty\\_marrakesh\\_52.html](https://www.wipo.int/treaties/en/notifications/marrakesh/treaty_marrakesh_52.html).

119. Marrakesh Treaty, *supra* note 117, at art 4(1)(a).

120. Marrakesh Treaty, *supra* note 117, at art. 4.

121. 17 U.S.C. § 121.

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

*an authorized entity to a beneficiary person or an authorized entity in another Contracting Party.*<sup>122</sup>

By facilitating cross-border flows of information, Article 5 of the Marrakesh Treaty enables the transfer of any copies of research articles that have been made accessible in the U.S. to authorized entities (e.g., non-profit organizations serving people with print-related disabilities, such as Bookshare<sup>123</sup>) in other contracted parties (i.e. other countries that have signed and ratified the Marrakesh Treaty).<sup>124</sup> As a result of the U.S. ratification, research articles published accessibly in the U.S. can be transferred around the world, having a much larger impact.<sup>125</sup>

While the Chafee Amendment to the Copyright Act<sup>126</sup> as well as the Marrakesh Treaty,<sup>127</sup> both specifically discuss reading materials in accessible format, these are focused on intellectual property rights. The Copyright Act is inherently an intellectual property law,<sup>128</sup> and the Marrakesh Treaty is a copyright treaty administered by the World Intellectual Property Organization.<sup>129</sup> These two IP laws focus on the legal rights of copyright owners and the ability of third parties to make alternate formats available.<sup>130</sup> Neither Chafee nor Marrakesh, however, focus on the rights of people with disabilities, or the responsibilities of various parties to make reading materials (or specifically research articles) in accessible formats.<sup>131</sup>

While we acknowledge that both content authors and publishers may be the copyright owners, this article is not focused on intellectual property rights. It is focused on responsibilities related to civil rights, disability rights, and human rights (none of which conflict with the IP rights of the copyright owners). First, there are content creators—essentially, the scientists and researchers who are creating the content that is published in scholarly journals. Second, there are the content publishers. This group includes the organizations or societies who publish the journals (such as American Chemical Society<sup>132</sup> or the Association for Computing Machinery<sup>133</sup>), not simply the publishers. Third, there are the content purchasers,

122. Marrakesh Treaty, *supra* note 117, at art. 5.

123. *Who We Are*, BOOKSHARE, <https://www.bookshare.org/cms/about> (last visited Feb. 19, 2021).

124. Marrakesh Treaty, *supra* note 117, at art. 5.

125. WORLD INTELL. PROP. ORG., *supra* note 116.

126. 17 U.S.C. § 121.

127. Marrakesh Treaty, *supra* note 117.

128. 17 U.S.C. § 121.

129. Marrakesh Treaty, *supra* note 117.

130. *Id.*; 17 U.S.C. § 121.

131. Marrakesh Treaty, *supra* note 117; 17 U.S.C. § 121.

132. *About ACS*, AM. CHEM. SOC'Y, <https://www.acs.org/content/acs/ee/about.html> (last visited Feb. 21, 2021).

133. *About the ACM Organization*, ASS'N FOR COMPUTING MACH., <https://www.acm.org/about-acm/about-the-acm-organization> (last visited Feb. 21, 2021).

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

including public libraries, universities, K-12 institutions, and similar entities. It is important to note that, unlike the Marrakesh Treaty,<sup>134</sup> which the U.S. signed and ratified, the UN Convention on the Rights of Persons with Disabilities (CRPD)<sup>135</sup> has yet to be ratified by the U.S., and is therefore not binding law in the U.S. While certain articles of the CRPD (e.g., articles 9 and 21) would be relevant to the discussion of the rights of people with disabilities,<sup>136</sup> and the responsibilities of various parties to make reading materials accessible, we will not discuss them further in this article, as they are not binding law in the U.S.

In the next sections, we present the novel argument that while U.S. disability rights laws have been used to enforce accessibility upon content purchasers<sup>137</sup> (organizations which purchase research articles), the existing legal framework for disability rights in the U.S. could also be used to enforce accessibility upon content creators and publishers, for which there is no existing case law yet. The following sections will discuss the existing U.S. legal framework (both statutes and case law), for each of the three populations.

#### *A. Content Creators*

If a content creator is an educational institution or library, namely a member of any of the classes identified in previous sections (i.e., a content provider or content publisher), the ADA coverage<sup>138</sup> would apply. For example, the library of a university receiving federal funding should be ensuring any original content *created* by the library, such as online journals, complies with accessibility requirements.<sup>139</sup> Comprehensive guides for ensuring accessibility of electronic materials created and acquired by libraries have existed since the first few years of the browsable Web.<sup>140</sup>

Individuals who work for a covered entity (again, such as a library or educational institution) are also covered by these requirements in their work-related activities for the entity.<sup>141</sup> This includes any research publications (journals, conference

---

134. WORLD INTELL. PROP. ORG., *supra* note 116.

135. *Convention on the Rights of Persons with Disabilities*, UNITED NATIONS TREATY COLLECTION (Jan. 3, 2021), [https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtldsg\\_no=IV-15&chapter=4&clang=\\_en](https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtldsg_no=IV-15&chapter=4&clang=_en).

136. *Id.*

137. ENSURING DIGITAL ACCESSIBILITY THROUGH PROCESS AND POLICY, *supra* note 39 at 86.

138. 42 U.S.C. §§ 12132, 12182.

139. *See* 42 U.S.C. §§ 12132, 12182.

140. *See generally* McNULTY, ACCESSIBLE LIBRARIES ON CAMPUS: A PRACTICAL GUIDE FOR THE CREATION OF DISABILITY-FRIENDLY LIBRARIES (1999); *see also* Barbara T. Mates, *Adaptive Technology for the Internet: Making Electronic Resources Accessible to All*, INDEP. LIVING INST. (2000), <https://www.independentliving.org/ddoc6/mates2000.html>.

141. JAEGER, DISABILITY AND THE INTERNET: CONFRONTING A DIGITAL DIVIDE, 79–119 (2011).

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

proceedings, book chapters, etc.), as well as any online course content.<sup>142</sup> Regardless of whether generated by the university, an academic or educational unit, or an individual university employee – publications would need to comply with accessibility requirements.<sup>143</sup> This holds true whether the content is delivered through a university-controlled channel or other channels, such as third-party software or a non-university site.<sup>144</sup> When an individual employee at a university receives federal funding for research, such as through a federal grant from the NSF, the funding generally goes to the university as the funded entity.<sup>145</sup> Accordingly, for the university to adhere to federal accessibility requirements, products from the grant (such as publications) would also need to be accessible, whether created by faculty, staff, and/or students working on the grant.<sup>146</sup>

This situation could possibly be a fine line for faculty members, who have the potential to be viewed (whether or not the faculty intend to within a particular context) as representing the university both in internal and external circumstances. When serving in the role of researcher and content creator, or serving in the role of academic journal editor (often unpaid work for a faculty member, with no compensation from their employing university or from the academic association behind the journal), the faculty member could still be seen, by people unfamiliar with the ways in which academic journals work, as representing their university, as well as the academic association, in their role as editor.

Taken as a whole, these circumstances would also seem to create a legal obligation for employees of covered entities to seek to have their scholarly work disseminated exclusively through external channels that are accessible. Scholarship by a faculty member would inevitably be considered part of their work for their academic institution, with its requirements to comply with the accessibility laws. Thus, to fully adhere to the spirit of the law, faculty members would need to limit their publishing activities, both as authors and as editors, to outlets that produce accessible publications.

Any legal actions to enforce accessibility though, would likely be pursued against the covered entity rather than the individual employee or unit of the entity failing to adhere to requirements. Such reasons are primarily practical, as the enforcement structure is designed in terms of enforcement at the organizational level rather than the individual level. Most importantly, the covered entity is in the best position to effectively redress the accessibility problem. We could not identify any cases where individual school, university, or library employees were sued as individuals for

---

142. *Id.*

143. *Id.*

144. *Id.*

145. See *Facilitating Research at Primarily Undergraduate Institutions*, NAT'L SCI. FOUND., [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5518](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5518) (last visited Feb. 25, 2021).

146. See 42 U.S.C. §§ 12103, 12131–32.

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

producing inaccessible content. The entity could conceivably, depending on its regulations for and contractual agreements with employees, take adverse employment actions against the employees for failing to comply with the law, but that is outside the scope of federal enforcement, and as an employment-related action, would not be a public record. Based on these parameters, the majority of content creators would be directly or indirectly covered by these accessibility requirements or would at least have considerable economic incentives to comply with the requirements.

If a content creator is not directly or indirectly receiving federal funds or otherwise considered a public accommodation (or employed by a public accommodation) under the relevant statutes,<sup>147</sup> there are no legal accessibility requirements nor applicable mechanisms to enforce federal accessibility laws. For example, an independent scholar is under no legal obligation to publish their research in an accessible manner unless their work has been funded by federal dollars, such as a National Science Foundation grant. Another hypothetical situation to consider is that involving individuals who work for a covered entity but also create content that is outside the scope of their work. For example, if a university employee, in their free time and without making any indication of representing the university, regularly posts content related to finding “easter eggs” in video games, that would not be viewed as work-related, unless they were a media studies professor or something similar. In this situation, the employee is not currently required by law to make their content accessible. Given that research may be created by an individual or an institution that receives federal funding, content creators would seem to have legal liability for the accessibility of the content that they create and publish. There is currently no established case law related to content creators, and as in the situation for content publishers, it seems like a potentially fruitful approach for disability rights advocates.

*B. Content Publishers*

The responsibilities of content publishers are not expressly mentioned in any of the core U.S. disability rights statutes.<sup>148</sup> However, there are a few key cases that specifically involve content publishers.<sup>149</sup> Two of these cases revolve around legal questions related to a specific component of Title III of the Americans with

---

147. 42 U.S.C. §§ 12132, 12182.

148. See 42 U.S.C. §§ 12101–12213.

149. See, e.g., *Nat’l Ass’n of the Deaf v. Netflix, Inc.*, 869 F. Supp. 2d 196, 201–02 (D. Mass. 2012) (holding that Netflix’s streaming service was a place of public accommodation covered under the ADA, therefore Netflix could not discriminate “in the provision of the services of that public accommodation”); see also *Nat’l Fed’n of the Blind v. Scribd Inc.*, 97 F. Supp. 3d 565, 567, 576 (D. Vt. 2015) (holding that Scribd’s reading subscription services on its website and app fell within a general category of public accommodations covered by Title III of the ADA).

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

Disabilities Act.<sup>150</sup> Title III of the ADA<sup>151</sup> covers the 12 categories of public accommodations. Yet, as content providers for journal articles generally do not have a physical location, there is a question as to whether they are covered as a “public accommodation” under the ADA.

In *Nat’l Ass’n of the Deaf v. Netflix*,<sup>152</sup> plaintiffs argued that an online content provider (Netflix) was a “place of public accommodation” as defined by the ADA, under 4 categories: “place of exhibition and entertainment,” “place of recreation,” “sales or rental establishment,” and “service establishment.”<sup>153</sup> The district court agreed, saying:

*“Plaintiffs’ interpretation of the statute as applying to web-based businesses is supported by the First Circuit’s decision in Carparts Distrib. Ctr. v. Auto. Wholesaler’s Assoc., which held that “places of public accommodation” are not limited to “actual physical structures.”*<sup>154</sup>

There is an ongoing circuit-split among courts of appeals regarding the nature of “public accommodation,”<sup>155</sup> but this debate generally focuses on whether a web site is a public accommodation as defined under the ADA. For instance, the 3rd, 6th, 9th, and 11th circuits require a “nexus” between a public accommodation’s physical store and a web site (which is then considered a service of the physical store).<sup>156</sup> Other

150. See *Netflix, Inc.*, 869 F. Supp. 2d at 198–99, 201; see also *Scribd Inc.*, 97 F. Supp. 3d at 566–67.

151. 42 U.S.C. § 12181.

152. 869 F. Supp. 2d 196 (D. Mass. 2012).

153. *Id.* at 200 (citing 42 U.S.C. § 12181(7)).

154. *Id.* (citing *Carparts Distrib. Ctr., Inc. v. Auto. Wholesaler’s Ass’n*, 37 F.3d 12, 19 (1st Cir. 1994)).

155. Jonathan Lazar, *Due Process and Primary Jurisdiction Doctrine: A Threat to Accessibility Research and Practice?*, PROC. OF THE 20TH INT’L ACM SIGACCESS CONF. ON COMPS. AND ACCESSIBILITY, at 404 (Oct. 2018) and *Haynes v. Dunkin’ Donuts, LLC*, 714 F. App’x 752, 754 (11th Cir. 2018) (holding that because Dunkin’ Donuts’ website is a “service that facilitates the use of Dunkin’ Donuts’ shops, which are places of public accommodation,” Dunkin’ Donuts “cannot discriminate against people on the basis of disability, even if those goods and services are intangible”), and *Peoples v. Discover Fin. Servs., Inc.*, 387 F. App’x 179, 183–84 (3d Cir. 2010) (holding that the term “public accommodation” is limited to “physical accommodations,” so communication between a credit card processing terminal and Discover Financial Services was not a “public accommodation” under the meaning of the ADA), and *Parker v. Metro. Life Ins.*, 121 F.3d 1006, 1014 (6th Cir. 1997) (holding that a “public accommodation is a physical place,” so a long-term disability plan by an employer that was administered by an insurance company was not covered by Title III of the ADA), with *Carparts Distrib. Ctr., Inc. v. Auto. Wholesaler’s Ass’n*, 37 F.3d 12, 19 (1st Cir. 1994) (holding that establishments of “public accommodation” are not limited to “actual physical structures”), and *Morgan v. Joint Admin. Bd.*, 268 F.3d 456, 459 (7th Cir. 2001) (rejecting the interpretation of the term “public accommodation” as literally denoting “a physical site”), and *Palozzi v. Allstate Life Ins.*, 198 F.3d 28, 32 (2d Cir. 1999) (“Title III’s mandate that the disabled be accorded ‘full and equal enjoyment of the goods, [and] services . . . of any place of public accommodation,’ suggests to us that the statute was meant to guarantee them more than mere physical access.”).

156. *Id.*



*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

circuits (for instance, the 1st circuit described above, as well as the 2nd, and 7th circuits) consider a consumer web site, even without a physical location, to be a public accommodation.<sup>157</sup> Netflix, of course, publishes content but not research articles.<sup>158</sup>

A case that is closer to being on-point for journal publishers is *National Federation of the Blind v. Scribd*.<sup>159</sup> Scribd is a large digital library, with over a million subscribers.<sup>160</sup> While it primarily focuses on books and magazines, it also provides a selection of academic papers.<sup>161</sup> In the *NFB v. Scribd* case, the Scribd web site and app were inaccessible for people using assistive technology.<sup>162</sup> Scribd filed a motion to dismiss, stating they were not subject to the Americans with Disabilities Act because they do not operate a physical location.<sup>163</sup> The district court, in denying the motion to dismiss, stated:

*...Reading the statute as Scribd argues the Court should read it would lead to absurd results. Requiring a physical structure or some connection to a physical threshold would result in arbitrary treatment. For example, it would make little sense if a customer who bought insurance from someone selling policies door to door was not covered but someone buying the same policy in the parent company's office was covered. It is highly unlikely Congress intended such inconsistent results... Scribd argues that only physical places open to the public can be public accommodations. However, the Committee Reports [from the legislative history] suggest that the important quality public accommodations share is that they offer goods or services to the public, not that they offer goods or services to the public at a physical location.<sup>164</sup>*

The court, in its summary of the decision to deny the motion to dismiss, concluded that:

*[t]he Court must therefore determine whether the services Scribd offers properly fall within any of the general categories*

---

157. *Id.*

158. *Netflix, Inc.*, 869 F. Supp. 2d at 198.

159. 97 F. Supp. 3d 565 (D. Vt. 2015).

160. *About Us*, SCRIBD, <https://www.scribd.com/about> (last visited Feb. 28, 2021).

161. *Academic Journal*, SCRIBD, <https://www.scribd.com/interest/Academic-Journal/explore> (last visited Feb. 28, 2021).

162. *Nat'l Fed'n of the Blind v. Scribd Inc.*, 97 F. Supp. 3d 565, 576 (D. Vt. 2015).

163. *Id.* at \*9.

164. *Id.* at \*17–20.

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

*of public accommodations listed in the statute. Construing the list of categories liberally, Plaintiffs have persuasively argued that Scribd's services fall within at least one of the following categories: "place of exhibition or entertainment," a "sales or rental establishment," a "service establishment," a "library," a "gallery," or a "place of public display or collection." <sup>165</sup>*

As Scribd is a digital library offering journal articles as a part of their service,<sup>166</sup> and the district court stated that a digital library is a public accommodation,<sup>167</sup> there is some potential legal justification for the idea that journal publishers could be considered a "public accommodation." However, because interpretation of "public accommodation" may differ depending on which circuit the district court lies in,<sup>168</sup> the coverage is not universally clear.

Another potential approach to legal coverage is to examine which of the societies who are content publishers are recipients of U.S. federal funding, so that Section 504 of the Rehabilitation Act<sup>169</sup> would cover them. Many STEM societies that publish journals are also large recipients of federal funding<sup>170</sup> and so Section 504<sup>171</sup> definitely applies to those organizations. Table 2 illustrates the top five recipients of federal funds (total obligated amounts) among STEM societies, for the past five fiscal years (2015-2019) for prime contracts only. This is not taking into account sub-contracts and grants and is not a comprehensive analysis of all STEM societies. These data are publicly available at [usaspending.gov](https://www.usaspending.gov).<sup>172</sup> Scientific societies often receive federal funding in unexpected ways. For instance, the National Science Foundation often funds doctoral consortia for scientific societies, to assist doctoral students in the costs involved in attending/presenting at scientific conferences.<sup>173</sup>

For scientific societies with circumstances involving less direct funding pathways from covered entities, compliance with accessibility requirements in the content that they create may still be legally required. Compliance requirements can accompany

165. *Id.* at \*26–27.

166. Scribd, *supra* note 162 at 576.

167. Scribd, *supra* note 162 at 576.

168. *Id.* at 575.

169. 29 U.S.C. § 749.

170. *See infra* Table 2.

171. 29 U.S.C. § 749.

172. *See* Advanced Search, USAspending.gov, available at <https://www.usaspending.gov/#/search>.

173. Award Abstract #2022227, NAT'L SCI. FOUND. (Mar. 31, 2020), [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=2022227](https://www.nsf.gov/awardsearch/showAward?AWD_ID=2022227)

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

indirect federal funding,<sup>174</sup> such as when federal funds “pass through” one entity, which then distributes the funds on to other entities; an example of such pass-through requirements is the federal government placement of technology usage requirements, such as the installation of filtering software, on recipients of education rate (e-rate) funds given to state governments to distribute to local government institutions in the states, such as schools, libraries, and hospitals.<sup>175</sup>

Again, using the example of libraries, when the federal government provides funds for a state library agency to distribute among the libraries within that state, the requirements attached to the funding follow the funds to the individual libraries, even though the funds are being distributed by a state library.<sup>176</sup> There is currently no case law related to STEM societies (as content publishers) being sued under Section 504 of the Rehabilitation Act<sup>177</sup> for inaccessible publications, but there does not seem to be any reason why such a case could not be filed, as long as the STEM society is a recipient of federal funding.

**Table 2: Top STEM Society Recipients of U.S. Federal Funding, FY 2015-2019**

<b>STEM Society or Organization</b>	<b>Funding</b>
National Academy of Sciences	\$899,654,470
American Society for Engineering Education	\$580,842,739
American Chemical Society	\$188,279,104
American Institute of Biological Sciences	\$17,132,097
American Association for the Advancement of Science	\$15,129,449

Case law related to HathiTrust, a nonprofit coalition between academic libraries to scan, digitize, and make available online a vast trove of academic and nonfiction materials, also provides another legal view on content publishers.<sup>178</sup> HathiTrust has been at the center of litigation involving the role of content providers in promoting digital access to information.<sup>179</sup> The original intent was that public domain materials

174. Paul T. Jaeger & Zheng Yan, *One Law with Two Outcomes: Comparing the Implementation of the Children’s Internet Protection Act in Public Libraries and Public Schools*, 28 INFO. TECH. AND LIBR. 6, 7–8, 10 (2009).

175. *Id.* at 7–8.

176. PAUL T. JAEGER, ET AL., *PUBLIC LIBRARIES, PUBLIC POLICIES, AND POLITICAL PROCESSES: SERVING AND TRANSFORMING COMMUNITIES IN TIMES OF ECONOMIC AND POLITICAL RESTRAINT*, 8 (4th ed. 2014).

177. 29 U.S.C. § 749.

178. *See* Authors Guild, Inc. v. HathiTrust, 755 F.3d 87, 103 (2d Cir. 2014) (providing that book publishers did not typically make their products accessible in specialized formats to the blind).

179. *Id.* at 92.

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

would be fully available and the materials with active copyrights would be searchable and readers could have access to the parts relevant to their searches.<sup>180</sup> HathiTrust Digital Library (HDL) soon also began collaborating with Google Books in digitizing books to promote public access, with Google taking on many of the scanning duties.<sup>181</sup> The HDL has emphasized the development of formats for users with disabilities.<sup>182</sup>

Both Google Books and HathiTrust were sued by commercial publishing interests, with the courts finding that both Google Books<sup>183</sup> and HathiTrust<sup>184</sup> were legal forms of transformative fair use, creating a new utility from existing materials through aggregation and search and find tools. These findings left librarians “more confident about pursuing forms of broader digital access” to promote the public good.<sup>185</sup> While the HathiTrust case takes an intellectual property law approach to the topic, of particular note in the court’s ruling here is the emphasis on the ability of digitized versions of library materials to promote accessibility for users with disabilities.<sup>186</sup> The District Court ruling found the ability to increase access of print materials to users with disabilities to be one of the key transformative aspects of the project,<sup>187</sup> noting that libraries “have a primary mission to reproduce and distribute their collections to print-disabled individuals” and that “the HDL allows member libraries to provide patrons with certified print disabilities access to the full text of copyrighted works.”<sup>188</sup>

In short, these cases established that “providing a full-text search database of scanned books is analogous to providing access to these books for people with print disabilities, which constitutes transformative fair use.”<sup>189</sup> Based on this holding, some individual libraries are even building digitized collections of their own print

180. *Id.* at 90; *See also*, *Hathitrust: A Digital Library Revolution Takes Flight*, News, UCNET (May 13, 2020), <https://ucnet.universityofcalifornia.edu/news/2020/05/hathitrust-a-digital-library-revolution-takes-flight.html#:~:text=Google%20Books'%20original%20intent%20was,perspective%20of%20the%20publishing%20industry>.

181. *Id.*

182. Hathi Trust Digital Library, *Accessibility*, HATHITRUST.ORG, <https://www.hathitrust.org/accessibility> (last visited Aug. 6, 2020).

183. *See* *Authors Guild v. Google, Inc.*, 804 F.3d 202, 207 (2d Cir. 2015).

184. *See* *Authors Guild, Inc.*, 755 F.3d at 97.

185. Dan Cohen, *What the Google Books Victory Means for Readers and Libraries*, THE ATL. (Oct. 22, 2015), [www.theatlantic.com/technology/archive/2015/10/what-the-google-books-victory-means-for-readers-and-libraries/411910/](http://www.theatlantic.com/technology/archive/2015/10/what-the-google-books-victory-means-for-readers-and-libraries/411910/).

186. *Authors Guild, Inc.*, 755 F.3d at 102.

187. *Id.* at 101.

188. *Id.* at 93 (quoting 17 U.S.C. § 121(d)(1)); *Id.* at 91 (quoting 17 U.S.C. § 121(d)(1)).

189. Kyle K. Courtney & Krista L. Cox, *The Origins and Future of Fair Use/Fair Dealing Week: Why Should Libraries, Museums, and Other Cultural Institutions Participate?*, in COPYRIGHT CONVERSATIONS: RIGHTS IN A DIGITAL WORLD 43, 45 (2019).

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

holdings to ensure access to every print object in their collection for their users with print disabilities.<sup>190</sup>

The HDL can be seen as one of the biggest impacts that libraries have ever had on changing information policy to make it more inclusive.<sup>191</sup> The Copyright Review Management System (CRMS) maintains data on the percentage of public domain materials in the HDL.<sup>192</sup> More than half of the materials in the HDL are in the public domain, including a large number of government publications, further extending the HDL to users with disabilities. The impact of the HDL case in extending the intellectual property exemptions for libraries to provide access for people with disabilities extends beyond the U.S. As of this writing, two supranational organizations, the World Intellectual Property Organization (WIPO) and the European Union (EU), as well as individual nations from the United Kingdom to South Africa are exploring ways to extend legal exemptions to copyright to increase equitable access to information.<sup>193</sup>

The American Library Association (ALA), through its Library Services for Persons with Disabilities Policy, has also addressed issues related to content publishers, through the lens of accessible collections.<sup>194</sup> Passed in 2001 by the ALA Council (the governing body of the ALA), the policy requires library materials “to be accessible to all patrons including people with disabilities.<sup>195</sup> Materials must be available to individuals with disabilities in a variety of formats and with accommodations, as long as the modified formats and accommodations are “reasonable,” do not “fundamentally alter” the library’s services, and do not place an “undue burden” on the library.”<sup>196</sup> Although this policy does not have the force of the law, the extent to which it draws upon language used in the ADA<sup>197</sup> is instructive.

190. Michelle M. Wu, *Piece by Piece Review of Digitize-and-Lend Projects Through the Lens of Copyright and Fair Use*, 36 LEGAL REFERENCE SERVICES QUARTERLY 51, 64 (2017).

191. See Carrie Russell, *Copyright Essentials and Information Policy (Policy Implications for Copyright Law)*, in COPYRIGHT CONVERSATIONS: RIGHTS LITERACY IN A DIGITAL WORLD 235 (2019).

192. Hathi Trust Digital Library, *Copyright Review Program*, HATHI TRUST, <https://www.hathitrust.org/copyright-review> (last visited Aug. 6, 2020).

193. ALA Council, *Library Services for People with Disabilities Policy*, AM. LIBR. ASS’N (Jan. 16, 2001), <http://www.ala.org/asgcla/resources/libraryservices>; See also, KENNETH D. CREWS, COPYRIGHT LAW FOR LIBRARIANS AND EDUCATORS, 127–37 (4th ed. 2020).

194. ALA Council, *Library Services for People with Disabilities Policy*, AM. LIBR. ASS’N (Jan. 16, 2001), <http://www.ala.org/asgcla/resources/libraryservices>.

195. *Id.*

196. *Id.*

197. See 42 U.S.C. §§ 12132, 12182.

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

A subsequent policy adopted by the ALA Council<sup>198</sup> clarifies the ALA's stance vis a vis content publishers:

*Library administrators should educate themselves about technical and legal standards for digital accessibility, and manage staffing and resources to provide equal access. [They] should also ensure that their institutions work closely with vendors to address accessibility concerns and that vendors provide reasonable timelines to remediate accessibility problems before the library agrees to license, subscribe to, or purchase a digital resource or product.*<sup>199</sup>

It's important to point out that there are many content publishers which are for-profit and not part of scientific societies. Section 504 does not apply to this group of publishers,<sup>200</sup> and we find ourselves back to the unresolved question discussed at the beginning of this section, namely, whether a journal publisher is a public accommodation. As such, the legal requirements surrounding content publishers seem to be present and are strongest for content publishers which receive federal funds. Yet there remains to be no established case law for this point, and it seems like a potentially fruitful approach for disability rights advocates.

### C. Content Purchasers

The legal requirements for accessibility by content purchasers are perhaps the clearest of all three populations. Frequent content purchasers for these digital databases are K-12 school systems and universities (which provide the digital databases to their students, faculty, and staff) and libraries (which provide the content to their patrons, such as the general public in the case of public libraries). These three entities (schools, universities, and libraries) are covered by multiple statutes, and there is an existing foundation of case law. Because the legal coverage is so clear, these cases are often settled before trial and thus do not result in many reported opinions.

Under Title III of the Americans with Disabilities Act,<sup>201</sup> libraries (“(8) A museum, library, gallery, or other place of public display or collection;”), as well as both private schools and universities (“(10) A nursery, elementary, secondary,

---

198. ALA Council, *Services to People with Disabilities: An Interpretation of the Library Bill of Rights*, AM. LIBR. ASS'N (Jan. 28, 2009), <http://www.ala.org/advocacy/intfreedom/librarybill/interpretations/servicespeopledisabilities>.

199. ALA Council, *Services to People with Disabilities: An Interpretation of the Library Bill of Rights*, AM. LIBR. ASS'N (Jan. 28, 2009), <http://www.ala.org/advocacy/intfreedom/librarybill/interpretations/servicespeopledisabilities>.

200. 29 U.S.C. § 794.

201. 42 U.S.C. § 12181(7).

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

undergraduate, or postgraduate private school, or other place of education;”) are expressly mentioned as types of public accommodations. Public schools and universities are covered under Title II of the Americans with Disabilities Act,<sup>202</sup> as being part of state and local government (“(A) any State or local government; (B) any department, agency, special purpose district, or other instrumentality of a State or States or local government;”<sup>203</sup>

Section 504 of the Rehabilitation Act expressly states that:

*No otherwise qualified individual with a disability in the United States, as defined in section 705(20) of this title, shall, solely by reason of her or his disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance or under any program or activity conducted by any Executive agency or by the United States Postal Service.*<sup>204</sup>

Because nearly all schools (public and private, with the exception of some religious schools which completely reject federal funding), universities, and libraries receive some form of federal funding,<sup>205</sup> Section 504 covers this entire population.<sup>206</sup> Typically, lawsuits related to accessible technology or content cite the pairing of the ADA and Section 504 as the key legal justifications, as illustrated by two different lawsuits<sup>207</sup> related to the accessibility of math content in post-secondary education, where plaintiffs cite the ADA and Section 504 as the key legal justifications.<sup>208</sup> Similarly, in a case involving a blind parent having access to the ST Math software that allows parents to monitor their children’s progress in K-12 math courses,<sup>209</sup> the combination of ADA and Section 504 were cited as the legal justification.<sup>210</sup> While there are certainly ambiguities in technical implementation of the law (e.g., related to accessible testing, where the “best ensures” standard of the ADA regulation is a higher bar than the “in a place and manner accessible to persons with disabilities”

202. *Id.* § 12131(1).

203. *Id.* §§ 12131–32.

204. 29 U.S.C. § 794.

205. PAUL T. JAEGER & CYNTHIA ANN BOWMAN, DISABILITY MATTERS: LEGAL AND PEDOGOGICAL ISSUES OF DISABILITY IN EDUCATION, 97–110 (2020).

206. 29 U.S.C. § 794.

207. *See* Complaint at 19–23, Toth v. Fla. Univ. Bd. of Tr., No. 4:11-cv-00317-WS-WCS (N.D. Fla. 2012); Complaint at 26–31, Payan v. L.A. Cmty. Coll. Dist., No. 2:17-cv-01697-SVW-SK (C.D. Cal. 2019).

208. *See* Complaint at 19–23, Toth v. Fla. Univ. Bd. of Tr., No. 4:11-cv-00317-WS-WCS (N.D. Fla. 2012); Complaint at 26–31, Payan v. L.A. Cmty. Coll. Dist., No. 2:17-cv-01697-SVW-SK (C.D. Cal. 2019).

209. Complaint at 7–11, Nightingale v. Seattle Sch. Dist. No. 1, No. 2:14-cv-01286 (W.D. Wash. 2016).

210. *Id.*

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

standard of the statute<sup>211</sup>), the fact that the ADA and Section 504 covers libraries, K-12 schools, and universities, is undisputed.<sup>212</sup>

In their 2010 “Dear Colleague” letter about the inaccessibility of Amazon Kindle-related devices in higher education,<sup>213</sup> the Office of Civil Rights at the U.S. Department of Education and the Civil Rights Division of the U.S. Department of Justice, also cite the combination of the ADA and Section 504:

*Requiring use of an emerging technology in a classroom environment when the technology is inaccessible to an entire population of individuals with disabilities – individuals with visual disabilities – is discrimination prohibited by the Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973 (Section 504) unless those individuals are provided accommodations or modifications that permit them to receive all the educational benefits provided by the technology in an equally effective and equally integrated manner.*<sup>214</sup>

Libraries, as perhaps the second largest category of content purchasers after education, have a long commitment to providing equitable access to information for people with disabilities than any other social institution in the U.S.<sup>215</sup> Libraries first began establishing collections of materials for users with print disabilities of collection in the mid-1800s, with these materials a common part of collections before 1900.<sup>216</sup> The early 1900s saw the establishment of special libraries for users with disabilities and field-wide standards for services to users with disabilities.<sup>217</sup> By the early 1960s, public, school, academic, and other libraries uniformly had mission statements and policies to ensure that community members with disabilities have access to materials, services, and facilities based on clear standards and best practices

211. Jonathan Lazar, *The Use of Screen Reader Accommodations by Blind Students in Standardized Testing: A Legal and Socio-Technical Framework*, 48 J. OF L. & EDUC. 185, 197 (2019).

212. 42 U.S.C. §§ 12181-82.

213. Letter from Thomas E. Perez, Assistant Attorney General, Civ. Rts. Div., U.S. Dep’t of Just., & Russlynn Ali, Assistant Secretary for Civil Rights, U.S. Dep’t of Ed., to College & University Presidents (June 29, 2010), <https://www2.ed.gov/about/offices/list/ocr/letters/colleague-20100629.pdf>.

214. *Id.*

215. See Paul T. Jaeger, *Designing for Diversity and Designing for Disability: New Opportunities for Libraries to Expand Their Support and Advocacy for People with Disabilities*, 2 INT’L J. OF INFO., DIVERSITY, & INCLUSION 52, 58 (2018) (providing a more detailed overview of the history of libraries on policies related to users with disabilities).

216. *Id.*

217. *Id.*



*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

established by professional organizations, most notably the American Library Association (ALA).<sup>218</sup>

U.S. Department of Justice and Department of Education Offices of Civil Rights (OCR) letters<sup>219</sup> related to the accessibility of materials in library collections – including both physical and digital materials – quickly established that libraries have the responsibility to provide equivalent materials of everything in their collection to users with disabilities. A 1997 U.S. Department of Education OCR letter regarding the libraries of the California State University-Los Angeles stated:

*When looking at exactly which of its resources a library is obligated to provide in an accessible medium, the short answer is any resources the library makes available to nondisabled patrons must be made accessible... At a minimum, a public entity has a duty to solve barriers to information access that the public entity's purchasing choices create, particularly with regard to materials that with minimal thought and cost may be acquired in a manner facilitating provision in alternate formats.*<sup>220</sup>

This long-term engagement with accessibility of materials in combination with the clear application of the ADA to virtually all school, public, and academic libraries has even played a dispositive role in considerations of intellectual property and fair use in organizations whose efforts support the efforts of libraries.

Entities (such as libraries) that are covered by accessibility laws sometimes take the approach of addressing accessibility during the purchasing process, so that they do not have to make many modifications, incur additional expenses, or risk failing to comply with their legal requirements. This is why many libraries include accessibility compliance in their standard contracts for purchases and licensing of materials.<sup>221</sup> The reality though is that there is often a disparity in what is promised by a vendor or during the procurement process versus what is provided.

---

218. *Id.*

219. See Perez & Ali, *supra* note 213; Letter from Adriana Cardenas, Team Leader, Off. for Civ. Rts., U.S. Dep't of Ed., to Dr. James M. Rosser, President, Cal. St. U. – L.A. (Apr. 7, 1997), <http://www.southwestada.org/html/topical/FAPSI/OCR/csu-la.html>.

220. Cardenas, *supra* note 219.

221. See COREY HALAYCHIK & BLAKE REAGAN, LIBRARY LICENSING: A MANUAL FOR BUSY LIBRARIANS, 43–84 (2019); MARY MINOW & THOMAS A. LIPINSKI, THE LIBRARY'S LEGAL ANSWER BOOK, 140–162 (2003).

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

Content purchasers who are covered by either Title II (state and local government)<sup>222</sup> or Title III (public accommodations)<sup>223</sup> or Section 504 of the Rehabilitation Act (recipients of federal funding)<sup>224</sup> are clearly required to purchase only accessible content, meaning in this case, research articles. However, one can imagine that there are content purchasers who would not be covered by any of these laws. For instance, law firms, which are not covered under Title II or Title III of the ADA, or Section 504 of the Rehabilitation Act, might be one example of where there is no legal coverage. However, due to the Title I protections for employees with disabilities,<sup>225</sup> one can imagine that there may be other legal pathways to require that only accessible publications be purchased. Furthermore, when there are employees with disabilities working at an entity falling under Title II (state and local government) or Title III (public accommodations) or Section 504 of the Rehabilitation Act (recipients of federal funding), one can argue that the entity is required to purchase only accessible content in order to comply with Title I protections for employees with disabilities.<sup>226</sup>

## V. Conclusion

The legal protections of civil rights for people with disabilities are framed differently from those of all other protected minority populations.<sup>227</sup> Unlike these other populations, they must provide documentation to prove that they belong to the protected class, while covered entities can decide not to provide these rights if they deem it too expensive. This duality is referred to as the “goldilocks” principle<sup>228</sup> – to receive protections under the law, a person must be disabled enough to qualify but not too disabled to be too expensive to accommodate.<sup>229</sup>

Try imagining these criteria being transferred to any other protected class – perhaps beginning considerations of a gender discrimination claim with the presentation of medical documentation that the claimant is sufficiently female, followed by a motion for the claim to be dismissed because the woman in question was too female to deserve equal rights. The resulting public outcry would be enormous. While there has not been a widespread public outcry for the built-in disadvantages to people with disabilities, the way in which disability rights have been

---

222. 42 U.S.C. §§ 12131–32.

223. *Id.* §§ 12181–82.

224. 29 U.S.C. § 794.

225. 42 U.S.C. §§ 12111–12.

226. 42 U.S.C. §§ 12111–17.

227. DORIS ZAMES FLEISCHER & FRIEDA ZAMES, *THE DISABILITY RIGHTS MOVEMENT: FROM CHARITY TO CONFRONTATION*, 1–13 (1st ed., 2001).

228. *See* JAEGER, *supra* note 141 at 79–119.

229. *See* JAEGER, *supra* note 141 at 79–119.

*A Socio-Legal Framework for Improving the Accessibility of Research Articles for People with Disabilities*

designed has resulted in very little social, educational, economic, or political progress for people with disabilities.<sup>230</sup>

This imbalanced approach to civil rights for people with disabilities has played out online in dramatic and bold fashion, with many innovations that have benefitted others being designed in ways that utterly fail them, often intentionally by developers.<sup>231</sup> By conceptualizing equality online as purely technical problem, the requirements of U.S. law for technologies remain static while the technologies advance well out of reach of these requirements.<sup>232</sup> People with disabilities have been left behind in virtually every context online, from e-commerce to e-government, from mobile devices to information kiosks.<sup>233</sup> Disability issues even receive far less coverage online than issues of other protected populations in news sources and forums.<sup>234</sup>

As discussed in this paper, equal access to electronic scholarly publications are vital in many educational and professional contexts,<sup>235</sup> yet the legal protections have nearly not resulted in universally accessible scholarly publications. Legal protections

230. See Stephanie J. Cork et al., *The Politics of (Dis)information: Crippled America, the 25<sup>th</sup> Anniversary of the Americans with Disabilities Act (ADA), and the 2016 Presidential Campaign*, 1 INT'L J. OF INFO., DIVERSITY, & INCLUSION 4-6 (2016) (describing statistics showing that individuals with disabilities "have much lower graduation workforce participation rates compared to their non-disabled peers" as well as lower rates of technology literacy; but despite these economic hardships, individuals with disabilities have not received much political attention.); Cork et al., *Beyond Random Acts of Diversity: Ableism, Academia, and Institutional Sites of Resistance*, in ROUTLEDGE HANDBOOK OF DISABILITY ACTIVISM, 299-300, 310 (Maria Berghs et al. eds., 2019); Courtney Lawrence Douglass et al., *Information Access and Information Literacy Under Siege: The Potentially Devastating Impacts of the Proposed 2017 White House Budget on Already-Marginalized Populations in the United States*, 22 FIRST MONDAY (Oct. 1, 2017), <https://firstmonday.org/ojs/index.php/fm/article/view/8088/6554> (explaining how federal budget cuts to library spending negatively impacts the ability of these institutions to continue providing access to information online; and these institutions are oftentimes the primary source of such online information for many individuals).

231. See JAEGER, *supra* note 141 at 79–119.

232. See Elizabeth Ellcessor, *Bridging Disability Divides*, 13 INFO. COMM'C'N & SOC'Y 289, 289-308 (2010).

233. See Jonathan Lazar et al., *Potential Pricing Discrimination Due to Inaccessible Web Sites*, 13TH INT'L CONF. ON HUM.- COMPUT. INTERACTION 108, 110–13 (2011) (discussing the lack of accessibility of online shopping for individuals with disabilities); Jonathan Lazar et al., *Investigating the Accessibility and Usability of Job Application Web Sites for Blind Users*, 7 J. OF USABILITY STUD. 68, 84 (2012) (discussing the lack of accessibility of online employment applications for individuals with disabilities); Jonathan Lazar et al., *A Longitudinal Study of State Government Homepage Accessibility in Maryland and the Role of Web Page Templates for Improving Accessibility*, 30 GOV'T INFO. Q. 289, 292 (2013) (discussing the lack of accessibility of government websites for individuals with disabilities); Brian Wentz et al., *Documenting the Accessibility of 100 U.S. Bank and Finance Websites*, 18 UNIVERSAL ACCESS IN THE INFO. SOC'Y 871, 871–80 (2018) (discussing the lack of accessibility of online banking websites for individuals with disabilities).

234. Emily Wallingham, *This Is What Disability Erasure Looks Like*, FORBES (July 27, 2016, 9:00 AM), <https://www.forbes.com/sites/emilywillingham/2016/07/27/killer-of-disabled-people-in-japan-announced-his-intentions-months-ago/?sh=58e897e47f3e>.

235. *Supra* Section II.B.

BRIAN WENTZ, JONATHAN LAZAR, PAUL T. JAEGER & URSULA GORHAM

do exist,<sup>236</sup> but they have not been tried in court. They also do not, as we have argued, address the entire problem; rather than systematically address the accessibility in this context, the legal framework leaves people with disabilities left to chase creators and purchasers to comply with static technical standards.

The federal government could ultimately help along such progress toward inclusion by placing greater emphasis linking federal funding to accessible materials. There could also be active reminders to institutions receiving federal funding, whether for education or research, that legal obligations require accessibility. These extend to materials being published by their employees and purchased by the institution. Institutions could regularly emphasize the importance of the accessibility requirements to all of those involved in the research publication process.

Rather than merely relying on people with disabilities to identify problematic publications and publishers, creators and purchasers of content also need to affirmatively take responsibilities to promote the inclusion of all users. If creators were to ensure that they are working with publishers that are accessible and institutions, both public and private, were conscientiously purchasing and licensing materials that are accessible, publishers would have every economic incentive to consistently create accessible content.

## VI. Acknowledgements

We acknowledge and appreciate the assistance of Meagan Griffith with reference formatting. This work was funded in part by the National Institute on Disability, Independent Living and Rehabilitation Research (NIDILRR) at the Administration for Community Living, US Department of Health and Human Services under grant #90REGE0008. The opinions herein are those of the authors and not necessarily those of the funding agencies.

---

236. *Supra* Section IV.