2025 Environmental Scan

ACRL Research Planning and Review Committee

Association of College & Research Libraries
American Library Association
225 N. Michigan Avenue | Suite 1300
Chicago, IL 60601

Telephone: (800) 545-2433, ext. 2523
Email: acrl@ala.org
www.acrl.org

Contents

Introduction

Every two years, the ACRL Research Planning and Review Committee undertakes a comprehensive environmental scan to examine emerging trends, challenges, and developments in higher education. This analysis seeks to identify key themes that influence academic institutions and assess their broader implications for academic libraries, ensuring they remain responsive to the evolving needs of students, faculty, and researchers.

For this year's review, committee members conducted an extensive analysis of news media, academic literature, grey literature, and other sources from 2023 and 2024 to pinpoint the most pressing issues shaping the higher education landscape. While persistent challenges such as artificial intelligence, cybersecurity, political pressures, and shifts in the research enterprise continue to affect institutions, several new concerns have gained prominence. Issues surrounding climate resilience, job insecurity, demographic shifts leading to declining enrollment, and the wellbeing of faculty and students have emerged as critical areas requiring attention.

The following sections provide an in-depth exploration of these themes, highlighting their significance and potential impact on academic libraries and higher education as a whole. Extensive footnotes offer further context and avenues for deeper investigation.

Advancements in AI and AI Ethics

Artificial intelligence (AI) has been technologically advancing for many years; however, over the past year, ethical issues emerged that present new challenges in the use of AI on university and college campuses. A recent study found that a majority of university library administrators see a need for post-secondary institutions to address AI ethical and privacy issues.[1,2] Impacting academic integrity, student assessment, critical thinking, and traditional teaching models, AI has ethical considerations that span higher education.

---

[1] Leo S. Lo, "Evaluating AI Literacy in Academic Libraries: A Survey Study with a Focus on U.S. Employees," *College & Research Libraries* 85, no. 5 (2024): 635-668, accessed November 28, 2024, https://doi.org/10.5860/crl.85.5.635.

[2] Lauren Coffey, "University Librarians See Urgent Need for AI Ethics," *Inside Higher Ed*, January 17, 2024, https://www.insidehighered.com/news/quick-takes/2024/01/17/university-librarians-see-urgent-need-ai-ethics.

Bias

Bias in AI, depending on the data used to train an AI model, includes race, gender, sexuality, ethnicity, and disability bias.[3] If generative AI context is used throughout higher education writing and research, this bias can promote misinformation and discrimination. In a test by the *New York Times*, a research team developed liberal- and conservative-leaning chatbots to demonstrate how easily misinformation can proliferate online through AI.[4] A study from Ellucian, a post-secondary technology company, found 49% of university faculty and administrators in the US are concerned about bias in AI.[5]

The types of bias present in AI in higher educational settings include user-interaction biases (e.g. stereotyping and exclusion), algorithmic biases (e.g. conformation and learning bias), and data biases (e.g. representation and measurement bias).[6] When biased information from the past is used to train AI models, that biased information is repeated and reinforced. Biased information can adversely affect everyone in post-secondary education; however, underrepresented students stand to be affected the greatest.

Gillen claims that "AI is not neutral"[7] and lacks context and positionality,[8] while Melton bluntly states, "AI has racist tendencies."[9] This has major implications for underrepresented students as they encounter bias on a daily basis, not to mention the amplification based on biased technology.[10]

---

[3] Brady D. Lund et al., "ChatGPT and a New Academic Reality: Artificial Intelligence-Written Research Papers and the Ethics of the Large Language Models in Scholarly Publishing," *Journal of the Association for Information Science and Technology* 74, no. 5 (2023): 570–581, accessed November 29, 2024, https://doi.org/10.1002/asi.24750.

[4] J. White, "See How Easily A.I. Chatbots Can Be Taught to Spew Disinformation," *The New York Times*, May 20, 2024, https://www.nytimes.com/interactive/2024/05/19/technology/biased-ai-chatbots.html.

[5] "AI in Higher Education Report | Ellucian," Ellucian, accessed December 4, 2024, https://lp.ellucian.com/ai-innovation-survey.html.

[6] Sribala Vidyadhari Chinta et al., "FairAIED: Navigating Fairness, Bias, and Ethics in Educational AI Applications," arXiv, July 26, 2024, https://doi.org/10.48550/arXiv.2407.18745.

[7] Andrew L. Gillen, "Can We Trust AI in Qualitative Research?," *Inside Higher Ed*, accessed October 9, 2024. https://www.insidehighered.com/opinion/views/2024/10/09/can-we-trust-ai-qualitative-research-opinion.

[8] Gillen, "Can We Trust AI in Qualitative Research?"

[9] Monica Melton, "AI Has Racist Tendencies. Scientists and Founders Are Trying to Fix It," *Business Insider, US Edition*, April 20, 2024, https://www.proquest.com/docview/3041826347/citation/E440072576324DEBPQ/1.

[10] Aniya Greene-Santos, "Does AI Have a Bias Problem?," *neaToday*, February 2, 2024, https://www.nea.org/nea-today/all-news-articles/does-ai-have-bias-problem.

One initiative to minimize the amount of bias in AI technology is to diversify those involved in the development and creation of AI.[11] Diversity of those creators could diversify the training data and ultimately AI models in use by post-secondary institutions. As well, human-centered and participatory data can help combat pre-existing biases, which requires educators and students working with machine-learning developers and engineers.[12] Higher education research is currently being conducted to uncover the roots of bias, to minimize its impact moving forward.[13]

Privacy and Ownership of Data

It is unsurprising that AI models require massive amounts of data to function. A July 2023 report from SemiAnalysis found OpenAI's ChatGPT 4 uses 13 trillion tokens (text- and code-based data) in its model.[14] This begs the question of how this data is safeguarded.

There is also the question of the sale of data from publishers to companies involved in AI technologies, such as OpenAI or Microsoft. Over the past year, numerous publishers such as Wiley,[15] HarperCollins,[16] and Taylor & Francis[17] have sold their content to AI companies. Media companies, such as *The Atlantic*[18], *Vox*[19], and *TIME* magazine[20] have also signed

---

[11] Greene-Santos, "Does AI Have a Bias Problem?"

[12] Dylan Walsh, "A Data-Centered Approach to Education AI," Human-Centered Artificial Intelligence, Stanford University, February 26, 2024, https://hai.stanford.edu/news/data-centered-approach-education-ai.

[13] Harini Barath, "Zeroing In On the Origins of Bias in Large Language Models," Dartmouth, January 12, 2024, https://home.dartmouth.edu/news/2024/01/zeroing-origins-bias-large-language-models.

[14] Dylan Patel and Gerald Wong, "GPT-4 Architecture, Infrastructure, Training Dataset, Costs, Vision, MoE," SemiAnalysis, July 10, 2023. https://semianalysis.com/2023/07/10/gpt-4-architecture-infrastructure/.

[15] "Wiley Expects to Make US$44 Million from AI Partnership, Authors Unable to Opt out," *Books+Publishing*, September 4, 2024. https://www.booksandpublishing.com.au/articles/2024/09/04/258068/wiley-expects-to-make-us44-million-from-ai-partnership-authors-unable-to-opt-out/.

[16] Andrew Albanese, Jim Milliot, and John Maher, "Agents, Authors Question HarperCollins AI Deal," *Publishers Weekly*, November 19, 2024, https://www.publishersweekly.com/pw/by-topic/industry-news/publisher-news/article/96533-agents-authors-question-harpercollins-ai-deal.html.

[17] Wellett Potter, "An Academic Publisher Has Struck an AI Data Deal with Microsoft – without Their Authors' Knowledge," *The Conversation*, July 23, 2024, http://theconversation.com/an-academic-publisher-has-struck-an-ai-data-deal-with-microsoft-without-their-authors-knowledge-235203.

[18] "OpenAI Signs Content Deals with The Atlantic and Vox Media," *Reuters*, May 29, 2024, https://www.reuters.com/business/media-telecom/openai-signs-content-deals-with-atlantic-vox-media-2024-05-29/.

[19] *Reuters*, "OpenAI Signs Content Deals."

[20] "Time, OpenAI Sign Multi-Year Content Deal," *Reuters*, June 27, 2024, https://www.reuters.com/technology/artificial-intelligence/openai-signs-multi-year-content-deal-with-time-magazine-2024-06-27/.

licensing deals with OpenAI. Other publishers such as Oxford University Press (OUP) have been "actively working" with AI companies, but it is unclear how OUP's content is being used.[21]

Canadian media companies, along with the *New York Times*, *New York Daily News*, the *Chicago Tribune*, and other newspapers have launched lawsuits against OpenAI for harvesting content.[22,23,24] Anderson et al. suggest publishers keep their open access content behind a so-called 'free' paywall to prevent AI companies from scraping data.[25] Anderson et al. reference *The Chaser*, an Australian satirical news site, who in 2023 put up a temporary paywall that users could bypass to prevent AI companies from harvesting their data.

While publishers have a range of directions they are taking on the sale of copyrighted data, HarperCollins's deal attempts to compensate authors who have had their work harvested by AI companies. Authors who have published work with HarperCollins have to opt-in for the sale of their work for three years at a time and receive $5,000 (USD), which is then split equally with the publisher.[26] While an astonishingly low amount of compensation, HarperCollins's deal foreshadows upcoming author/publisher deals that attempt to compensate authors fairly.

Academic Integrity and Responsible Use of AI

Integrating AI technology in the classroom and across campuses is a challenging issue. AI tools can ease the burden of a wide-range of academic tasks, such as research, writing, and instruction, but how far is too far to use these tools in student work? Faculty acknowledge that AI should be

---

[21] Kathryn Palmer, "Oxford University Press 'Actively Working' With AI Companies," *Inside Higher Ed*, accessed October 17, 2024. https://www.insidehighered.com/news/quick-takes/2024/08/05/oxford-university-press-actively-working-ai-companies.

[22] "OpenAI: Major Canadian News Media Companies Launch Legal Action against OpenAI," *The Economic Times*, accessed November 29, 2024, https://economictimes.indiatimes.com/tech/artificial-intelligence/major-canadian-news-media-companies-launch-legal-action-against-openai/articleshow/115817368.cms?from=mdr.

[23] Audrey Pope, "NYT v. OpenAI: The Times's About-Face," *Harvard Law Review*, April 10, 2024, https://harvardlawreview.org/blog/2024/04/nyt-v-openai-the-timess-about-face/.

[24] Blake Brittain, "US Newspapers Sue OpenAI for Copyright Infringement over AI Training," *Reuters*, April 30, 2024, https://www.reuters.com/legal/us-newspapers-sue-openai-copyright-infringement-over-ai-training-2024-04-30/.

[25] Nash Anderson et al., "AI Did Not Write This Manuscript, or Did It? Can We Trick the AI Text Detector into Generated Texts? The Potential Future of ChatGPT and AI in Sports & Exercise Medicine Manuscript Generation," *BMJ Open Sport & Exercise Medicine* 9, no. 1 (2023): 1-4, accessed November 28, 2024, https://doi.org/10.1136/bmjsem-2023-001568.

[26] "HarperCollins AI Licensing Deal," *The Authors Guild*, November 19, 2024, https://authorsguild.org/news/harpercollins-ai-licensing-deal/.

introduced to students; however, academic integrity issues surrounding the use of generative AI content in their work should still be addressed.[27]

This is a challenging issue. Not only is detecting AI-generated content difficult,[28] but student training, especially at the graduate level of new researchers, can be stunted.[29] Within the context of iterative qualitative data coding, Gillen argues new researchers may not develop these skills if relying on AI. There are also questions about the authorship and copyright of using generative AI in student and faculty work.[30]

Disclosure of AI use is another pressing ethical issue. Kari D. Weaver proposes The Artificial Intelligence Disclosure (AID) Framework, inspired by the Contributor Roles Taxonomy (CRediT). Weaver advocates the AID Framework to provide transparency in how AI was used in research and writing.[31] In this model, authors would include an AID statement to address how AI was used in their work, including which tools and in what facet(s) of the work, including conceptualization, methodology, data collection and curation, among others.

Biases also come into play with academic integrity; there are instances where plagiarism charges have been brought against international students. Farelly and Baker's discussion paper notes international students are disproportionately accused of plagiarism, something that only becomes more pressing with the use of generative AI tools and the difficulty in detecting AI-generated content.[32] A Stanford University study by Liang et al. demonstrates how generative pre-trained transformers (GPTs) can misinterpret foreign language students' writing as artificially generated.[33]

---

[27] Lauren Coffey, "How AI Has Begun Changing University Roles, Responsibilities," *Inside Higher Ed.*, February 13, 2024, https://www.insidehighered.com/news/tech-innovation/artificial-intelligence/2024/02/13/how-ai-has-begun-changing-university-roles.

[28] Tom Farrelly and Nick Baker, "Generative Artificial Intelligence: Implications and Considerations for Higher Education Practice," *Education Sciences* 13, no. 11 (2023): 1109-1123, https://doi.org/10.3390/educsci13111109.

[29] Gillen, "Can We Trust AI in Qualitative Research?"

[30] Lund, "ChatGPT and a New Academic Reality"

[31] Kari D. Weaver, "The Artificial Intelligence Disclosure (AID) Framework: An Introduction," *College & Research Libraries News* 85, no. 10 (2024): 407, https://crln.acrl.org/index.php/crlnews/article/view/26548/34482.

[32] Farelly and Baker, "Generative Artificial Intelligence."

[33] W. Liang et al., "GPT detectors are biased against non-native English writers," *Patterns*, 4, no. 7 (2023): 1-4. https://doi.org/10.1016/j.patter.2023.100779.

Environmental Consideration

AI has a devastating environmental impact—among the resources used to power the technology are electricity, water, rare minerals and elements, and electronics, leading to waste.[34] This produces an unprecedented carbon footprint and extraordinary water usage.[35] Goldman Sachs hypothesizes that power used for data centres will more than double in the United States by 2030 and require an increase in power generation.[36] The International Energy Agency (IEA) pegs 2022 data centre usage in the U.S. at 200 terawatt hours (TWh) and estimates that increasing to 260 TWh in 2026.[37]

Some post-secondary institutions are grappling with the environmental cost of AI. Cornell University recently launched the AI for Sustainability Visiting Professorship.[38] Last year, the University of Utah received $100 million (USD) to develop responsible AI, including addressing environmental impacts of the technologies.[39] These early efforts notwithstanding, post-secondary institutions will need to weigh the environmental cost of AI technologies in the coming years.

Envisioning the Future of AI / Long-term Impact of AI on Post-Secondary Institutions

Ethical dimensions of AI may leave us wondering where we will go from here. The Association of Research Libraries (ARL) in partnership with the Coalition for Networked Information (CNI) developed future scenarios to envision what AI will look like in academia.[40] In their scenario of a *laissez-faire AI*, AI content continues to maintain large amounts of biased content, which has

[34] "AI Has an Environmental Problem. Here's What the World Can Do about That," *UN Environment Programme*, September 21, 2024, https://www.unep.org/news-and-stories/story/ai-has-environmental-problem-heres-what-world-can-do-about.

[35] David Gelles, "A.I.'s Insatiable Appetite for Energy," *The New York Times*, July 11, 2024, https://www.nytimes.com/2024/07/11/climate/artificial-intelligence-energy-usage.html.

[36] "Generational Growth: AI, Data Centers and the Coming US Power Demand Surge," Goldman Sachs Research, April 29, 2024, https://www.goldmansachs.com/insights/goldman-sachs-research/generational-growth-ai-data-centers-and-the-coming-us-power-demand-surge.

[37] "Electricity 2024: Analysis and Forecast to 2026," International Energy Agency, 2024, https://iea.blob.core.windows.net/assets/6b2fd954-2017-408e-bf08-952fdd62118a/Electricity2024-Analysisandforecastto2026.pdf.

[38] "AI for Sustainability Visiting Professorship Launches at Cornell," *Cornell Chronicle*, November 7, 2024, https://news.cornell.edu/stories/2024/11/ai-sustainability-visiting-professorship-launches-cornell.

[39] Jamie Faux, "U Receives $100 Million for Responsible AI Initiative," *Daily Utah Chronicle*, November 22, 2023, https://dailyutahchronicle.com/2023/11/22/responsible-ai-initiative/.

[40] "ARL/CNI AI Scenarios: AI-Influenced Futures," Association of Research Libraries and Coalition for Networked Information, June 2024, accessed October 9, 2024, https://www.arl.org/resources/the-arl-cni-2035-scenarios-ai-influenced-futures-in-the-research-environment/.

been normalized.[41] In this scenario, environmental impacts of AI continue to proliferate with no plans to reduce water and power usage. Other scenarios, such as *autonomous AI* and *consumer-oriented AI*, present a range of softer or harsher outlooks in regard to the ethical impact of AI. The United Nations Educational, Scientific, and Cultural Organization's (UNESCO) Global AI Ethics and Governance Observatory monitors the various ethics-related issues in AI.[42]

Some, such as Ray Schroeder, see AI being implemented at a rapid pace within post-secondary institutions.[43] He predicts mid-level managers will be replaced with "intelligent agents" sooner, rather than later. Schroeder thinks these same intelligent agents, in robotic form, will be working alongside students in various capacities, including "the library, the dining halls, [and] health services." Melanie Dusseau takes a different approach; she advocates for an active rejection of AI in post-secondary education.[44]

Whether institutions take Dusseau's reactionary *résistance* or take a more fulsome adoption of AI, an eye towards the ethical issues of AI technology must be maintained.

Implications

- To mitigate AI bias in educational settings, post-secondary institutions should consider monitoring AI systems before formally adopting them.

- Post-secondary institutions should advocate against the sale and use of their faculty's copyrighted works with publishers and generative AI companies to protect intellectual property.

- Post-secondary administrators should advocate for the use of disclosure statements—such as Kari Weaver's proposed Artificial Intelligence Disclosure Framework—to acknowledge the use of AI in research.

- Ethical policies in post-secondary institutions are wide-ranging, and post-secondary administrators should think about how to incorporate policies to protect students and faculty from the different aspects of AI use in higher education.

---

[41] "ARL/CNI AI Scenarios: AI-Influenced Futures," Association of Research Libraries, Coalition for Networked Information, and Stratus Inc., June 2024, https://doi.org/10.29242/report.aiscenarios2024.

[42] "Global AI Ethics and Governance Observatory," *United Nations Educational, Scientific and Cultural Organization (UNESCO)*, accessed December 2, 2024, https://www.unesco.org /ethics-ai/en.

[43] Ray Schroeder, "A Near-Future Vision of AI in Higher Ed," *Inside Higher Ed*, September 25, 2024, accessed October 9, 2024, https://www.insidehighered.com/opinion/blogs/online-trending-now/2024/09/25/near-future-vision-ai-higher-ed.

[44] Melanie Dusseau, "Burn It Down: A License for AI Resistance," *Inside Higher Ed*, November 12, 2024, accessed November 19, 2024, https://www.insidehighered.com/opinion/views/2024/11/12/burn-it-down-license-ai-resistance-opinion.

Climate Resilience & Sustainability in Higher Education

The world is currently facing a crisis that needs immediate action to address the issues that are threatening human life as we know it. In 2015, the 2030 Agenda for Sustainable Development was adopted by all United Nations Member States,[45] which highlighted 17 Sustainable Development Goals (SDGs); no poverty; zero hunger; good health and well-being; quality education; gender equality; clean water and sanitation; affordable and clean energy; decent work and economic growth; industry, innovation and infrastructure; reduced inequalities; sustainable cities and communities; responsible consumption and production; climate action; life below water; life on land; peace, justice and strong institutions; and partnerships for the goals.[46] According to the SDG Progress Report in 2024, only 17% of the SDG targets were on track, with key findings underlining that global gains in increasing online access (about 67% of the global population) had reverted to pre-pandemic levels, e-waste generation was posing environmental risks, and that global temperatures were desperately close to the 1.5 celsius limit of the Paris Agreement.[47] Higher education is contributing to broadened online access through the pivot to online instruction during the pandemic, but they are also contributing to climate challenges through the mass distribution and use of technology and the hidden environmental cost of generative AI.

Sustainability and Disaster Risk

Higher education institutions (HEIs) are slowly adopting and implementing SDGs into their campus initiatives, operational management, and curriculum development. Sustainability and disaster risk reduction (DRR) education can be part of these initiatives. DRR is defined by the United Nations Office for Disaster Risk Reduction as the prevention and reduction of existing disaster risks.[48] HEI's can shine as they adopt DRR education and support disaster risk research

---

[45] "Transforming Our World: The 2030 Agenda for Sustainable Development," United Nations General Assembly October 21, 2015, https://documents.un.org/doc/undoc/gen/n15/291/89/pdf/n1529189.pdf.

[46] "THE 17 GOALS | Sustainable Development," United Nations, Department of Economic and Social Affairs, accessed November 12, 2024, https://sdgs.un.org/goals.

[47] "Progress towards the Sustainable Development Goals," United Nations General Assembly, Economic and Social Council, May 2, 2024, https://unstats.un.org/sdgs/files/report/2024/SG-SDG-Progress-Report-2024-advanced -unedited-version.pdf.

[48] "Definition: Disaster Risk Reduction," United Nations Office for Disaster Risk Reduction, August 30, 2007, https://www.undrr.org/terminology/disaster-risk-reduction.

and policy development.[49] Integrating disaster risk education into the curriculum will benefit students in the long term. Innovative teaching methods like interactive simulations can also improve disaster preparedness knowledge.[50] With proper education, training, and campus awareness, universities and colleges can positively change the behaviors of those people in their communities.

Sustainability is more established on campuses in other areas. A study conducted by Farag and Aktas found six common initiatives in HEIs: transportation, waste management, curriculum, food and dining, water, and energy.[51] Not surprisingly, these initiatives are reflected in SDGs 4, 12, and 13 and are adopted by different departments and organizations on university and college campuses. Sustainability initiatives can be embedded into the curriculum or stand on their own as centers or programs.[52] Examples of this can be one-off courses such as Sustainability 101 or degree granting departments (e.g. Sustainability Studies Degree).[53] Institutions addressing sustainability can incorporate measures such as inclusive waste management (e.g. compost, recycling, landfilled), community gardens, and sustainable transportation options such as biking, car pooling, or electric vehicles.[54] Student awareness of sustainability measures on campus can

[49] Anna Scolobig and Jörg Balsiger, "Emerging Trends in Disaster Risk Reduction and Climate Change Adaptation Higher Education," *International Journal of Disaster Risk Reduction* 105 (April 15, 2024): 104383, https://iddrr.undrr.org/quick/83959.

[50] Kyle Breen et al., "College Students and Environmental Disasters: A Review of the Literature," *Social Sciences* 13, no. 1 (January 2024): 8, https://www.mdpi.com/2608596; Ana Moreira et al., "A Road Less Travelled and Beyond: Towards a Roadmap for Integrating Sustainability into Computing Education" (arXiv, June 27, 2024), https://arxiv.org/abs/2406.18945.

[51] Karin Farag and Can Baran Aktas, "A Survey of the Most Prevalent Sustainability Initiatives at Universities," *International Journal of Sustainability in Higher Education* 25, no. 8 (January 31, 2024): 1581–1609, https://doi.org/10.1108/IJSHE-07-2023-0285.

[52] Maria Eftychia Angelaki et al., "Towards More Sustainable Higher Education Institutions: Implementing the Sustainable Development Goals and Embedding Sustainability into the Information and Computer Technology Curricula," *Education and Information Technologies* 29, no. 4 (March 1, 2024): 5079–5113, https://doi.org/10.1007/s10639-023-12025-8; Robert Eby and Nandhini Rangarajan, "Campus Sustainability Plans: Past, Present and Future," *International Journal of Sustainability in Higher Education* 24, no. 7 (November 13, 2023): 1398-1415, https://doi.org/10.1108/IJSHE-03-2022-0063; Diane White Husic, "Reframing Sustainability Initiatives in Higher Education," *Sustainable Earth Reviews* 7, no. 1 (February 14, 2024): 5, https://doi.org/10.1186/s42055-024-00076-9.

[53] "2025 Best Colleges with Sustainability Studies Degrees," Niche.com, accessed December 20, 2024, https://www.niche.com/colleges/search/best-colleges-with-sustainability-studies/.

[54] Reihaneh Aghamolaei and Marzieh Fallahpour, "Strategies towards Reducing Carbon Emission in University Campuses: A Comprehensive Review of Both Global and Local Scales," *Journal of Building Engineering* 76 (October 1, 2023): 107183, https://doi.org/10.1016/j.jobe.2023.107183; Nataliya Apanovich, et al., "Education for Sustainable Development: Societal Benefits of a Community Garden Project in Tucson, Arizona," *Societal Impacts* 1, no. 1-2, 100011, https://linkinghub.elsevier.com/retrieve/pii/S2949697723000115; Noleen R. Chikowore and John M. Kerr, "Waste Governance and Campus Sustainability: Formal and Informal Waste Systems at Football Tailgates in Michigan," *International Journal of Sustainability in Higher Education* 24, no. 7 (March 2, 2023): 1474–88, https://doi.org/10.1108/IJSHE-01-2022-0028.

vary depending on marketing, interest level, and enforcement by campus administration and other student groups.[55] In order to get more buy-in from campus stakeholders, sustainability initiatives may be woven into the university strategic plan, which can then shape campus policies and the class curriculum.

Libraries as Sustainable Leaders

As a strong partner on any campus, libraries can be major stakeholders in supporting sustainability initiatives and even transform themselves to become a "green library" or "sustainable library." The *Online Dictionary for Library and Information Science* (ODLS) defines a sustainable library as one that is "designed to minimize negative impact on the natural environment and maximize indoor environmental quality by means of careful site selection, use of natural construction materials and biodegradable products, conservation of resources (water, energy, paper), and responsible waste disposal (recycling and others)".[56] Academic libraries can participate in this movement by becoming LEED certified (Leadership in Energy and Environmental Design) or joining the Sustainable Libraries Initiative's Sustainable Library Certification Program (SLI-SLCP).[57] Only 14 academic libraries in the United States have completed the SLCP, in contrast with 120 public libraries.[58] Tackling sustainability issues is not easy, especially when it comes to structural changes. Each certification program comes at a cost, and libraries often do not have enough funding or staff to implement these changes.

A study conducted by Sivaprasad and colleagues confirmed that even though academic libraries play a pivotal role in promoting sustainability education, they are falling behind in regards to adopting green or sustainable practices.[59] Tribelhorn argues in their study that although libraries are seen as being "green" due to the nature of sharing resources (e.g. interlibrary loan, document

[55] Jéanelle Baron, Stacy-Ann Lawrence, and Cerease Nevins-Bennett, "Sustainable Development Goals: A Case of the Community College Student Initiative Project," *European Journal of Education and Pedagogy* 5, no. 3 (June 4, 2024): 24–35, https://doi.org/10.24018/ejedu.2024.5.3.833; Megan Lee, Tyra Byers, and Alyssa Powell, "Student Perceptions and Interests in Sustainability: Differences among Student Groups and Impact on Student Sustainability Program Participation," *International Journal of Sustainability in Higher Education* 24, no. 8 (May 16, 2023): 1726–43, https://doi.org/10.1108/IJSHE-02-2022-0058.

[56] Joan Reitz, "Online Dictionary for Library and Information Science," 2013, https://odlis.abc-clio.com/odlis_s.html#sustainablelib.

[57] "Higher Education," U.S. Green Building Council, accessed December 20, 2024, https://www.usgbc.org/education/higher-education; "Sustainable Library Certification Program FAQ," Sustainable Libraries Initiative, accessed December 20, 2024, https://www.sustainablelibrariesinitiative.org/about-us/program-faq.

[58] "Members," Sustainable Libraries Initiative, accessed December 20, 2024, https://www.sustainablelibrariesinitiative.org/members.

[59] P. Sivaprasad, S. Thanuskodi, and M. Nagaiah, "Challenges and Hurdles in Establishing a Green Library: Strategies for Overcoming Them," *Electronic Green Journal* 1, no. 49 (February 13, 2024), https://doi.org/10.5070/G314959708.

delivery, shared print collections), they tend to focus on only one sustainability area (e.g. water reduction and energy-efficient lighting practices) rather than taking on a holistic approach.[60] Despite the academic library's involvement in providing sustainable and environmental literacy to their patrons, librarians themselves lack knowledge and skills to effectively communicate sustainability to major stakeholders.[61] Further training for academic library staff members on the importance of evaluating the green impact of libraries is needed.

Climate Literacy

A study conducted by Head and colleagues found that college students in the U.S. are more engaged with climate change issues than the general public and believe that combating climate change is their civic duty.[62] Filho and colleagues published a report, exploring climate change themes in university research and education across the globe.[63] Their findings along with other studies show that in order for younger generations, especially Gen Z and Gen alpha, to truly engage in climate literacy, it must be incorporated across the curriculum.[64] An example of this comes from a collaborative project between two agricultural communities in Kentucky and Tennessee called Climate Literacy for Agriculture and Sustainable Societies (CLASS). This project model outlines intervention types for climate change education and focuses on aligning community engagement for economic development in agribusiness.[65]

Librarians and libraries are instrumental to empowering students to evaluate sources and deal with climate-related content effectively.[66] Tribelhorn suggests that library leadership should encourage library staff to be more aware of sustainability issues on campus as well as support these initiatives within the library in order to change library culture and effectively meet sustainability goals.[67] The Sustainable Libraries Initiative through American Library Association

---

[60] Sarah K. Tribelhorn, "Preliminary Investigation of Sustainability Awareness and Activities among Academic Libraries in the United States," *The Journal of Academic Librarianship* 49, no. 3 (May 1, 2023): 102661, https://doi.org/10.1016/j.acalib.2022.102661.

[61] Ibid.

[62] Alison J. Head et al., "How College Students Respond to Climate Change in Troubled Times: Four Takeaways from Project Information Literacy's Latest Study," *College & Research Libraries News* 85, no. 9 (October 2, 2024): 382, https://doi.org/10.5860/crln.85.9.382.

[63] Walter Leal Filho et al., "Towards a Greater Engagement of Universities in Addressing Climate Change Challenges," *Scientific Reports* 13 (November 3, 2023): 19030, https://doi.org/10.1038/s41598-023-45866-x.

[64] Husic.

[65] Rachna Tewari et al., "Expanding Climate Change Education in Agricultural Communities: Lessons from the U.S Midsouth," *NACTA Journal* 67, no. 1 (October 27, 2023), https://doi.org/10.56103/nactaj.v67i1.105.

[66] Head et al.

[67] Tribelhorn.

published *The National Climate Action Strategy for Libraries Implementation Guide,* which emphasizes three actions: 1) climate change mitigation, 2) climate change adaptation and contributions to community resilience, and 3) climate justice work.[68] Librarians can be champions of climate literacy and use their information literacy sessions not only to evaluate sources surrounding climate change, but they can also support climate change research at their institutions.

Electronic Waste and Environmental Cost

According to the United Nations Institute for Training and Research, China is the largest producer of electronic waste, generating more than 12 million metric tons, with the United States trailing behind with roughly seven million metric tons.[69] Electronic waste, often referred to as e-waste, consists of electronic equipment that has reached the end of its useful life.[70] Common types of e-waste are old phones, microwaves, televisions, fridges, and screens and monitors.[71] Jain and colleagues noted in their study that households only accounted for about 20-21% of e-waste, but businesses and institutions were leading contributors, responsible for 1.3 million outdated PCs being trashed.[72] Typically, devices such as computers and laptops are designed with short lifespans in mind, leading to significant e-waste. According to Balde et al, only 22.3% of e-waste was properly collected and recycled in 2022.[73] Further, the unregulated export of e-waste from high-income to lower-income countries for recycling, such as India where there is limited management infrastructure surrounding proper recycling, leads to greater health risks and environmental impacts.[74]

On a smaller scale, higher education institutions can be leaders in making sure e-waste disposal on campus is done sustainably. Part of this is having students investigate the impact of e-waste on their campus, whether they are being "crufters" or conducting research. According to MIT students and staff, the term "crufters" is described as "being able to take cruft [junk, discarded

[68] Sustainable Libraries Initiative, "National Climate Action Strategy for Libraries," American Library Association & Sustainable Libraries Initiative, July 1, 2024, https://www.sustainablelibrariesinitiative.org/national- climate-action-strategy-libraries.

[69] Cornelis Balde et al., "The Global E-Waste Monitor 2024," United Nations Institute for Training and Research, https://ewastemonitor.info/wp-content/uploads/2024/03/GEM_2024_18-03_web_page_per_page_web.pdf.

[70] "The Growing Environmental Risks of E-Waste," Geneva Environment Network, October 9, 2024, https://www.genevaenvironmentnetwork.org/resources/updates/the-growing-environmental-risks-of-e-waste/.

[71] Balde et al.

[72] Muskan Jain et al., "Review on E-Waste Management and Its Impact on the Environment and Society," *Waste Management Bulletin* 1, no. 3 (December 1, 2023): 34–44, https://doi.org/10.1016/j.wmb.2023.06.004.

[73] Balde et al.

[74] Ibid.

items] and make it work again, or do something new and useful.[75] The Stata Center at MIT, composed of student scholars, conducted a study that focused on the mining, manufacturing, and disposal of electronic hardware.[76] Their research concluded that higher education needs to raise awareness regarding the issues around e-waste, especially around how this could affect health, labor rights, and greenhouse gas emissions, which would lead to the contamination of the environment.[77] A study on a different campus found that although 90% of VALPOLY Electronic Technology students preferred to "resell to junkshops as scraps," about 79% of students throw away their electronic devices.[78] Much of this stems from convenience or ease of discarding items for college students. They don't put too much thought into where the discarded items end up, which are typically landfills. Fonseca et al., describe the e-waste outreach project between San Paulo State University and the local recycle cooperative, Acacia.[79] This project included educating students on e-waste management, visiting the cooperative center, and then getting hands-on training with recycling of materials, such as having students manage a drive-thru for e-waste.[80]

Academic libraries are not neutral parties in the e-waste conundrum. They provide services and access to resources through technology such as accessing electronic books and databases, among other information and communication technologies (ICTs). Green libraries aim to reduce pollution and resource usage; however, the use of ICTs has downstream effects, such as higher energy consumption, e-waste, and ecological disruption.[81] Adekoyo et al. found that academic libraries are increasingly relying on ICTs with little to no guidance around sustainability

---

[75] Amy Fang, "Takedown Tuesday. One of My Favorite Places on Campus Is…," *Medium*, July 30, 2018, https://medium.com/@amyfang2/takedown-tuesday-5f3eb94df934; Paul B., '11, "Speaking in MITese," MIT Admissions, August 19, 2008, https://mitadmissions.org/blogs/entry/speaking_mitese/.

[76] Lelia Hampton et al., "From Mining to E-Waste: The Environmental and Climate Justice Implications of the Electronics Hardware Life Cycle," MIT Case Studies in Social and Ethical Responsibilities of Computing, September 11, 2024, https://doi.org/10.21428/2c646de5.2cbc88c6.

[77] Ibid.

[78] C. Goyal and John Kenneth, "Awareness of the Electronics Technology Students in Managing Their E-Waste: An Input for Developing an E-Waste Management Policy," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, August 23, 2023), https://papers.ssrn.com/abstract=4801573.

[79] Janaina C. L. Fonseca et al., "University and Local Recyclable Material Cooperative – Building Bridges around e-Waste," *Chemistry Teacher International* 6, no. 2 (June 1, 2024): 135–41, https://doi.org/10.1515/cti-2023-0048.

[80] Ibid.

[81] Muhammad Sharjil Tariq and Ayesha Khalid, "Placing Green IT Awareness and Practices among Universities' Librarians: A NAT Perspective," *The Journal of Academic Librarianship* 49, no. 5 (2023): 102770, https://doi.org/10.1016/j.acalib.2023.102770.

practices.[82] Green computing (GC) practices can be something libraries implement to help optimize resource utilization and encourage electronic waste recycling.[83] Although funding and sustainable practices around e-waste management in libraries remain relatively low, libraries can still play a crucial role in promoting e-waste awareness among students.

Implications

- Libraries should provide opportunities for increased information literacy on sustainability, climate literacy, and e-waste
- Further professional development and training for library staff members on sustainability initiatives on campus is recommended
- Academic libraries should conduct holistic assessments of their sustainability practices, including their contributions to e-waste, and dedicate investments in sustainability efforts over time.

Cybersecurity and Data Breaches

Threats to cybersecurity are not new in higher education, but the rate of cyberattacks of various types continues to increase at colleges and universities. Higher education is regularly placed within the top industries targeted for cyberattacks, and Verizon recently reported that Education was the industry most frequently targeted for attacks and data breaches in 2024.[84] "66% of higher education organizations were hit by ransomware in the last year," which is higher than the global average of 59%.[85] Education was the most impacted sector from the 2023 MOVEit incident (which exploited a core file management software vulnerability), and accounted for "more than 50% of the breached organizations.[86] Further indicating the importance of cybersecurity to higher education, a 2022 study commissioned by the Scholarly Networks Security Initiative (SNSI) found that a majority of Chief Information Security Officers (CISOs)

---

[82] Clement Ola Adekoya, Joseph Kehinde Fasae, and Adesola Victoria Alade, "Academic Libraries, ICT Use and Sustainable Higher Education Development," *Information Discovery and Delivery* 52, no. 1 (August 30, 2023): 1–10, http://dx.doi.org/10.1108/IDD-01-2022-0002.

[83] Ibid.

[84] "Verizon 2024 Data Breach Investigations Report," Verizon Business, April 24, 2024, 57. https://www.verizon.com/business/resources/reports/2024-dbir-data-breach-investigations-report.pdf.

[85] Puja Mahendru, "The State of Ransomware in Education 2024," *Sophos News*, July 11, 2024, https://news.sophos.com/en-us/2024/07/11/the-state-of-ransomware-in-education-2024/.

[86] Verizon Business, 34.

and their teams interviewed rated the seriousness of cybersecurity "as between 7.5 and 10 on a scale of one to ten."[87]

Cyberattacks and data breaches result in disruption of internet services; such as the University of Michigan being forced to halt internet services in the first week of classes; theft of personal data, such as the compromise of three decades of data at the University of Minnesota; and payments for encryption keys to decrypt data held hostage by ransomware.[88] In 2024, "higher education organizations reported a mean cost of $4.02 million" per ransomware attack, almost four times higher than the $1.06M reported in 2023."[89] There are also significant costs to measure with regard to system downtime and staff time spent on recovery: "Between 2018 and September 2023, ransomware attacks on schools have already cost over $53 billion globally in downtime alone."[90] The December 2023 cyberattack on the British Library severely restricted services for two months and included extensive, ongoing work to restore encrypted data from back-ups and "re-build of our infrastructure" following hacker "destruction of some servers to inhibit system recovery and to cover their tracks."[91] In addition to rebuilding infrastructure, higher education institutions are also spending time to deploy new solutions to filter breach attempts and other fraudulent contacts, such as Prince George's Community College in Maryland, which is using AI technology to filter out fake applications ("about one in eight applications that the college receives") to avoid a drain on college resources and avoid displacing real students trying to register for classes.[92]

Why Higher Ed?

Recent literature points to several factors that make higher education a prime target for cybertheft, malware and ransomware attacks, and denial-of-service attacks. First, colleges and universities "contain concentrated stores of sensitive data, intellectual property, cutting-edge

---

[87] Susie Winter, "Guest Post - What Is Keeping University Chief Information Security Officers Up at Night," *The Scholarly Kitchen*, April 21, 2023, https://scholarlykitchen.sspnet.org/2023/04/21/guest-post-what-is-keeping-university-chief-information-security-officers-up-at-night/.

[88] Lauren Coffey. "Yes, University Cybersecurity Is Still a Concern." *Inside Higher Ed*. July 1, 2024. https://www.insidehighered.com/news/tech-innovation/2024/07/01/university-cybersecurity-threats-remain-concern.

[89] Mahendru.

[90] Juta Gurinaviciute, "Council Post: What Cybersecurity Threats Does The Education Sector Face?," *Forbes*, March 11, 2024, https://www.forbes.com/councils/forbestechcouncil/2024/03/11/what-cybersecurity-threats-does-the- education-sector-face/.

[91] British Library, "Learning Lessons From the Cyber-Attack: British Library Cyber Incident Review," March 8, 2024, https://www.bl.uk/home/british-library-cyber-incident-review-8-march-2024.pdf/.

[92] Taylor Swaak, "As Fake Applications Soar, Colleges Turn to AI," *The Chronicle of Higher Education*, October 1, 2024, https://www.chronicle.com/article/colleges-see-alarming-rates-of-fake-applications-so-theyre-turning-to-ai.

research and innovation, and personal data on thousands of staff and students."[93] Based on a 2021 systematic review, doctoral level institutions deal with a disproportionately higher level of cybersecurity attacks and data breaches.[94] This might be due to the broader array of personally identifiable information (PII) and research data that would be appealing to hackers and others responsible for data breaches. The literature reiterates a broad consensus that the cyberthreats and data breaches are primarily financially motivated, with espionage being the motive behind attacks in only 7% of recorded incidents reviewed in 2024.[95]

A second key reason for the frequency of cyberattacks on higher education is the broad attack surface and number of potential vulnerabilities present in college and university systems. The attack surface is composed of the many students, faculty, and staff at the institution, as well as the many university networks, research facilities, software and online learning platforms, and user devices that connect to university systems.[96] In addition to long-term faculty and staff, higher education "is characterized by the yearly enrollment of new students and temporary staff and visiting researchers."[97] These frequent changes add complexity to managing and updating credentials and access. Further, "more than 99% of attacks exploit human characteristics and behaviours (people vulnerabilities) rather than computer system vulnerabilities," which makes people often "the weakest link in the security chain."[98] This includes social engineering and phishing efforts as well as unintentional and accidental disclosures of data.

Beyond the number of systems and networks that connect to college and university digital infrastructure, decentralized control of these systems is extremely common in higher education. Several authors reference an underlying conflict between information security protocols and a desire for information sharing, openness, and expectations of faculty autonomy resident in higher education.[99] The broad ability of faculty, staff, offices, and labs to connect software, devices, and web applications to university systems makes conducting a comprehensive audit of potential vulnerabilities–a commonly recommended starting point for assessing cybersecurity–nearly impossible at higher education institutions: "[Faculty] are used to the autonomy needed to install

---

[93] Gurinaviciute, 2024.

[94] Joachim Bjørge Ulven and Gaute Wangen, "A Systematic Review of Cybersecurity Risks in Higher Education," *Future Internet* 13, no. 2 (February 2021): 17, https://doi.org/10.3390/fi13020039.

[95] Ibid, 22; Verizon Business, 15.

[96] Gurinaviciute; Brandon Paykamian, "How Are Higher Ed Cyber Attacks Evolving?," *GovTech*, July 11, 2023, https://www.govtech.com/education/higher-ed/how-are-higher-ed-cyber-attacks-evolving; Piper Hutchinson, "LSU Goes on Defense to Protect Louisiana Colleges from Cyberattacks," New Orleans CityBusiness, October 20, 2023, https://www.proquest.com/docview/2881553310/citation/6758B514548D432BPQ/1; Ulven and Wangen, 4 & 39.

[97] Ulven and Wangen, 1.

[98] Ana Galvão, et al., "Behavioural Psychology Towards Artificial Intelligence in Cybersecurity," in *Exploring Cyber Criminals and Data Privacy Measures*, 2023, 19–39, https://doi.org/10.4018/978-1-6684-8422-7.ch002.

[99] Coffey; Ulven and Wangen, 4.

applications, but I don't necessarily know who has got it or how to control it."[100] As noted in the Verizon Business report: "Anything that adds to your attack surface on the internet can be targeted and potentially be the first foothold for an external threat actor, and as such, the focus should be to try to keep footholds to a minimum."[101] However, managing and limiting connected software and applications is challenging in the open ethos of higher education, and conducting in-depth reviews of third-party applications, software, and AI platforms is complex and time consuming, often leading to frustration for many students, staff, and faculty.

Threats to Libraries

There are specific cybersecurity challenges for academic libraries to consider. In addition to library patron and staff PII, many libraries, due to their expanded roles relating to the research lifecycle, "may have valuable research data and other information that could be targeted for a cyberattack."[102] Ransomware may have a devastating impact on born-digital materials produced by universities or donated to their archives: "In instances where the digital copy serves as the sole remaining version of a lost physical object, any loss or alteration of this copy results in its irreversible destruction or alteration of heritage."[103]

Library connections to university systems make them a prime target, where "compromised library systems could be used to gain access to other systems (especially other systems within that organization the library is a part of (e.g., the financial system of a university))."[104] The "intricate network of interdependencies" between academic libraries, their home institutions, and peer institutions, where "metadata and authentication systems" may be shared, create opportunities for attackers to exploit these connections and infiltrate multiple networks or data repositories simultaneously."[105] Frustratingly, some groups can and do leverage user trust in libraries for effective phishing attacks, such as the Silent Librarian group, which has targeted more than 300 universities to compromise the credentials of university faculty and staff by

---

[100] Coffey.

[101] Verizon Business, 12.

[102] Edward M. Corrado, 2024. "Cybersecurity and Libraries." *Technical Services Quarterly* 41 (1): 85. https://doi.org/10.1080/07317131.2023.2300530.

[103] Emanuele Bellini and Anna Maria Tammaro, "Cybersecurity for Digital Libraries: An Interview with Emanuele Bellini," *Digital Library Perspectives* 40, no. 2 (January 1, 2024): 349, https://doi.org/10.1108/DLP-05-2024-147.

[104] Corrado 2024, 83-84.

[105] Bellini and Tammaro, 349.

creating detailed phishing sites that "are almost exact replicas" of the library webpages they're impersonating."[106]

Academic libraries have particular responsibility for ensuring their unique and legacy systems are regularly patched and updated, to avoid leaving networks vulnerable to "unauthorized access, data manipulation and other malicious activities."[107] Additionally, academic libraries must conduct "robust supplier management" and pay particular attention to security practices used by third-party vendors to ensure strong data protection.[108] This includes vendors of licensed content and other library vendors where there are network connections, because "in a cloud-based system the library needs to rely on the vendor to protect patron privacy instead of relying on themselves."[109]

Implications

- Overall, academic libraries and their home institutions "must adopt and implement [Digital information security management (DISM)] policies for user benefit and patron trust."[110] SNSI has recommendations specific to libraries to prepare for and mitigate cybersecurity threats.[111] Partnering with other "nodes" within the university network on cybersecurity efforts is key in order to share resources, tools, and best practices and to "conduct joint cyber exercises."[112]
- "University cybersecurity budgets increased more than 70 percent in the last five years," which puts added strain on already tight university budgets.[113] The risk of a "lack of

---

[106] Rick Anderson, "Watch Out for the Silent Librarian: An Interview with Crane Hassold," *The Scholarly Kitche*n, January 27, 2021, https://scholarlykitchen.sspnet.org/2021/01/27/watch-out-for-the-silent-librarian-an-interview-with-crane-hassold/.

[107] Bellini and Tammaro, 349.

[108] Bhola Randy Siew, "Strengthening Big Data Security and Privacy in Libraries: A Review of ISO Standards and Real-World Cyberattack Case Studies," *Journal of Information Studies & Technology (JIS&T)* 2024, no. 2 (September 30, 2024): 8, https://doi.org/10.5339/jist.2024.11.

[109] Edward M. Corrado, "Proprietary and Open Source Software Systems in Libraries: A Few Considerations," *Technical Services Quarterly* 40, no. 3 (July 3, 2023): 207, https://doi.org/10.1080/07317131.2023.2226434.

[110] Ghulam Farid, Nosheen Fatima Warraich, and Sadaf Iftikhar, "Digital Information Security Management Policy in Academic Libraries: A Systematic Review (2010–2022)," *Journal of Information Science*, April 5, 2023, 12, https://doi.org/10.1177/01655515231160026.

[111] "Cybersecurity Resources for Librarians & Publishers," Scholarly Networks Security Initiative, accessed December 13, 2024, https://www.snsi.info/librarian-resources/.

[112] Bellini and Tammaro, 353-54.

[113] Coffey.

investment in central IT and cybersecurity will lead to fragmented networks with weak segmentation and security control, and not investing in security training will lead to negligent staff with a higher probability of data leaks."[114] (28)

- Perhaps unexpectedly, digital fluency may need to include knowing and teaching about cybersecurity issues, "a topic that many librarians are well equipped to teach."[115] One might argue that cyberthreats are a potent aspect of the "Information has value" frame, libraries are primed to offer "teaching moments with students, faculty and staff that expand upon and extend normal password protection and phishing avoidance instruction taught by IT personnel to include responsibility for library resources."[116]
- Given that "the median time for users to fall for phishing emails is less than 60 seconds," it is essential for campuses to expand training for students, staff, and faculty in cybersecurity practices.[117]

Employment Challenges and Insecurity

Employment issues and employment insecurity in higher education have reached a boiling point in recent years. The unionization efforts of graduate student workers have received significant media coverage,[118] but other employment-related issues have also arisen. The key employment issues currently affecting higher education are the erosion of faculty tenure, an increase in precarious labor, and ongoing unionization efforts and strike activities.

Faculty/Tenure Status

There is a perception that tenure grants absolute job security, which has been further entrenched for some as professors who become embroiled in controversy are rarely dismissed by their employers, and those who leave their institutions do so of their own volition.[119] However, the

---

[114] Ulven and Wangen, 28.

[115] Corrado 2024, 88.

[116] Scholarly Networks Security Initiative.

[117] Verizon Business, 9.

[118] Mary Ellen Flannery, "The Union Boom in Higher Education!" *National Education Association Today*, September 18, 2024, https://www.nea.org/nea-today/all-news-articles/union-boom-higher-education#:~:text=Grad%2Dstudent%20employee%20unionization%20is,any%20undergraduate%2Dstudent%20employee%20unions.

[119] Ray Gibney, "Why Does Claudine Gay Still Work at Harvard after Being Forced to Resign as Its President? She's Got Tenure," *The Conversation*, January 5, 2024, http://theconversation.com/why-does-claudine -gay-still-work-at-harvard-after-being-forced-to-resign-as-its-president-shes-got-tenure-220532.

reality for faculty today is that not only is tenure status becoming increasingly difficult to achieve, but tenure is not the golden ticket to lifelong job security that it once was, as recent years have seen the firing or dismissal of tenured faculty.[120]

Politically, there have been attacks on tenure by legislators as recent years have seen bills targeting tenure introduced in multiple state legislatures. The Texas Senate passed a bill that would have eliminated tenure for faculty, although it later failed in the House.[121] A similar bill was passed by the Ohio Senate in December 2023 but has since stalled, which would mandate tenure reviews, block unions from negotiating on tenure, and allow universities to fire tenured professors.[122] However, Florida's bill mandating post-tenure reviews every five years was signed into law,[123] and Iowa, North Dakota, and Louisiana' state legislatures have all introduced new bills to abolish tenure at state universities.[124][125] Not all attacks on tenure are direct—Indiana's governor signed Senate Bill 202 into law, which requires universities to enact policies that would deny faculty tenure or promotions if they fail to encourage "free expression" or "intellectual diversity."[126] Although many of these bills failed, we are still beginning to see the consequences of these attacks on tenure. At the University of Florida, 39 out of 226 evaluated professors failed to meet expectations—5 of whom were terminated.[127]

In addition to the outright attacks on tenure through legislation, tenure is also threatened by years of funding shortfalls. In August 2024, Western Illinois University announced that 40 tenured and

---

[120] Ryan Quinn. "Nevada Professor Who Defended Math Standards Fights Suit Dismissal," *Inside Higher Ed.*, December 9, 2024, https://www.insidehighered.com/news/quick-takes/2024/11/05/nev-prof-who- defended-math-standards-fights-suit-dismissal.

[121] Kate McGee, "An Effort to Ban Faculty Tenure in Public Universities Has Failed in the Texas Legislature," *Texas Tribune*, May 27, 2023, https://www.texastribune.org/2023/05/27/texas-university-faculty -tenure-ban-fails/.

[122] Megan Henry, "Ohio Gov. Mike DeWine Says He Would Sign a Higher Education Overhaul If Further Revisions Are Made," *Ohio Capital Journal,* June 12, 2024, https://ohiocapitaljournal.com/2024/06/12/ ohio-gov-mike-dewine-says-he-would-sign-a-higher-education-overhaul-if-further-revisions-are-made/.

[123] Andrew Atterbury, "DeSantis Pushed for Post-Tenure Review of Florida Professors. The First Results Are In," *Politico*, September 12, 2024, https://www.politico.com/news/2024/09/12/desantis-tenure-review-law-florida -professors-00178947.

[124] Monica Potts, "Why Republicans Are Targeting Professors' Job Security," *FiveThirtyEight*, May 11, 2023, https://fivethirtyeight.com/features/college-tenure-republican-attacks-education/.

[125] Lois K. Cox and Katherine H. Tachau, "The Erosion of Support for Education and Tenure in Iowa," AAUP [American Association of University Professors], Winter 2023, https://www.aaup.org/article/erosion-support -education-and-tenure-iowa.

[126] Brittany Carloni, "Gov. Holcomb Signs Controversial Higher Education Bill into Law," *Indianapolis Star*, February 29, 2024, https://www.indystar.com/story/news/politics/2024/02/29/indiana-senate-bill-202- universities-purdue-deery-tenure-expression-holcomb/72780178007/.

[127] Megan Zahneis, "Why U. of Florida Professors Decry 'Chaotic' Post-Tenure Review That Failed Nearly a Fifth of Those Evaluated," *Chronicle of Higher Education*, August 19, 2024, https://www.chronicle.com/ article/why-u-of-florida-professors-decry-chaotic-post-tenure-review-that-failed-nearly-a-fifth-of-those-evaluated.

tenure-track faculty would be laid off to offset budget deficits.[128] These attacks against faculty tenure not only threaten the academic freedom of professors, but also make teaching and research activities more difficult—all librarians at Western Illinois University were laid-off while academic librarians in at Florida institutions have begun removing their names from committees and projects and changing metadata to remove terms such as "decolonization" or diversity."[129] [130] While some legislators who support restrictions on tenure argue it will increase efficiency, professors say attacking tenure is an attack on academic freedom, which has led to more than 90% of faculty self-censoring.[131]

Precarious Labor

On the other side of the tenure process, the number of tenure-stream positions continues to decrease while universities increasingly rely on contract academic staff to carry out the core functions of the university. The increasing reliance on precarious contract work, from post-doctoral fellows for research and sessional lecturers for teaching, is a global phenomenon that has been a key issue for many years, yet working conditions continue to worsen. This has led to what some are calling "hope labour," which is a "form of uncompensated or undercompensated labour carried out in the hopes that the exposure, experience, or goodwill generated by this labour will lead to future employment opportunities."[132] Unfortunately, this hope is quickly dashed when one looks at the numbers. One third of academic staff in Canada work contract to contract, while 37% of faculty appointments in the United States were tenure-stream in 2019.[133] [134]

---

[128] Rich Egger, "A Breakdown of the WIU Layoffs by Department," Tri States Public Radio, August 23, 2024, https://www.tspr.org/tspr-local-news/2024-08-23/a-breakdown-of-the-wiu-layoffs-by-department.

[129] Kathryn Palmer, "Library Faculty Eliminated Amid 'Fiscal Insanity' at Western Illinois," *Inside Higher Ed*, August 20, 2024, https://www.insidehighered.com/news/business/cost-cutting/2024/08/20/library-faculty-eliminated-western-illinois-university.

[130] Claire Woodcock, "College Librarians in Florida Are Hoping for the Best, but Preparing for the Worst," *Slate*, June 25, 2023, https://slate.com/human-interest/2023/06/libraries-florida-dei-crt-college.html.

[131] Ryan Quinn, "Many Faculty Say Academic Freedom Is Deteriorating. They're Self-Censoring," *Inside Higher Ed*, November 13, 2024, https://www.insidehighered.com/news/faculty-issues/academic-freedom/2024/11/13/many-faculty-say-academic-freedom-deteriorating.

[132] Jamie Paris, "The Exploitation Trap of Hope Labour," *University Affairs*, October 24, 2024, https://universityaffairs.ca/opinion/the-exploitation-trap-of-hope-labour/.

[133] "Precarious Labour in Our Academic Institutions," Canadian Association of University Teachers, accessed December 13, 2024. https://ourfuture.caut.ca/brief_precarity.

[134] Colleen Flaherty, "Tracking the Evolution (and Erosion) of Tenure," *Inside Higher Ed*, May 17, 2022, https://www.insidehighered.com/news/2022/05/18/tracking-evolution-and-erosion-tenure.

Contract academic staff are often subject to inferior working conditions and receive significantly less compensation in salary and benefits compared to their tenured counterparts. Contract positions may have limits to renewals—non-tenure-track faculty at Harvard have spoken up against the practice of forcing out non-tenure-track instructors after eight years.[135] Furthermore, this has implications for academic freedom as many adjunct professors report not having their contracts renewed in retaliation for voicing their political opinions.[136] The temporary and insecure working conditions in academia disproportionately affect early career researchers and women as the precarity of academic labor does not support a stable lifestyle.[137]

In addition to the reduction of academic staff to glorified gig work and the restrictions on contract renewals, contract academic staff are often significantly underpaid compared to their tenure-stream counterparts.[138] [139] Given the inequity of the situation—wherein those filling precarious positions are compensated the least—it is not a surprise that unionization and strike activities at universities have increased in recent years.

Unions and Strikes

The unionization of graduate student workers—who often fill roles such as laboratory monitors, teaching and research assistants, and tutors—in recent years has received significant media attention. By January 2024, the number of unionized graduate student workers had increased by 133% since 2012.[140] The six week long strike by graduate student workers at the University of California received significant media coverage[141] but the past two years have seen multiple labor

[135] Ryan Quinn, "Non-Tenure-Track Faculty Must Leave Harvard After 8 Years. They're Calling for That to End," *Inside Higher Ed*, October 28, 2024, https://www.insidehighered.com/news/faculty-issues/tenure/2024/ 10/28/non-tenure-track-faculty-demand-harvard-stop-forcing-them-out.

[136] Paul Basken, "US Campus Protests Expose Special Risk for Adjuncts," *Times Higher Education (THE)*, June 5, 2024, https://www.timeshighereducation.com/news/us-campus-protests-expose-special-risk-adjuncts.

[137] "OECD Study: Precarity of Academic Research Careers," Education International, June 28, 2021, https://www.ei-ie.org/en/item/25122:oecd-study-precarity-of-academic-research-careers.

[138] Debbie Truong, "A PhD and Full Class Load Gets a CSU Lecturer $64,860 a Year. They Are Striking for Change," *Los Angeles Times*, December 22, 2023, https://www.latimes.com/california/story/2023-12-22/a-ph-d-heavy-class-load-gets-a-csu-lecturer-54-360-a-year-they-are-striking-for-change.

[139] Laura Spitalniak, "Adjunct Faculty Face Low Pay, Minimal Administrative Support, AFT Finds," *Higher Ed Dive*, November 6, 2023. https://www.highereddive.com/news/adjunct-faculty-face-low-pay-minimal- support-aft-finds/698945/.

[140] Mary Ellen Flannery, "The Union Boom in Higher Education!" *NEA,* September 18, 2024, https://www.nea.org/nea-today/all-news-articles/union-boom-higher-education.

[141] Julie Watson and Stephanie Dazio, "University of California, Workers Reach Deal to End Strike," *AP News*, December 17, 2022, https://apnews.com/article/business-education-california-strikes-16a970385bf508a119ac4e0722b00422.

disruptions and unionization among graduate student workers. Graduate students at Duke University and Emory University unionized,[142] [143] students at Oregon State University and Boston University went on strike,[144] [145] while a strike was narrowly averted at the University of Southern California.[146] Graduate student workers at multiple Canadian institutions also saw significant labour agitations, as students at the University of Ottawa voted to go on strike[147] and students at the University of Victoria, University of Waterloo, Saint Mary's University, and the University of British Columbia all voted in favour of unionizing.[148] [149] [150] [151]

Unionization and strike action at postsecondary institutions across multiple employee categories has been increasing nationwide in both Canada and the United States as collective bargaining with faculty has also broken down at multiple institutions.[152] Professors and academic workers in

[142] Ryan Quinn, "Grad Worker Unionization Is Booming, Even Down South," *Inside Higher Ed*, September 6, 2023, https://www.insidehighered.com/news/faculty-issues/labor-unionization/2023/09/06/grad-worker- unionization-booming-even-down-south.

[143] "Emory PhD Students Vote in Favor of Union Representation," Emory University | Atlanta GA, November 28, 2023, https://news.emory.edu/stories/2023/11/er_phd_union_ representation_28-11-2023/story.html.

[144] Ryan Quinn, "Oregon State University Graduate Student Workers Strike," *Inside Higher Ed*, November 15, 2024, https://www.insidehighered.com/news/quick-takes/2024/11/15/oregon-state-university-graduate-student-workers-strike.

[145] Diti Kohli, "BU and Its Graduate Students Reach Deal That Could End Seven-Month Strike," *The Boston Globe*, October 11, 2024. https://www.bostonglobe.com/2024/10/11/business/bu-grad-worker-strike-contract/.

[146] Teresa Watanabe, "USC and Graduate Students Union Reach Tentative Pact with Big Pay Boosts, Bias Protections," *Los Angeles Times*, November 27, 2023, https://www.latimes.com/california/story/2023-11-27/ usc-and-graduate-students-reach-tentative-pact-with-big-pay-boosts-and-bias-protections.

[147] "Academic Workers at University of Ottawa Vote Resoundingly in Favour of Strike." Canadian Union of Public Employees, March 6, 2024, https://cupe.ca/academic-workers-university-ottawa-vote-resoundingly -favour-strike.

[148] "University of Victoria Graduate Research Assistants Launch Campaign to Unionize with CUPE," Canadian Union of Public Employees, January 23, 2024, https://cupe.ca/university-victoria-graduate-research- assistants-launch-campaign-unionize-cupe.

[149] "University of Waterloo Academic Workers Join CUPE," Canadian Union of Public Employees, January 12, 2024, https://cupe.ca/university-waterloo-academic-workers-join-cupe.

[150] "Teaching Assistants at Saint Mary's University Vote 100% to Unionize with CUPE 3912," Canadian Union of Public Employees, August 28, 2023, https://cupe.ca/teaching-assistants-saint-marys-university-vote-100- unionize-cupe-3912.

[151] "Graduate Academic Assistants Latest UBC Workers to Join CUPE," Canadian Union of Public Employees, July 25, 2023, https://cupe.ca/graduate-academic-assistants-latest-ubc-workers-join-cupe.

[152] Michael T. Nietzel, "College Faculty & Grad Student Unionization On The Rise, Finds Report," *Forbes*, September 1, 2024, https://www.forbes.com/sites/michaeltnietzel/2024/09/01/college-faculty--grad-student-unionization-on-the-rise-finds-report/.

the California State University system,[153] faculty and staff at Rutgers University,[154] part-time adjunct faculty at Columbia College Chicago and the University of Toronto,[155] [156] as well as faculty and librarians at York University[157] have recently gone on strike during the collective agreement renegotiations, while law professors at McGill University[158] went on strike during negotiations for their first collective agreement.

In addition to the significant employment challenges faced by academic staff and graduate student workers, universities also require thousands of support staff to maintain the daily activities of the university. Service and hospital workers at the University of California have gone on strike,[159] as have custodial and maintenance workers at Toronto Metropolitan University and the caretaking, landscaping, and trades workers at Western University.[160] [161] All employee categories within post-secondary institutions have seen increased tension with university administrators, including library staff at the University of Pennsylvania and at Smith College,[162]

---

[153] Soumya Karlamangla, "Cal State Professors Reach Tentative Deal to End Strike," *New York Times*, January 23, 2024, https://www.nytimes.com/2024/01/23/us/california-state-faculty-strike-deal.html.

[154] Elizabeth Wolfe, Artemis Moshtaghian, Kristina Sgueglia, and Liam Reilly, "Contract Negotiations between Rutgers University and 3 Unions Representing Thousands of Faculty and Staff Continue amid Historic Strike," *CNN*, April 10, 2023, https://www.cnn.com/2023/04/10/us/rutgers-university-unions-strike-monday/index.html.

[155] Jeff Schuhrke, "After 49 Days, the Longest Adjunct Strike in U.S. History Comes to a Close," *In These Times*, December 21, 2023, https://inthesetimes.com/article/columbia-college-adjunct-faculty-union-chicago-4 9-days-longest-adjunct-strike-in-us-history-ends.

[156] "Academic Staff at University of Toronto Vote in Support of Strike Action," Canadian Union of Public Employees, February 16, 2024, https://cupe.ca/academic-staff-university-toronto-vote-support-strike-action.

[157] Ethan Lang, "York University, Faculty Association Reach Tentative Deal," *CBC News*, August 20, 2024, https://www.cbc.ca/news/canada/toronto/york-u-faculty-deal-reached-1.7298381.

[158] Antoni Nerestant, "McGill Law Professors' Strike Suspended, Students Can Go Back to Class," *CBC News*, October 1, 2024. https://www.cbc.ca/news/canada/montreal/law-students-mcgill-threat-cancellation-1.7338579.

[159] Caroline Petrow-Cohen, "UC Service and Hospital Workers Launch Two-Day Strike over Contract Talk," *Los Angeles Times*, November 20, 2024, https://www.latimes.com/business/story/2024-11-20/uc-hospital -workers-strike.

[160] "Picket Lines Went up Monday Morning at Toronto Metropolitan University," Canadian Union of Public Employees, April 17, 2023, https://cupe.ca/picket-lines-went-monday-morning-toronto-metropolitan-university.

[161] "Tentative Agreement with Western University Workers," Canadian Union of Public Employees, October 10, 2024, https://cupe.ca/tentative-agreement-western-university-workers.

[162] Fiona Herzog, "Penn Libraries United Reaches Agreement with Penn, Sets Date for Unionization Election," *Daily Pennsylvanian*, July 17, 2024, https://www.thedp.com/article/2024/07/penn-libraries-negotiate- union-agreement-election.

[163] and administrative and support staff at Cape Breton University.[164] Given the extent of union and strike activities in the past two years, we can expect these activities to continue in the coming year.

Implications

- Political attacks on post-secondary funding, tenure, and academic freedoms are destabilizing working conditions for all university employees.
- There is significant dissatisfaction in working conditions across all categories of university employees, leaving people feeling that their labor is being exploited.
- Although unionization has been on an upward trajectory in universities for over a decade, the surge in unionization and strike activities suggests that the mismatch between the cost of living and salaries has reached a breaking point.

Enrollment / Demographic Cliff in Higher Education

The enrollment or demographic cliff in higher education refers to the idea of an upcoming reduction in the number of college-eligible students due to significant demographic and birth rate changes in the United States. This idea became more prominent after an updated 2023 US Census Bureau prediction[165] that the number of high school graduates would continue to decline after 2035. This is a change from a 2017 Census Bureau forecast anticipating a rebound in birth rates after the pandemic. An article in *The Chronicle of Higher Education* interprets the results of this report as, "instead of rebounding at some point in the mid-2030s, the number of 18-year-olds is now projected to contract after cresting at around 4.2 million people in 2033, shrinking to around 3.8 million by 2039."[166] A 2023 Trellis report[167] forecasts that an enrollment cliff would mean a favorable market for college students, with institutions competing to enroll and retain

---

[163] Dusty Christensen, "Library Staff Say Smith College Is Breaking Labor Law," *Shoestring*, July 2, 2024, https://theshoestring.org/2024/07/02/library-staff-say-smith-college-is-breaking-labor-law/.

[164] "Administrative and Support Staff at Cape Breton University Vote in Favour of a Strike," Canadian Union of Public Employees, August 28, 2023, https://cupe.ca/administrative-and-support-staff-cape-breton-university -vote-favour-strike.

[165] "2023 National Population Projections Dataset," U.S. Census Bureau, 2023, https://www.census.gov/ data/datasets/2023/demo/popproj/2023-popproj.html.

[166] Dan Bauman, "Colleges Were Already Bracing for an 'Enrollment Cliff.' Now There Might Be a Second One," *Chronicle of Higher Education* (blog), February 7, 2024. https://www.chronicle.com/article/colleges-were-already -bracing-for-an-enrollment-cliff-now-there-might-be-a-second-one.

[167] Anthony Schuette, "Navigating the Enrollment Cliff in Higher Education. Spotlight Report Brief," Trellis Company, 2023. https://files.eric.ed.gov/fulltext/ED628984.pdf.

students. For institutions that regularly admit only a portion of their prospective students, this will not likely cause significant changes, but "for less selective schools, and schools who struggle to retain students from year to year, the enrollment cliff poses the need for drastic adaptation." There have also been enrollment changes in K-12 schooling, with a pandemic-related decline in public school enrollments in favor of private and homeschool options.[168] It is still unclear whether these changes will persist and impact college enrollment, or if they will return to pre-pandemic patterns. This turn towards more diversity in K-12 enrollment choices may also be related to the "demand shift" and continuing changes to the the percentage of 18-24-year-old high school graduates choosing to attend college.[169]

Financial and Economic Impacts

These demographic and demand shifts have been coupled with instability in state-allocated funding for some institutions of higher education,[170] which contributes to financial uncertainty around changes to enrollment. The pandemic also had a significant impact on institutional funding, including declining enrollments, particularly at community colleges and smaller institutions.[171] Programs with significant hands-on components also suffered in the shift to remote instruction.[172] The end of COVID-19 relief funds also had a significant impact on institutions and particularly community colleges.[173] These changes to financial stability are associated with shifts in enrollment around the pandemic and may be exacerbated by the idea of ongoing fluctuations in higher education enrollment patterns.

---

[168] Andrew Bacher-Hicks, Tareena Musaddiq, Joshua Goodman, and Kevin Stange, "The Stickiness of Pandemic-Driven Disenrollment from Public Schools," *Economics of Education Review* 100 (June 1, 2024): 102527. https://doi.org/10.1016/j.econedurev.2024.102527.

[169] Rebecca Mathews, Bijan Warner, and Peter Stokes, "Managing the Demand Cliff," *Inside Higher Ed*, October 16, 2023, https://www.insidehighered.com/opinion/views/2023/10/16/managing-other-enrollment-cliff-opinion.

[170] Jennifer A. Delaney, "Higher Ed's Financial Roller Coaster," *Chronicle of Higher Education*, August 30, 2023, https://www.chronicle.com/article/higher-eds-financial-roller-coaster.

[171] Liam Knox, "Grasping for a Foothold on the Enrollment Cliff," *Inside Higher Ed*, May 12, 2023, https://www.insidehighered.com/news/business/revenue-strategies/2023/05/12/grasping-foothold-enrollment-cliff.

[172] Diane W. Schanzenbach and Sarah Turner, "Limited Supply and Lagging Enrollment: Production Technologies and Enrollment Changes at Community Colleges during the Pandemic," *Journal of Public Economics* 212 (2022): 104703, https://doi.org/10.1016/j.jpubeco.2022.104703.

[173] Sara Weissman, "Community Colleges 'Back to Reality' After Federal Relief," *Inside Higher Ed*, August 8, 2024, https://www.insidehighered.com/news/institutions/community-colleges/2024/08/08/community-colleges-face-end-pandemic-relief-funds.

Counter Narratives to Higher Education Cliffs

Not all organizations endorse the idea of an enrollment cliff. For instance, the National Center for Educational Statistics model includes data about "projections of college-age populations, disposable income, and unemployment rates" and projects an 8% increase in enrollment between 2020 and 2030.[174] The National Center for Educational Statistics also anticipates that the number of high school graduates will modestly increase through 2030 in most states.[175] A 2024 Brookings report draws attention to the fact that, while institutional closures have increased in recent years, the overall rate of closures is quite low.[176] Instead, the report emphasizes that enrollment pressures may have a bigger impact on the disciplinary variety of institutions, with schools eliminating lower enrollment courses of study. Another criticism of the enrollment cliff is that the idea may be overly focused on the enrollment changes of white, traditional-age college students[177] while enrollment among Hispanic and Multiracial students is increasing.[178]

Looking Forward

Whether or not these shifts are related to changing demographics, it is clear that higher education is moving through a period of uncertainty about the future with real financial and organizational impacts. The recent kerfuffle with erroneous data from the National Student Clearinghouse Research Center[179] demonstrated how alert organizations are to information on this topic. Some institutions are using this moment to dig into retention statistics and optimize the student

---

[174] William J. Hussar and Tabitha M. Bailey, *Projections of Education Statistics to 2028*, National Center for Education Statistics, NCES 2020024, May 2020, https://nces.ed.gov/pubs2020/2020024.pdf.

[175] V. Irwin, et al., *Projections of Education Statistics to 2030*, National Center for Education Statistics, NCES 2024034, February 2024 https://nces.ed.gov/pubs2024/2024034.pdf.

[176] Dick Startz, "Are Colleges Really Facing an Enrollment Cliff?" Brookings, October 17, 2024, https://www.brookings.edu/articles/are-colleges-really-facing-an-enrollment-cliff/.

[177] Katherine Mangan and Brian O'Leary, "Where Are the White Students?" *The Chronicle of Higher Education*, October 10, 2024, https://www.chronicle.com/article/where-are-the-white-students.

[178] Patrick Lane, Colleen Falkenstern, and Peace Bransberger, *Knocking at the College Door: Projections of High School Graduates*, Western Interstate Commission for Higher Education, December 2024, https://www.wiche.edu/wp-content/uploads/2024/12/2024-Knocking-at-the-College-Door-final.pdf.

[179] Liam Knox, "How Did Enrollment Researchers Get It So Wrong?" *Inside Higher Ed*, January 15, 2025, https://www.insidehighered.com/news/admissions/traditional-age/2025/01/15/erroneous-data-showed-first-year-decline-it-actually.

experience,[180] others are focusing on diversity and sustainability[181] or working to offer new types of programs.[182] Those working in higher education may be thinking of ways to stay relevant.[183] Adapting recruitment initiatives to focus on non-traditional and international students may help counteract future demographic changes.[184] It's clear that these enrollment and demand cliffs are complicated and uncertain, but financial and organizational changes in higher education related to the perceived or real demographic changes may impact academic libraries going forward.

Potential Implications for Academic Libraries

- Academic libraries may have an increased need to focus on outcomes and face more pressure to prove their value in an uncertain financial future.
- Libraries may need to adjust their collections and programming to meet the needs of new or refined courses of study at their institutions.
- Library programs may need to align with strategic enrollment or retention goals set by their institutions.

Research Enterprise, Research Assessment Reform, Research Information System, and Library Research Support

Changing of Research Culture in Higher Education

---

[180] Lauren Glenn Manfuso. "How Colleges Leverage Data to Retain Students as the Enrollment Cliff Looms." *EdTech Magazine*, May 21, 2024, https://edtechmagazine.com/higher/article/2024/05/how-colleges-leverage-data-retain-students-enrollment-cliff-looms.

[181] Kathy Johnson Bowles, "Understanding Higher Education's Enrollment Cliff, Trough and Recovery," *Inside Higher Ed*, February 7, 2023, https://www.insidehighered.com/blogs/just-explain-it-me/understanding-higher-education%E2%80%99s-enrollment-cliff-trough-and-recovery.

[182] Jessica Grose, "How to Fix the Crisis of Trust in Higher Education." *New York Times*, March 6, 2024, https://www.nytimes.com/2024/03/06/opinion/college-enrollment.html.

[183] Aaron Basko. "Will the 'Enrollment Cliff' Help or Hurt Your Career?" *Chronicle of Higher Education*, February, 2024, https://www.chronicle.com/article/will-the-enrollment-cliff-help-or-hurt-your-career.

[184] Anna Esaki-Smith, "Combating the Enrollment Cliff." *NAFSA: Association of International Educators*, September 11, 2024, https://www.nafsa.org/ie-magazine/2024/9/11/combating-enrollment-cliff.

According to the most recent National Center for Science and Engineering Statistics, the higher education sector only performed a small proportion of US total research and development (R&D). From 2000 to 2021, this number has been between 11% to 14%, and the average growth of higher education R&D performance has been lower than the national average. On the contrary, the business sector is the largest US R&D performer, and its share of the national total R&D has been between 69% and 77% for the same period.[185] However, research intensification among higher education institutions is trending in recent years, and the R&D spending by academic institutions increased 11.2% in 2023, which is the largest growth rate since 2003.[186]

As academic institutions are growing their research enterprise, leadership and organizational structures that support higher education research are changing and adjusting to help researchers meet new demands of various types of grant development and building business partnerships.[187] Vice president-level positions focusing on research and expanded offices of research and innovation are increasingly common in research universities. A new type of "research literacy" is now needed among research support leaders and staff so they can be familiar with and feel easy to speak about research topics and processes with researchers, funders, and external partners.[188]

Expectations for researchers are changing as well. In addition to the pure intellectual merits of one's research design and implementation, researchers find an increased emphasis and pressure on increasing funding revenues and output of investment in terms of publications, patents, and commercial partners. An outward facing academic research culture is influencing researchers to be innovative, collaborative, communicative, entrepreneurial, and to show impact.[189]

Some of the literature raises concerns about this output and external driven research enterprise culture. One of the dangers in this trend and mindset is that it overlooks the "uneven distribution of resources and power." [190] Adopting a short term "CARE" campus environment (Connection,

---

[185] Gary Anderson and National Center for Science and Engineering Statistics (NCSES), *U.S. R&D Increased by $72 Billion in 2021 to $789 Billion; Estimate for 2022 Indicates Further Increase to $886 Billion*, National Science Foundation, NSF 24-317, January 26, 2024, https://ncses.nsf.gov/pubs/nsf24317.

[186] Michael T. Gibbons and National Center for Science and Engineering Statistics (NCSES), *Higher Education R&D Expenditures Increased 11.2%, Exceeded $108 Billion in FY 2023*, National Science Foundation, NSF 25-313, November 25, 2024, https://ncses.nsf.gov/pubs/nsf25313.

[187] Caroline C. Whitacre, "Chapter 7. Research and Service: Research as an Enterprise," in *A Handbook of Higher Education Leadership*, ed. Ed Ray, Oregon State University, 2024, https://open.oregonstate.education/handbook highereducationleadership.

[188] Caroline C. Whitacre, 142.

[189] Irem Y. Tumer, Julie M. Risien, and Roberta L. Marinelli, "Chapter 7. Research and Service: Connecting the University to Societies and Economies through Transdisciplinary Approaches," in *A Handbook of Higher Education Leadership*, ed. Ed Ray, Oregon State University, 2024, https://open.oregonstate.education/handbookhigher educationleadership/.

[190] Mark Barnes, Melissa Bator, Shamayeta Bhattacharya, et al., "Centering Care in the Academic Research Enterprise: Reflections and a Call to Action from the Inaugural Convening of Care," *AAG Newsletter*, November 2024, 23, https://doi.org/10.14433/2017.0169.

Accessibility, Recognition, and Embedding existing resources) and long term structural changes in faculty research evaluation and support systems could improve access and outcomes for early career, marginalized and less represented researchers.

Research Integrity and Accountability, Research Assessment and Evaluation

Parallel to the growth of research enterprise within higher education is the ongoing debate regarding structural change of research evaluation criteria and operation, coming from both external accountability pressures of funders and public and internal awareness of the bias caused by the narrow, old standards. Some researchers have developed frameworks and explored ways to reform the traditional focus on quantitative citations and journal impact factors. Responsible research assessment (RRA), which aims to reform research evaluation to be more diverse, inclusive, open, and impactful, is now an international movement recognized and advocated by important stakeholders and initiatives such as funders, publishers, research institutions, researchers, international organizations: Global Research Council, Declaration on Research Assessment (DORA), etc.[191]

A 2024 new report titled *Dimensions of Responsible Research Assessment* by Global Research Council's RRA working group summarized the long-standing issues of research assessment as "misapplication of narrow criteria and indicators of research quality and impact," "reduction of diversity of research missions and purposes," and "systemic biases against those who do not conform to particular career pathways or who do not meet or choose not to prioritize the narrow criteria and indicators of quality and impact."[192] The report urges research funders to adopt integrated, multidimensional, and macro-level principles, strategies, and methodologies for a future healthy RRA culture. Their principles center on responsibility and include:

- commitment to promotion of research integrity
- conduct of research
- approaches to incentivizing open research
- commitment to equality, diversity, and inclusion in research
- responses to the effects of global challenges and emergencies on research.

Their strategies also center on responsibility and include:

- administration and monitoring of research assessment processes

---

[191] Stephen Curry, Sarah de Rijcke, Anna Hatch, et al., "The Changing Role of Funders in Responsible Research Assessment: Progress, Obstacles and the Way Ahead," Research on Research Institute, 2020, https://doi.org/10.6084/m9.figshare.13227914.v2.

[192] Abdelmajid Benamara, Ahmed Fahal, Alicia Kowaltowski, et al., *Dimensions of Responsible Research Assessment*, figshare, 2024, https://doi.org/10.6084/m9.figshare.26064223.v3.

- approaches to research assessment reform
- use of influence on institutional policies and practices.

Lastly, their methodologies include:

- responsible use and dissemination of research assessment criteria
- responsible assessment of research contributions and achievements
- responsible approaches to impact assessment
- responsible approaches to reviewers and panel recruitment and training.

Publishers are also closely monitoring and reacting to cultural changes of research evaluation. For example, Elsevier organized listening tours through roundtable discussions with both academic leaders and funders and started the process of designing a more practical and micro level "Academic Evaluation" framework, composed of five pillars to be further developed into meaningful qualitative and quantitative indicators and approaches.[193] These five pillars are:

- Resources: human capital, funding, equipment, facilities, and capabilities
- Education: study, teaching quality, learning environment, student outcomes, learning gains, and reputation
- Knowledge Creation Process: I & D, verification and reproducibility, open science, sustainability, research practices, multi-interdisciplinarity, and knowledge exchange
- Knowledge created: quantity, excellence, collaboration, innovation, capabilities, and commercialization
- Outcomes and Impact: cultural, economic, environmental, health, political, societal, and technological

Elsevier also conducted an international survey of institutional leaders, researchers, and funders and identified the key barriers to a holistic method of assessing the real world impact of research. These barriers include a lack of resources, consensus on what constitutes impact, and of common frameworks or methodologies, and the inability to achieve sufficient alignment between different actors due to the new framework's complexity, a lack of data, and disinterest from institutions and researchers.[194] Despite these barriers, respondents to Elsevier's survey showed they all desire change and can accept necessary costs. Changes of the current academic assessment culture and practice can potentially come from the multiple factors: academic leadership, public

---

[193] *The Future of Evaluation: Emerging Consensus on a More Holistic System*, Elsevier, 2023, https://assets.ctfassets.net/o78em1y1w4i4/J27FTP9DcXB1TbkbAMyUc/dbf5d7d842c4f41ea7b42fa2f88e72f6/The_Future_of_Evaluation_WEB.pdf.

[194] *Back to Earth: Landing Real-World Impact in Research Evaluation*, Elsevier, 2023, https://assets.ctfassets.net/o78em1y1w4i4/42gnuO8RkFIM2Z1lY4zqpf/396f30824334f716a921515e0606ea12/Back-to-Earth_WEB.pdf.

pressure, funders' mandate, the community's agreement, greater access to open data and research, and new ways of measuring impact using AI technology.[195]

Broader stakeholder representatives, including individual researchers, research institutions, and external research governances, from The Global Young Academy (GYA), InterAcademy Partnership (IAP), and the International Science Council (ISC) have also come together to scope out the future of research evaluation through in-depth discussions. They concluded that reform of the current system is clearly needed and urgent, and the whole life cycle of research is evolving quickly. However, different parts of the world are at different stages of this transformation, so a balanced and inclusive approach that is sensitive to different challenges and contexts of local and regional research evaluation, while at the same time tries to minimize divergence and fragmentation, is warranted. Therefore, the time is optimal for this global initiative to move from talk to action through sharing, learning, and good practice using new surveys and existing platforms; to transition to more progressive methodologies; to build strategic partnerships through global and regional networks of institutions and international development agencies; and to establish the future of research evaluation based on intellectual leadership and innovation.[196]

Research Information Management System

Research Information Management (RIM) systems are both a tool within the new research assessment system and a platform that is close to the library's expertise in publication data and digital identifiers. Organizations like OCLC have been leading research and monitoring the evolution of libraries' supporting roles in the development of institutions' research analytics and specifically RIM adoption and usage.[197]

Early in 2017, an OCLC report defined RIM as "the aggregation, curation, and utilization of metadata about research activities" and RIM systems as those that "collect and store metadata on research activities and outputs such as researchers and their affiliations; publications, datasets, and patents; grants and projects; academic service and honors; media reports; and statements of impact."[198] As discussed above, RIM systems provide the necessary data sources for research assessment, which is increasingly under the pressure of transformation. Because of libraries' increasing expertise in scholarly communication, supporting the institution's RIM seems both a natural extension of the library's existing function and a strategic choice to grow and broaden

[195] Elsevier, 28–29.

[196] Sarah De Rijcke, Clemencia Cosentino, Robin Crewe, et al., *The Future of Research Evaluation: A Synthesis of Current Debates and Developments*, Centre for Science Futures, May 10, 2023, https://council.science/wp-content/uploads/2024/05/2023-05-11Evaluation-WEB.pdf.

[197] "Research Information Management Systems," OCLC, October 24, 2023, https://www.oclc.org/research/areas/research-collections/rim.html.

[198] Rebecca Bryant, et al., "Research Information Management: Defining RIM and the Library's Role," OCLC Research, 2017, http://www.oclc.org/research/publications/2017/oclcresearch-defining-rim.html.

libraries' alignment with the institution's academic goals. This earlier OCLC report identified five ways that the library can potentially offer support in RIM: publications and scholarship expertise, discoverability, access & reputational support, training & support, and stewardship of the institutional record.[199]

Based on the RIM definition and theoretical vision of library's roles, in 2021, OCLC Research published another comprehensive report with case studies on RIM in the US, which shows that practices of RIM are decentralized due to a lack of national research assessment requirement or even a standardized terminology.[200] [201] This informative report provides insight on RIM various potential use cases: faculty activity reporting, public portal, metadata reuse, strategic reporting and decision support, open access workflow, and compliance monitoring, to stakeholders beyond the libraries, including institutional leaders and other RIM practitioners.[202]

Despite the high potential of leveraging RIM for various strategic purposes of institutions, a recent panel discussion organized by OCLC Research featuring RIM practitioners from Carnegie Mellon University, Washington University School of Medicine in St. Louis Missouri, and University of Illinois Urbana-Champaign, highlighted the challenges of widely adopting RIM, including faculty skepticism, no mandates for unit or researcher buy-in, uneven support or awareness, tensions between institutional and researcher needs, decentralization, resource limitations, lack of use cases, and obstacles of building collaborations. RIM systems themselves also encounter data source, data scope, and data coverage issues.[203] OCLC researchers recognized the RIM intake in the US will be a marathon, not a sprint, but they are still optimistic about the future and especially the library's leadership in this development and have reported several libraries' leadership roles, including Virginia Tech, the University of Waterloo, the University of Pennsylvania, and Syracuse University. A roundtable discussion involving the OCLC Research Library Partnership (RLP) institutions reported various forms of US and

---

[199] Bryant et al., 13.

[200] Rebecca Bryant, et al., "Research Information Management in the United States: Part 1—Findings and Recommendations," OCLC Research, 2021, https://www.oclc.org/research/publications/2021/oclcresearch- rim-united-states.html.

[201] Rebecca Bryant, et al., "Research Information Management in the United States: Part 2—Case Studies," OCLC Research, 2021, https://www.oclc.org/research/publications/2021/oclcresearch-rim-united-states-part-2-case-studies.html.

[202] Bryant, et al., "Research Information Management in the United States," 2021, 8.

[203] Rebecca Bryant, "A Marathon, Not a Sprint: Implementing Research Information Management Systems (RIMS) in the US," *Hanging Together: The OCLC Research Blog*, March 7, 2024, https://hangingtogether.org /a-marathon-not-a-sprint-implementing-research-information-management-systems-rims-in-the-us/.

Canadian libraries' support for bibliometrics and research impact at both the researcher and campus units levels, as well as through providing metadata and infrastructure management.[204]

Library Research Support and Changing Organizational Structure

Starting from the development and establishment of scholarly communication functions, academic libraries have since gradually adventured into additional research support, for example, research data management and data curation, and most recently the explorative efforts in research analytics. With limited resources, libraries have to be strategic and innovative in order to be able to scale up their services. Restructuring happens in many libraries, and another OCLC RLP roundtable discussion reported a spectrum of organizational configurations among the participating libraries that has an extreme liaison model at one end, an extreme function model at the other end, with most libraries falling in the middle of a mixed structure with two models performing different functions and meeting different needs. Although the mixed structure is currently providing some resilience while allowing for experiments and innovations, libraries expressed the challenges of scalability, uneven service quality, un-strategic deployment of resources, difficult to change the legacy model and coordinate, and the double-duty pressures on librarians. [205]

Implications for Academic Libraries

- Based on the library's years of experience in observing the trend of scholarly communication and designing the research data life cycle, librarians can contribute research literacy education to campus units involved in institutional research support and help develop common terminologies and frameworks for a more open and inclusive research process and research assessment.
- Libraries have already been recognized as an essential partner of RIM, and therefore can leverage our unique expertise of metadata and unique identifiers, continue to participate in institutional adoption and responsible usage of RIMS and help identify, extract and clarify research metrics and data sources on scholarship to campus leaders and partners.
- The transformation of research culture and research evaluation provides challenges and opportunities for libraries to align our internal visions and organizational structure with

[204] Rebecca Bryant, "Library Support for Bibliometrics and Research Impact: Insights from an RLP Leadership Roundtable," *Hanging Together: The OCLC Research Blog*, April 23, 2024, https://hangingtogether.org/ library-support-for-bibliometrics-and-research-impact-insights-from-an-rlp-leadership-roundtable/.

[205] Rebecca Bryant, "Examining Library Structures to Scale Research Support Services: Insights from an OCLC RLP Leadership Roundtable," *Hanging Together: The OCLC Research Blog*, January 6, 2025, https://hangingtogether.org/examining-library-structures-to-scale-research-support-services-insights-from-an-oclc-rlp-leadership-roundtable/.

the broader higher education goals if we closely monitor and study the changes and timely react with our innovative and leadership skills.

- Libraries have many opportunities to curate and leverage the traditional publication data and new types of scholarship data, and support researchers to understand and meet new requirements of funding agencies and publication venues.
- In all of the increasing research and administrative collaborations and cooperations, libraries can help build partnership and community of practices through being partners ourselves and through our existing internal and external connections.

Political Issues impacting Campus Operations

Recent years have seen increasing concerns regarding political polarization, presenting new challenges to universities and their administrators. In January 2024 the American Association of University Professors (AAUP) issued a statement highlighting this as an alarming trend.[206] These tensions have culminated in continued debates regarding the United States Supreme Court's 2023 ruling against race-based affirmative action, legislative attacks on DEI initiatives, and backlash regarding free speech and protests on campuses.

Impact of Supreme Court Rulings

The June 2023 Supreme Court rulings in *Students for Fair Admissions, Inc. (SFFA) v. President & Fellows of Harvard College (Harvard)* and *SFFA v. University of North Carolina (UNC)* effectively ended the use of race-based affirmative action in college admissions.[207] The first cohort of students admitted post-affirmative action began their post-secondary studies in Fall 2024; early data is mixed on the impact of these rulings.[208] The Biden administration released guidance aimed at helping institutions navigate recruitment and admissions following the ruling, encouraging institutions to use other types of measures aimed at recruiting diverse students, such as guaranteed enrollment schemes, where there is a clear set of criteria that qualifies prospective students for admission.[209] Even before the ruling, some selective institutions began moving

---

[206] "Statement on Political Interference in Higher Education," AAUP (American Association of University Professors), January 23, 2024, https://www.aaup.org/report/statement-political-interference-higher-education.

[207] Lincoln Caplan, "The Supreme Court Affirmative Action Rulings: An Analysis," *Harvard Magazine*, June 30, 2023, https://www.harvardmagazine.com/node/84179.

[208] Byan J. Cook, *Unpacking Early Trends in the Racial Diversity of Elite College Admissions Following the Supreme Court Ruling on Affirmative Action*, Urban Institute, September 18, 2024, https://www.urban.org/urban-wire/unpacking-early-trends-racial-diversity-elite-college-admissions-following-supreme-court.

[209] "Justice and Education Departments Release Resources to Advance Diversity and Opportunity in Higher Education," U.S. Department of Education, August 14, 2023, http://www.ed.gov/about/news/press-release/advance-diversity-and-opportunity-higher-education-justice-and-education.

towards "Affordable Action" initiatives, which are formally race-neutral, and focused on economic diversity or other measures of equity.[210]

New Title IX rules issued in April of 2024 were similarly at the center of multiple court battles. These rules expanded existing prohibitions on sex discrimination to include, among other things, sexual orientation and gender identity.[211] A series of lawsuits filed by 26 Republican attorneys general led to a patchwork of enforcement and uncertainty until the rule was finally vacated in early January 2025[212].

Continued Pressure on DEI Initiatives

During the 2023 legislative cycle, seven bills restricting Diversity, Equity, and Inclusion (DEI) initiatives in higher education were signed into law, many of which were based on model policy language from The Manhattan Institute, a right-wing think tank.[213] States such as Texas where these laws have been passed have seen the closing of DEI offices and programs at their public universities.[214] College campuses in thirty-two states have made changes to DEI "offices, jobs, training, diversity statements, and other DEI-related activities" since January 2023 as a result of state legislative actions, whether enacted or simply threatened.[215] Another target of recent legislation has been the use of diversity statements in hiring.[216] In one well-publicized case,

---

[210] Liam Knox, "Duke's Affordable Action Plan," *Inside Higher Ed*, June 28, 2023, https://www.insidehighered.com /news/students/financial-aid/2023/06/28/duke-expands-aid-affirmative-action-decision-looms.

[211] Katherine Knott, "New Title IX Rules Are Out. Here's What You Need to Know," *Inside Higher Ed*, April 19, 2024, https://www.insidehighered.com/news/government/2024/04/19/biden-administration-finalizes-title-ix-overhaul.

[212] Katherine Knott and Johanna Alonso, "What's Next for Colleges After Judge Vacates Biden's Title IX Rule," *Inside Higher Ed*, January 9, 2025, https://www.insidehighered.com/news/government/student-aid-policy /2025/01/09/federal-judge-throws-out-bidens-title-ix-overhaul.

[213] Isaac Kamola, "State Laws Threaten to Erode Academic Freedom in U.S. Higher Education," The Free Speech Center, May 29, 2024, https://firstamendment.mtsu.edu/post/state-laws-threaten-to-erode-academic-freedom -in-u-s-higher-education/.

[214] Johanna Alonso, "UT Austin Closes Former DEI Division," *Inside Higher Ed*, April 4, 2024, https://www. insidehighered.com/news/quick-takes/2024/04/04/ut-austin-closes-former-dei-division-lays-employees.

[215] Erin Gretzinger, Maggie Hicks, Christa Dutton, and Jasper Smith, "Tracking Higher Ed's Dismantling of DEI," *Chronicle of Higher Education*, December 6, 2024, https://www.chronicle.com/article/tracking-higher-eds-dismantling-of-dei.

[216] Adrienne Lu, "Diversity Statements Are Being Banned. Here's What Might Replace Them," *Chronicle of Higher Education,* October 6, 2023, https://www.chronicle.com/article/diversity-statements-are-being-banned-heres-what-might-replace-them.

Texas A&M University settled with a professor after their Board of Regents expressed concerns about her past DEI work.[217]

University administrators anticipate further challenges to DEI initiatives under the current Trump administration.[218] House Republicans have already passed legislation and hosted events signaling their intent to continue rolling back DEI efforts.[219] Even where DEI programs remain in place, questions have been raised about the effectiveness of these programs in achieving their stated goals, continuing a trend highlighted in the 2023 ACRL Environmental Scan.[220] University staff engaged in DEI work report a host of workplace complaints not directly related to legislation, from burnout to harassment.[221]

Protests, Free Speech, and Backlash

Throughout late 2023 and 2024, significant media attention has been given to student protest activities and its consequences. However, this is only one development in the ongoing debate over freedom of speech and censorship on university campuses. Even prior to the protests and associated backlash in Spring 2024, students across ideological and demographic lines have been losing confidence in the durability of free speech rights on campus.[222] Faculty similarly report increased concerns about censorship, although this is more concentrated among those identifying as politically conservative, particularly with regards to opposition to DEI initiatives.[223] However,

[217] Ryan Quinn, "The Toll of a Botched Hire," *Inside Higher Ed*, August 4, 2023, https://www.insidehighered.com/news/faculty-issues/diversity-equity/2023/08/04/texas-am-pays-mcelroy-1m-report-reveals-presidents.

[218] Katherine Mangan, "U. of Michigan Bans Use of Diversity Statements, Recommits to Broader DEI Goals," *Chronicle of Higher Education*, December 5, 2024, https://www.chronicle.com/article/u-of-michigan-regents -ban-use-of-diversity-statements-recommit-to-broader-dei-goals.

[219] Jessica Blake, "Republicans Host Campus Free Speech Roundtable," *Inside Higher Ed*, December 12, 2024, https://www.insidehighered.com/news/government/2024/12/12/republicans-host-campus-free-speech-roundtable.

[220] Nicholas Confessore, "The University of Michigan Doubled Down on D.E.I. What Went Wrong?" *The New York Times Magazine*, October 16, 2024, https://www.nytimes.com/2024/10/16/magazine/dei-university-michigan.html.

[221] Nelia Viveiros, M. Gabriela Torres, and Elizabeth Hutchison, "Legislation Isn't All That Negatively Impacts DEI Practitioners," *Inside Higher Ed*, August 16, 2024, https://www.insidehighered.com/opinion/career-advice/conditionally-accepted/2024/08/16/challenges-dei-practitioners-experience.

[222] *College Student Views on Free Expression and Campus Speech 2024*, Knight Foundation, July 30, 2024, https://knightfoundation.org/reports/college-student-views-on-free-expression-and-campus-speech-2024/.

[223] Honeycutt, N., *Silence in the Classroom: The 2024 FIRE Faculty Survey Report*, Foundation for Individual Rights and Expression, 2024. https://www.thefire.org/facultyreport.

documented instances of censorship have been more frequent in relation to expressions of Palestinian solidarity.[224]

The October 7, 2023 attacks and subsequent war in Israel launched a wave of activism and protests on U.S. college campuses.[225] Campus protests escalated in Spring of 2024 with several high-profile conflicts between anti-war protest encampments and university leadership. A number of students across the country had commencement speeches and job offers rescinded as a result of their protest activities.[226] Students are not the only ones that have been targeted by crackdowns on speech as over a dozen U.S. faculty members were suspended or fired during Fall 2023[227] or had courses cancelled due to content concerns.[228] The anniversary of the attacks in October 2024 reignited a new round of protests, although these were somewhat subdued by the fact that many universities had adopted new rules and restrictions.[229]

University leadership has also come under fire, particularly at private universities where donors have exerted significant pressure on this issue.[230] Presidents at Columbia, Penn, and Harvard have all resigned at least in part due to donor criticism of their handling of campus protests and

---

[224] Johanna Alonso, "Censorship and Consternation Mar Oct. 7 Campus Remembrances," *Inside Higher Ed*, October 24, 2024, https://www.insidehighered.com/news/students/free-speech/2024/10/04/oct-7-events- colleges-face- backlash-and-censorship.

[225] Johanna Alonso and Kathryn Palmer, "Fear and Anger Spread on Campuses as Protesters' Rhetoric and Actions Escalate," *Inside Higher Ed*, October 27, 2023, https://www.insidehighered.com/news/students/safety/2023/10/27/ students-fearful-campus-amid-hate-incidents-and-protests.

[226] Alisha Ebrahimji and Melissa Alonso, "The University of Southern California Cancels Its Muslim Valedictorian's Commencement Speech, Citing Safety Concerns," *CNN*, April 16, 2024, https://www.cnn.com/2024/04/16/us/usc- valedictorian-commencement-speech-canceled/index.html; Mike Wendling, "Harvard Letter: Law Students Who Took Anti-Israel Stance Lose Job Offers," *BBC*, October 18, 2023, https://www.bbc.com/news/world-us-canada- 67152271.

[227] Ryan Quinn, "War in Gaza Fuels Faculty Free Speech Battles," *Inside Higher Ed*, December 18, 2023, https://www.insidehighered.com/news/faculty-issues/academic-freedom/2023/12/18/israels-war-gaza-fuels-faculty-free-speech-battles.

[228] Ryan Quinn, "Cornell Interim President Accused of Violating Academic Freedom After Email Leaks," *Inside Higher Ed*, December 5, 2024, https://www.insidehighered.com/news/faculty-issues/academic-freedom/2024/12/05/ cornell-president-accused-violating-academic.

[229] Johanna Alonso, "Censorship and Consternation Mar Oct. 7 Campus Remembrances"; Isabell Taft, "How Colleges Are Changing Their Rules on Protesting," *New York Times*, September 12, 2024, https://www.nytimes.com /2024/09/12/us/college-protest-rules.html.

[230] Josh Moody, "What Do Universities Owe Their Donors?" *Inside Higher Ed*, November 2, 2023, https://www. insidehighered.com/news/governance/executive-leadership/2023/11/02/what-do-universities-owe-their-donors; "The AAUP Condemns Escalating Assault on Academic Freedom at Penn," AAUP (American Association of University Professors), December 19, 2023, https://www.aaup.org/news/aaup-condemns-escalating-assault-academic- freedom-penn.

testimony before Congress.[231] For their part, a key demand of many student protests has been divestment of university resources from weapons manufacturers and other corporations who profit from the ongoing conflict.[232] While some universities have agreed to divestment in principle, very few have actually done so, and others have explicitly adopted policies to prevent this type of activism.[233]

Implications

- Campus operations continue to be impacted by our current political climate, and administrators should be prepared to respond to lawsuits and directives.
- DEI offices and practitioners in particular remain under fire in many states, and this is likely to continue under the Trump administration.
- Increasing geopolitical pressures are emphasizing the deep interconnectedness of the U.S. higher education system with global events.

Wellbeing and Labor Issues

Wellbeing of Faculty, Staff, and Students

Across college campuses, concern has been increasing regarding the wellbeing of faculty, staff and students both on and off campus. Grant-Smith and Laudon find that the COVID-19 pandemic has changed the landscape of higher education in fundamental ways, creating increased demand on educators.[234] Studies have found post-pandemic increases in the numbers of faculty members who feel burnout and consider leaving academia.[235] Students were affected by the shift to online classes, and in many cases transitioning back to homes that may not be safe,

---

[231] "A Look at College Presidents Who Have Resigned under Pressure over Their Handling of Gaza Protests," *Associated Press*, August 15, 2024, https://apnews.com/article/college-president-resign-shafik-magill-gay-59fe4e1ea 31c92f6f180a33a02b336e3.

[232] Josh Moody, "Universities Consider Divestment Demands," *Inside Higher Ed*, May 7, 2024, https://www.insidehi ghered.com/news/governance/executive-leadership/2024/05/07/universities-weigh- protesters-divestment-demands.

[233] Josh Moody, "Students' Demands for Divestment From Israel Have Mostly Failed," *Inside Higher Ed*, September 25, 2024, https://www.insidehighered.com/news/governance/trustees-regents/2024/09/05/ student-divestment- demands-have-mostly-failed.

[234] Deanna Grant-Smith and Melinda Laundon, "Educator Wellbeing in Higher Education," *Student Success* 14, no. 3 (2023): i–iv, https://doi.org/10.5204/ssj.3236.

[235] Kelly Field, "Professors Struggle With Demands to Tend to Students' Mental Health," *Chronicle of Higher Education* 70, no. 6 (November 10, 2023): 6–6. https://www.chronicle.com/article/professors-struggle-with -demands-to-tend-to-students-mental-health.

adding to the stress and challenges already faced by students in academia.[236] A review by Halat et al. shows a pervasiveness of mental health issues, including anxiety, depression, stress and burnout among faculty. WHO released its largest review on mental health in 2022, describing it as a "growing crisis." Further studies from 2023 have shown that one third of the academic community experience symptoms of depression, anxiety, and stress.[237]

Safety Concerns

Safety concerns continue to be an issue on college campuses, with multiple shootings and other violent events taking place. A 2021 JAMA study found that worries about school violence and school shootings had an association with anxiety and panic symptoms in adolescents, with one-third of adolescents reporting feeling very or extremely concerned or worried in a 2016 survey.[238] These instances put even more strain on the mental health and wellbeing of campus members. There were at least 25 shootings on college campuses in 2024, with a new record for number of school shootings (including K-12 and college campuses) set every year since 2021.[239] These incidents increase stress and anxiety among faculty, staff, and students as they worry whether something will happen on their own campuses. Campus reaction to these events can give students and other community members a sense of security, with institutions implementing and increasing safety measures such as blue light phones, emergency numbers, anonymous tip lines, and mass notification systems. Increasing students' perceptions of safety on campus can foster a greater sense of belonging, alleviating some of the stress and worry they face.[240]

Faculty and Staff Burnout

Burnout is evident among faculty and staff as employees are being asked to do more with less. Although burnout is not a new phenomenon, certain factors such as the political and social climate, financial instability, and the COVID-19 pandemic have fueled an increase in burnout

---

[236] Olufunke M. Benson and Melissa L. Whitson, "The Protective Role of Sense of Community and Access to Resources on College Student Stress and COVID-19-related Daily Life Disruptions," *Journal of Community Psychology* 50, no. 6 (August 2022): 2746–64. https://doi.org/10.1002/jcop.22817.

[237] Kasey Meeks, Amy Sutton Peak, and Adam Dreihaus, "Depression, Anxiety, and Stress Among Students, Faculty, and Staff," *Journal of American College Health* 71 2 (February 12, 2023): 348-354, https://doi.org/10.1080/074 48481.2021.1891913.

[238] Kira E Riehm et al., "Adolescents' Concerns About School Violence or Shootings and Association With Depressive, Anxiety, and Panic Symptoms," *JAMA Network Open* 4, no. 11 (2021): e2132131–e2132131, https://doi.org/10.1001/jamanetworkopen.2021.32131.

[239] Alex Matthews, "School Shootings in the US: Fast Facts," *CNN*, February 11, 2025, https://www.cnn.com /us/school-shootings-fast-facts-dg/index.html.

[240] Laurie O. Campbell et al., "Exploring Higher Education Students' Perceptions of Safety on Campus," *Journal of Threat Assessment and Management* 9, no. 2 (June 2022): 67–79, https://doi.org/10.1037/tam0000178.

among workers.[241] Financial concerns in higher education, increased by the looming enrollment cliff, are causing layoffs and campus closings across the country, leaving the remaining faculty and staff to continue the work in whatever capacity they are able. While support for faculty and staff may exist through various workplace programs, a Healthy Minds survey found that respondents were more likely to be aware of support available to students than support available to faculty and staff.[242] Halat et al. (2023) finds that faculty "face a hidden struggle with demanding workloads, intense expectations, teaching excellence, and administrative duties (pg.1)." The variety of tasks making up the mental workload among faculty including teaching, mentoring, leading, publishing, budgeting, meeting deadlines, managing administrative duties, and fulfilling service to the school and profession, all of which contribute to feelings of stress in the academic field.[243]

Carter et al (2023) find that issues affecting the wellbeing of librarians in higher education include workload, politics, and personal factors. Wellbeing supports should take into account not only students, but also faculty and staff in higher education institutions. Factors that increase the wellbeing of faculty and staff in higher education include a supportive environment, positive work relationships, flexible schedules, sufficient staffing and resources, healthy lifestyle promotion, and constructive leadership.[244]

Leadership at these institutions is increasingly feeling the pressure as well, as many step into roles that are both competitive and challenging, possibly without understanding the real issues facing the role before assuming its duties.[245] Many are choosing to leave or not go into administration as the stress inherent in these roles increases.[246]

---

[241] Jason D Phillips et al., "Keeping the Light On: Academic Librarians and Burnout," *The Southeastern Librarian* 72, no. 1 (2024), https://doi.org/10.62915/0038-3686.2066.

[242] Kelly Field, "Professors Struggle With Demands to Tend to Students' Mental Health," *Chronicle of Higher Education* 70, no. 6 (November 10, 2023): 6–6, https://www.chronicle.com/article/professors-struggle- with-demands-to-tend-to-students-mental-health.

[243] Dalal Hammoudi Halat, Abderrezzaq Soltani, Roua Dalli, et al., "Understanding and Fostering Mental Health and Well-Being among University Faculty: A Narrative Review," *Journal of Clinical Medicine* 12, no. 13 (June 30, 2023): 4425, https://doi.org/10.3390/jcm12134425.

[244] Susan Carter, Cecily Anderson, Michelle Turner, et al., "'What about Us?' Wellbeing of Higher Education Librarians," *Journal of Academic Librarianship* 49, no. 1 (2023): 102619, https://doi.org/10.1016/j.acalib.2022.102619.

[245] Sabre Cherkowski, Benjamin Kutsyuruba, Keith Walker, et al., "Conceptualising Leadership and Emotions in Higher Education: Wellbeing as Wholeness," *Journal of Educational Administration and History* 53, no. 2 (2021): 158–71, https://doi.org/10.1080/00220620.2020.1828315.

[246] David D. Perlmutter, "Admin 101: Campus Administrators Need Self-Care, Too: You Can't Look after Others If the Intense Stresses of the Job Are Threatening Your Own Mental or Physical Health." *Chronicle of Higher Education* 68, no. 5 (October 29, 2021): 1–1. https://www.chronicle.com/article/admin-101-campus- administrators-need-self-care-too.

Emotional Labor

In addition to their concern for their own wellbeing, faculty and staff are frequently being asked to care for their students' emotional and mental wellbeing, often with little or no training in these areas. Grant-Smith and Laudon (2023) find that educators are taking on a "significant pastoral care role," often at the expense of their own wellbeing.[247] Daily life in the classroom requires faculty to manage underprepared and struggling students who require special attention and support.[248] In the classroom, faculty are finding disengaged students while at the same time seeing attacks on academic freedom and tenure, and enduring budget cuts at their institutions. Field (2023) finds that many professors are being asked to step in as "first responders" to a crisis in mental health among students.[249] At the same time, many of these faculty members are experiencing the same stress, burnout, and concern as their students.[250] This emotional labor extends to the academic librarian role as well, with librarians being placed into the role of carer for their students.[251]

Implications for Academic Libraries

- Staffing issues may lead to burnout among library faculty and staff. As librarians are asked to do more work and take on additional responsibilities, leadership should take care to make sure they are not pushed to the brink of burnout.
- Librarians may need to be better prepared to take on the caretaker role for students at their institutions. This may include access to formal training to take on these roles.
- Library leadership should be aware of the wellbeing of their library faculty and staff and ensure these workers have access to resources for their wellbeing.

---

[247] Deanna Grant-Smith and Melinda Laundon, "Educator Wellbeing in Higher Education."

[248] Dalal Hammoudi Halat et al., "Understanding and Fostering Mental Health and Well-Being."

[249] Kelly Field, "Professors Struggle With Demands to Tend to Students' Mental Health."

[250] Dalal Hammoudi Halat et al., "Understanding and Fostering Mental Health and Well-Being."

[251] Susan Carter et al., "'What about Us?' Wellbeing of Higher Education Librarians."

Conclusion

Since the initial drafting of this literature survey covering 2023-2024, the higher education landscape has undergone significant changes following the inauguration of U.S. President Donald Trump in January 2025. A series of sweeping Executive Orders and major policy shifts have directly impacted post-secondary institutions nationwide.[252] Notably, substantial cuts to major grants and funding agencies have disrupted financial support for colleges and universities.[253] [254] [255] In a particularly consequential move, an executive order issued by the Trump administration on March 14, 2025, calls for the elimination of the nation's only federal agency for America's libraries, the Institute of Museum and Library Services (IMLS).[256] These rapid developments underscore the volatile and uncertain environment in which higher education now operates. Institutions must continue to navigate this evolving landscape with resilience and adaptability.

The 2025 Environmental Scan is intended to help the academic library community make informed decisions concerning the most critical intersections of higher education and academic libraries. This report highlights trends in artificial intelligence, climate resilience, cybersecurity, employment challenges, enrollment fluctuations, research enterprise, political pressures, all of which can affect our job security and wellbeing.

Librarians are experts in information literacy instruction and are traditional advocates for ethical approaches to information, research, and the engagement with research tools. As such, we can become informed stakeholders in campus and administrative conversations about how best to adapt to these changes. Some of the trends identified here are rapidly evolving, such as political pressures and the proliferation of AI research tools; others are continuations of longer trends

---

[252] Jessica Blake and Katherine Knott, "Tracking Key Lawsuits Against the Trump Administration," *Inside Higher Ed,* 18 March 2025, https://www.insidehighered.com/news/government/politics-elections/2025/02/18/trump-administration-faces-growing-number-lawsuits.

[253] Crista Dutton, "'I Want to Stand Up for Higher Ed': Protestors Rally Against Education Dept. Cuts," *Chronicle of Higher Education*, 14 March 2025, https://www.chronicle.com/article/i-want-to-stand-up-for-higher-ed-protesters-rally-against-education-dept-cuts.

[254] Katherine Knott and Kathryn Palmer, "'Shortsighted' and 'Dangerous': Colleges Warn of Budget Cuts After NIH Slashes Medical Research Funding, *Inside Higher Education*, 8 February 2025, https://www.insidehighered.com /news/government/science-research-policy/2025/02/08/higher-ed-leaders-warn-dire-consequences-after.

[255] Kathryn Palmer, "Johns Hopkins Plans for Layoffs Amid $800M Cut to Federal Grants," *Inside Higher Ed,* 13 March 2025, https://www.insidehighered.com/news/quick-takes/2025/03/13/johns-hopkins-plans-layoffs-amid-800m-cut-federal-grants.

[256] Shawnda Hines, "ALA statement on White House assault on the Institute of Museum and Library Services," American Libraries Association, 15 March 2025, https://www.ala.org/news/2025/03/ala-statement-white-house-assault-institute-museum-and-library-services.

facing our profession, such as climate resilience, cybersecurity, and the evolving research enterprise.

The higher education trends identified in this report exert pressure on academic librarianship and can create a volatile or uncertain environment. On a human level, librarians may find themselves feeling besieged by pressures and stresses, and library administrators can actively forestall burnout by installing programs that encourage employees to connect with one another and with external advocates to mitigate potential negative effects. How we respond to these pressures may produce a net negative or net positive result. We are all a community, and focusing on our similarities and shared goals can help us collectively overcome feelings of isolation and overwhelm and not just endure but prevail.

Appendix: ACRL Research Planning and Review Committee, 2024-2025

Tom Caswell (Chair)

Associate Dean for Academic Engagement

University of Central Florida

Molly Boyd (Vice-Chair)

English, Communication, & Journalism Librarian

University of Arkansas

Jennie Burroughs

Senior Program Advisor & Researcher

University of Minnesota

Stephanie Cicero

Research and Instruction Librarian

Roberts Wesleyan University

Laura Costello

Director, Access and Information Services

University of Minnesota

Justin Fuhr

Science Librarian

University of Manitoba

Anita Hall

Assessment & Analytics Librarian

University of Louisville

Tina Liu

Cataloguing Librarian

McGill University

Minglu Wang

Research Data Management Librarian

York University

Anna Yang

Life Sciences Librarian

Santa Clara University

Bibliography

Adekoya, Clement Ola, Joseph Kehinde Fasae, and Adesola Victoria Alade. 2023. "Academic Libraries, ICT Use and Sustainable Higher Education Development." *Information Discovery and Delivery* 52 (1): 1–10. https://doi.org/10.1108/IDD-01-2022-0002.

"Advance Diversity and Opportunity in Higher Education: Justice and Education Departments Release Resources to Advance Diversity and Opportunity in Higher Education | U.S. Department of Education." 2023. August 14, 2023. http://www.ed.gov/about/news/press-release/advance-diversity-and-opportunity-higher-education-justice-and-education.

Aghamolaei, Reihaneh, and Marzieh Fallahpour. 2023. "Strategies towards Reducing Carbon Emission in University Campuses: A Comprehensive Review of Both Global and Local Scales." *Journal of Building Engineering* 76 (October):107183. https://doi.org/10.1016/j.jobe.2023.107183.

Alonso, Johanna. 2024a. "Censorship and Consternation Mar Oct. 7 Campus Remembrances." *Inside Higher Ed*, October 24, 2024. https://www.insidehighered.com/news/students/free-speech/2024/10/04/oct-7-events-colleges-face-backlash-and-censorship.

———. 2024b. "UT Austin Closes Former DEI Division." *Inside Higher Ed*, April 4, 2024. https://www.insidehighered.com/news/quick-takes/2024/04/04/ut-austin-closes-former-dei-division-lays-employees.

Alonso, Johanna, and Kathryn Palmer. 2023. "Fear and Anger Spread on Campuses as Protesters' Rhetoric and Actions Escalate." *Inside Higher Ed*, October 27, 2023. https://www.insidehighered.com/news/students/safety/2023/10/27/students-fearful-campus-amid-hate-incidents-and-protests.

Anderson, Nash, Daniel L. Belavy, Stephen M. Perle, Sharief Hendricks, Luiz Hespanhol, Evert Verhagen, and Aamir R. Memon. 2023. "AI Did Not Write This Manuscript, or Did It? Can We Trick the AI Text Detector into Generated Texts? The Potential Future of ChatGPT and AI in Sports & Exercise Medicine Manuscript Generation." *BMJ Open Sport & Exercise Medicine* 9 (1). https://doi.org/10.1136/bmjsem-2023-001568.

Anderson, Rick. 2021. "Watch out for the Silent Librarian: An Interview with Crane Hassold." *The Scholarly Kitchen* (blog). January 27, 2021. https://scholarlykitchen.sspnet.org/2021/01/27/watch-out-for-the-silent-librarian-an-interview-with-crane-hassold/.

Angelaki, Maria Eftychia, Fragkiskos Bersimis, Theodoros Karvounidis, and Christos Douligeris. 2023. "Towards More Sustainable Higher Education Institutions:

Implementing the Sustainable Development Goals and Embedding Sustainability into the Information and Computer Technology Curricula." *Education and Information Technologies* 29 (4): 5079–5113. https://doi.org/10.1007/s10639-023-12025-8.

Apanovich, Nataliya, Seth Asare Okyere, Stephen Leonard Mensah, and Louis Kusi Frimpong. 2023. "Education for Sustainable Development: Societal Benefits of a Community Garden Project in Tucson, Arizona." *Societal Impacts* 1 (1–2): 100011. https://doi.org/10.1016/j.socimp.2023.100011.

Associated Press. 2024. "A Look at College Presidents Who Have Resigned under Pressure over Their Handling of Gaza Protests," August 15, 2024. https://apnews.com/article/college-president-resign-shafik-magill-gay-59fe4e1ea31c92f6f180a33a02b336e3.

Association of Research Libraries and Coalition for Networked Information. 2024. "ARL/CNI AI Scenarios: AI-Influenced Futures." Association of Research Libraries, Coalition for Networked Information, and Stratus Inc. https://doi.org/10.29242/report.aiscenarios2024.

Atterbury, Andrew. 2024. "DeSantis Pushed for Post-Tenure Review of Florida Professors. The First Results Are In." *Politico*, September 12, 2024. https://www.politico.com/news/2024/09/12/desantis-tenure-review-law-florida-professors-00178947.

Bacher-Hicks, Andrew, Tareena Musaddiq, Joshua Goodman, and Kevin Stange. 2024. "The Stickiness of Pandemic-Driven Disenrollment from Public Schools." *Economics of Education Review* 100 (June):102527. https://doi.org/10.1016/j.econedurev.2024.102527.

Balde, Cornelis, Ruediger Kuehr, Tales Yamamoto, Rosie McDonald, Elena D'Angelo, Shahana Althaf, Garam Bel, et al. 2024. "The Global E-Waste Monitor 2024." United Nations Institute for Training and Research. https://ewastemonitor.info/wp-content/uploads/2024/03/GEM_2024_18-03_web_page_per_page_web.pdf.

Barath, Harini. 2024. "Zeroing in on the Origins of Bias in Large Language Models." *Dartmouth University* (blog). January 12, 2024. https://home.dartmouth.edu/news/2024/01/zeroing-origins-bias-large-language-models.

Barnes, Mark, Melissa Bator, Shamayeta Bhattacharya, Kailene Black, Daniel Block, Lauren Broyles, Monica Castañeda-Kessel, et al. 2024. "Centering Care in the Academic Research Enterprise: Reflections and a Call to Action from the Inaugural Convening of Care." The Convening of Care Collective. https://www.aag.org/wp-content/uploads/2024/11/Centering-Care-in-the-Academic-Research-Enterprise.pdf.

Baron, Jéanelle, Stacy-Ann Lawrence, and Cerease Nevins-Bennett. 2024. "Sustainable Development Goals: A Case of the Community College Student Initiative Project." *European Journal of Education and Pedagogy* 5 (3): 24–35.

https://doi.org/10.24018/ejedu.2024.5.3.833.

Basken, Paul. 2024. "US Campus Protests Expose Special Risk for Adjuncts." *Times Higher Education (THE)*, June 5, 2024. https://www.timeshighereducation.com/news/us-campus-protests-expose-special-risk-adjuncts.

Basko, Aaron. 2024. "Will the 'Enrollment Cliff' Help or Hurt Your Career? How to Make Higher Education's Environment of Scarcity Work for You Instead of against You." *The Chronicle of Higher Education*, February. https://www.chronicle.com/article/will-the-enrollment-cliff-help-or-hurt-your-career.

Bauman, Dan. 2024. "Colleges Were Already Bracing for an 'enrollment Cliff.' Now There Might Be a Second One." *The Chronicle of Higher Education*, February. https://www.chronicle.com/article/colleges-were-already-bracing-for-an-enrollment-cliff-now-there-might-be-a-second-one.

Bellini, Emanuele, and Anna Maria Tammaro. 2024. "Cybersecurity for Digital Libraries: An Interview with Emanuele Bellini." *Digital Library Perspectives* 40 (2): 348–55. https://doi.org/10.1108/DLP-05-2024-147.

Benamara, Abdelmajid, Ahmed Fahal, Alicia Kowaltowski, Anh-Khoi Trinh, Anne Cody, Catriona Firth, Claire Fraser, et al. 2024. "Dimensions of Responsible Research Assessment." figshare. https://doi.org/10.6084/m9.figshare.26064223.v3.

Benson, Olufunke M., and Melissa L. Whitson. 2022. "The Protective Role of Sense of Community and Access to Resources on College Student Stress and COVID-19-related Daily Life Disruptions." *Journal of Community Psychology* 50 (6): 2746–64. https://doi.org/10.1002/jcop.22817.

Blake, Jessica. 2024. "Republicans Host Campus Free Speech Roundtable." *Inside Higher Ed*, December 13, 2024. https://www.insidehighered.com/news/government/2024/12/12/republicans-host-campus-free-speech-roundtable.

———, and Katherine Knott. 2025. "Tracking Key Lawsuits Against the Trump Administration." *Inside Higher Ed*, February. https://www.insidehighered.com/news/government/politics-elections/2025/02/18/trump-administration-faces-growing-number-lawsuits.

Books+Publishing. 2024. "Wiley Expects to Make US$44 Million from AI Partnership, Authors Unable to Opt Out." *Books+Publishing*, September 4, 2024. https://www.booksandpublishing.com.au/articles/2024/09/04/258068/wiley-expects-to-make-us44-million-from-ai-partnership-authors-unable-to-opt-out/.

Bowles, Kathy Johnson. 2023. "Understanding Higher Education's Enrollment Cliff, Trough and Recovery." *Inside Higher Ed*, February 7, 2023. https://www.insidehighered.com/blogs/just-explain-it-me/understanding-higher-education%E2%80%99s-enrollment-cliff-trough-and-recovery.

Breen, Kyle, Mauricio Montes, Haorui Wu, and Betty S. Lai. 2023. "College Students and Environmental Disasters: A Review of the Literature." *Social Sciences* 13 (1): 8. https://doi.org/10.3390/socsci13010008.

British Library. 2024. "Learning Lessons from the Cyber-Attack: British Library Cyber Incident Review." https://www.bl.uk/home/british-library-cyber-incident-review-8-march-2024.pdf/.

Brittain, Blake. 2024. "US Newspapers Sue OpenAI for Copyright Infringement over AI Training." *Reuters*, April 30, 2024, sec. Legal. https://www.reuters.com/legal/us-newspapers-sue-openai-copyright-infringement-over-ai-training-2024-04-30/.

Bryant, Rebecca. 2023. "Research Information Management Systems." OCLC. October 24, 2023. https://www.oclc.org/research/areas/research-collections/rim.html.

———. 2024a. "A Marathon, Not a Sprint: Implementing Research Information Management Systems (RIMS) in the US." *Hanging Together: The OCLC Research Blog* (blog). March 7, 2024. https://hangingtogether.org/a-marathon-not-a-sprint-implementing-research-information-management-systems-rims-in-the-us/.

———. 2024b. "Library Support for Bibliometrics and Research Impact: Insights from an RLP Leadership Roundtable." *Hanging Together: The OCLC Research Blog* (blog). April 23, 2024. https://hangingtogether.org/library-support-for-bibliometrics-and-research-impact-insights-from-an-rlp-leadership-roundtable/.

———. 2025. "Examining Library Structures to Scale Research Support Services: Insights from an OCLC RLP Leadership Roundtable." *Hanging Together: The OCLC Research Blog* (blog). January 6, 2025. https://hangingtogether.org/examining-library-structures-to-scale-research-support-services-insights-from-an-oclc-rlp-leadership-roundtable/.

Bryant, Rebecca, Anna Clements, Carol Feltes, David Groenewegen, Simon Huggard, Holly Mercer, Roxanne Missingham, Maliaca Oxnam, Anne Rauh, and John Wright. 2017. "Research Information Management: Defining RIM and the Library's Role." Dublin, Ohio: OCLC Research. https://doi.org/10.25333/C3NK88.

Bryant, Rebecca, Janet Fransen, Pablo de Castro, Brenna Helmstutler, and David Scherer. 2021a. "Research Information Management in the United States: Part 1—Findings and Recommendations." Dublin, OH: OCLC Research. https://doi.org/10.25333/8hgy-s428.

———. 2021b. "Research Information Management in the United States: Part 2—Case Studies." Dublin, OH: OCLC Research. https://doi.org/10.25333/qv1f-9e57.

Bureau, US Census. 2023. "2023 National Population Projections Datasets." Census.Gov. 2023. https://www.census.gov/data/datasets/2023/demo/popproj/2023-popproj.html.

Campbell, Laurie O., Breahannah Hilaire, Eric D. Laguardia, et al. 2022. "Exploring Higher Education Students' Perceptions of Safety on Campus." *Journal of Threat Assessment and Management* 9 (2): 67–79. https://doi.org/10.1037/tam0000178.

Canadian Association of University Teachers. 2024. "Precarious Labour in Our Academic Institutions." December 13, 2024. https://ourfuture.caut.ca/brief_precarity.

Canadian Union of Public Employees. 2023a. "Administrative and Support Staff at Cape Breton University Vote in Favour of a Strike." August 28, 2023. https://cupe.ca/administrative-and-support-staff-cape-breton-university-vote-favour-strike.

———. 2023b. "Graduate Academic Assistants Latest UBC Workers to Join CUPE." July 25, 2023. https://cupe.ca/graduate-academic-assistants-latest-ubc-workers-join-cupe.

———. 2023c. "Picket Lines Went up Monday Morning at Toronto Metropolitan University." April 17, 2023. https://cupe.ca/picket-lines-went-monday-morning-toronto-metropolitan-university.

———. 2023d. "Teaching Assistants at Saint Mary's University Vote 100% to Unionize with CUPE 3912." August 28, 2023. https://cupe.ca/teaching-assistants-saint-marys-university-vote-100-unionize-cupe-3912.

———. 2024a. "Academic Staff at University of Toronto Vote in Support of Strike Action." *Canadian Union of Public Employees* (blog). February 16, 2024. https://cupe.ca/academic-staff-university-toronto-vote-support-strike-action.

———. 2024b. "Academic Workers at University of Ottawa Vote Resoundingly in Favour of Strike." March 6, 2024. https://cupe.ca/academic-workers-university-ottawa-vote-resoundingly-favour-strike.

———. 2024c. "Tentative Agreement with Western University Workers." October 10, 2024. https://cupe.ca/tentative-agreement-western-university-workers.

———. 2024d. "University of Victoria Graduate Research Assistants Launch Campaign to Unionize with CUPE." January 23, 2024. https://cupe.ca/university-victoria-graduate-research-assistants-launch-campaign-unionize-cupe.

———. 2024e. "University of Waterloo Academic Workers Join CUPE." January 12, 2024.

https://cupe.ca/university-waterloo-academic-workers-join-cupe.

Caplan, Lincoln. 2023. "The Supreme Court Affirmative Action Rulings: An Analysis | Harvard Magazine," June 30, 2023. https://www.harvardmagazine.com/node/84179.

Carloni, Brittany. 2024. "Gov. Holcomb Signs Controversial Higher Education Bill into Law." *The Indianapolis Star*, February 29, 2024. https://www.indystar.com/story/news/politics/2024/02/29/indiana-senate-bill-202-universities-purdue-deery-tenure-expression-holcomb/72780178007/.

Caroline C. Whitacre. 2024. "Chapter 7. Research and Service: Research as an Enterprise." In *A Handbook of Higher Education Leadership*, edited by Ed Ray, 141–50. Corvallis, OR: Oregon State University. https://open.oregonstate.education/handbookhighereducationleadership.

Carter, Susan, Cecily Andersen, Michelle Turner, and Lorraine Gaunt. 2023. "'What about Us?' Wellbeing of Higher Education Librarians." *The Journal of Academic Librarianship* 49 (1): 102619. https://doi.org/10.1016/j.acalib.2022.102619.

Cherkowski, Sabre, Benjamin Kutsyuruba, Keith Walker, and Megan Crawford. 2021. "Conceptualising Leadership and Emotions in Higher Education: Wellbeing as Wholeness." *Journal of Educational Administration and History* 53 (2): 158–71. https://doi.org/10.1080/00220620.2020.1828315.

Chikowore, Noleen R., and John M. Kerr. 2023. "Waste Governance and Campus Sustainability: Formal and Informal Waste Systems at Football Tailgates in Michigan." *International Journal of Sustainability in Higher Education* 24 (7): 1474–88. https://doi.org/10.1108/IJSHE-01-2022-0028.

Chinta, Sribala Vidyadhari, Zichong Wang, Zhipeng Yin, Nhat Hoang, Matthew Gonzalez, Tai Le Quy, and Wenbin Zhang. 2024. "FairAIED: Navigating Fairness, Bias, and Ethics in Educational AI Applications." arXiv. https://doi.org/10.48550/arXiv.2407.18745.

Christensen, Dusty. 2024. "Library Staff Say Smith College Is Breaking Labor Law." *The Shoestring*, July 2, 2024. https://theshoestring.org/2024/07/02/library-staff-say-smith-college-is-breaking-labor-law/.

Coffey, Lauren. 2024. "How AI Has Begun Changing University Roles, Responsibilities." *Inside Higher Ed*, February 13, 2024. https://www.insidehighered.com/news/tech-innovation/artificial-intelligence/2024/02/13/how-ai-has-begun-changing-university-roles.

———. 2024b. "University Librarians See Urgent Need for AI Ethics." *Inside Higher Ed*, February 13, 2024. https://www.insidehighered.com/news/quick-

takes/2024/01/17/university-librarians-see-urgent-need-ai-ethics.

———. 2024c. "Yes, University Cybersecurity Is Still a Concern." *Inside Higher Ed*, June 1, 2024. https://www.insidehighered.com/news/tech-innovation/2024/07/01/university-cybersecurity-threats-remain-concern.

Confessore, Nicholas. 2024. "The University of Michigan Doubled Down on D.E.I. What Went Wrong?" *The New York Times Magazine*, October 16, 2024. https://www.nytimes.com/2024/10/16/magazine/dei-university-michigan.html.

Cook, Bryan J. 2024. "Unpacking Early Trends in the Racial Diversity of Elite College Admissions Following the Supreme Court Ruling on Affirmative Action." Urban Institute. https://www.urban.org/urban-wire/unpacking-early-trends-racial-diversity-elite-college-admissions-following-supreme-court.

Cornell Chronicle. 2024. "AI for Sustainability Visiting Professorship Launches at Cornell." *Cornell Chronicle*, November 7, 2024. https://news.cornell.edu/stories/2024/11/ai-sustainability-visiting-professorship-launches-cornell.

Corrado, Edward M. 2023. "Proprietary and Open Source Software Systems in Libraries: A Few Considerations." *Technical Services Quarterly* 40 (3): 202–9. https://doi.org/10.1080/07317131.2023.2226434.

———. 2024. "Cybersecurity and Libraries." *Technical Services Quarterly* 41 (1): 82–95. https://doi.org/10.1080/07317131.2023.2300530.

Cox, Lois K., and Katherine H. Tachau. 2023. "The Erosion of Support for Education and Tenure in Iowa." *Academe*. https://www.aaup.org/article/erosion-support-education-and-tenure-iowa.

Curry, Stephen, Sarah de Rijcke, Anna Hatch, Dorsamy (Gansen) Pillay, Inge van der Weijden, and James Wilsdon. 2022. "The Changing Role of Funders in Responsible Research Assessment: Progress, Obstacles and the Way Ahead." London, UK: Research on Research Institute. https://doi.org/10.6084/M9.FIGSHARE.13227914.V2.

Davenport, Carly, Brian Singer, Neil Mehta, Brian Lee, and John Mackay. 2024. "Generational Growth: AI, Data Centers and the Coming US Power Demand Surge." https://www.goldmansachs.com/insights/goldman-sachs-research/generational-growth-ai-data-centers-and-the-coming-us-power-demand-surge.

De Rijcke, Sarah, Clemencia Cosentino, Robin Crewe, Carlo D'Ippoliti, Shaheen Motala-Timol, Noorsaadah Binti A Rahman, Laura Rovelli, David Vaux, and Yao Yupeng. 2023. "The Future of Research Evaluation: A Synthesis of Current Debates and Developments." International Science Council. https://council.science/publications/the-future-of-research-

evaluation-a-synthesis-of-current-debates-and-developments/.

Delaney, Jennifer A. 2023. "Higher Ed's Financial Roller Coaster." *The Chronicle of Higher Education* 70 (2): 40. https://www.chronicle.com/article/higher-eds-financial-roller-coaster.

Dusseau, Melanie. 2024. "Burn It down: A License for AI Resistance." *Inside Higher Ed*, November 12, 2024. https://www.insidehighered.com/opinion/views/2024/11/12/burn-it-down-license-ai-resistance-opinion.

Dutton, Crista. 2025. "'I Want to Stand Up for Higher Ed': Protesters Rally Against Education Dept. Cuts." *The Chronicle of Higher Education*, March. https://www.chronicle.com/article/i-want-to-stand-up-for-higher-ed-protesters-rally-against-education-dept-cuts.

Ebrahimji, Alisha, and Melissa Alonso. 2024. "The University of Southern California Cancels Its Muslim Valedictorian's Commencement Speech, Citing Safety Concerns." *CNN*, April 16, 2024. https://edition.cnn.com/2024/04/16/us/usc-valedictorian-commencement-speech-canceled/index.html.

Education International. 2021. "OECD Study: Precarity of Academic Research Careers." June 28, 2021. https://www.ei-ie.org/en/item/25122:oecd-study-precarity-of-academic-research-careers.

Egger, Rich. 2024. "A Breakdown of the WIU Layoffs by Department." *Tri States Public Radio*, August 23, 2024. https://www.tspr.org/tspr-local-news/2024-08-23/a-breakdown-of-the-wiu-layoffs-by-department .

Ellucian. 2024. "AI in Higher Education Report." https://lp.ellucian.com/ai-innovation-survey.html.

Elsevier. 2023a. "Back to Earth: Landing Real-World Impact in Research Evaluation." Elsevier. https://assets.ctfassets.net/o78em1y1w4i4/42gnuO8RkFIM2Z1lY4zqpf/396f30824334f716a921515e0606ea12/Back-to-Earth_WEB.pdf.

———. 2023b. "The Future of Evaluation: Emerging Consensus on a More Holistic System." Elsevier. https://assets.ctfassets.net/o78em1y1w4i4/J27FTP9DcXB1TbkbAMyUc/dbf5d7d842c4f41ea7b42fa2f88e72f6/The_Future_of_Evaluation_WEB.pdf.

Emory University News Center. 2023. "Emory PhD Students Vote in Favor of Union Representation." November 28, 2023. https://news.emory.edu/stories/2023/11/er_phd_union_representation_28-11-

2023/story.html.

Environment Under Review. 2024. "AI Has an Environmental Problem. Here's What the World Can Do about That." *United Nations Environment Programme* (blog). September 21, 2024. https://www.unep.org/news-and-stories/story/ai-has-environmental-problem-heres-what-world-can-do-about.

Esaki-Smith, Anna. 2024. "Combating the Enrollment Cliff." *NAFSA: Association of International Educators*, September 11, 2024. https://www.nafsa.org/ie-magazine/2024/9/11/combating-enrollment-cliff.

Fang, Amy. 2018. "Takedown Tuesday. One of My Favorite Places on Campus Is…." *Medium* (blog). July 30, 2018. https://medium.com/@amyfang2/takedown-tuesday-5f3eb94df934.

Farag, Karin, and Can Baran Aktas. 2024. "A Survey of the Most Prevalent Sustainability Initiatives at Universities." *International Journal of Sustainability in Higher Education* 25 (8): 1581–1609. https://doi.org/10.1108/IJSHE-07-2023-0285.

Farid, Ghulam, Nosheen Fatima Warraich, and Sadaf Iftikhar. 2023. "Digital Information Security Management Policy in Academic Libraries: A Systematic Review (2010–2022)." *Journal of Information Science*, April, 01655515231160026. https://doi.org/10.1177/01655515231160026.

Farrelly, Tom, and Nick Baker. 2023. "Generative Artificial Intelligence: Implications and Considerations for Higher Education Practice." *Education Sciences* 13 (11): 1109. https://doi.org/10.3390/educsci13111109.

Faux, Jamie. 2023. "U Receives $100 Million for Responsible AI Initiative." *Daily Utah Chronicle*, November 22, 2023, sec. Featured. https://dailyutahchronicle.com/2023/11/22/responsible-ai-initiative/.

Field, Kelly. 2023. "Professors Struggle With Demands to Tend to Students' Mental Health." *Chronicle of Higher Education* 70 (6): 6. https://www.chronicle.com/article/professors-struggle-with-demands-to-tend-to-students-mental-health.

Filho, Walter Leal, Sebastian Weissenberger, Johannes M. Luetz, Javier Sierra, Izabela Simon Rampasso, Ayyoob Sharifi, Rosley Anholon, Joao Henrique Paulinho Pires Eustachio, and Marina Kovaleva. 2023. "Towards a Greater Engagement of Universities in Addressing Climate Change Challenges." *Scientific Reports* 13 (November):19030. https://doi.org/10.1038/s41598-023-45866-x.

Flaherty, Colleen. 2022. "Tracking the Evolution (and Erosion) of Tenure." *Inside Higher Ed*, May 17, 2022. https://www.insidehighered.com/news/2022/05/18/tracking-evolution-and-erosion-tenure.

Flannery, Mary Ellen. 2024. "The Union Boom in Higher Education!" *neaToday*, September 18, 2024. https://www.nea.org/nea-today/all-news-articles/union-boom-higher-education.

Fonseca, Janaina C. L., Jose Marcelo Wendling Junior, Gabriel R. Eugenio, and Cintia D. F. Milagre. 2023. "University and Local Recyclable Material Cooperative – Building Bridges around e-Waste." *Chemistry Teacher International* 6 (2): 135–41. https://doi.org/10.1515/cti-2023-0048.

Galvão, Ana, Isabel Chumbo, and Eugénia Anes. 2023. "Behavioural Psychology towards Artificial Intelligence in Cybersecurity." In *Exploring Cyber Criminals and Data Privacy Measures*, 19–39. https://doi.org/10.4018/978-1-6684-8422-7.ch002.

Gelles, David. 2024. "A.I.'s Insatiable Appetite for Energy." *The New York Times*, July 11, 2024. https://www.nytimes.com/2024/07/11/climate/artificial-intelligence-energy-usage.html.

Gibney, Ray. 2024. "Why Does Claudine Gay Still Work at Harvard after Being Forced to Resign as Its President? She's Got Tenure." *The Conversation*, January 5, 2024. http://theconversation.com/why-does-claudine-gay-still-work-at-harvard-after-being-forced-to-resign-as-its-president-shes-got-tenure-220532.

Gillen, Andrew L. 2024. "Can We Trust AI in Qualitative Research?" *Inside Higher Ed*, October 9, 2024. https://www.insidehighered.com/opinion/views/2024/10/09/can-we-trust-ai-qualitative-research-opinion.

Glenn Manfuso, Lauren. 2024. "How Colleges Leverage Data to Retain Students as the Enrollment Cliff Looms." *EdTech Magazine*, May 21, 2024. https://edtechmagazine.com/higher/article/2024/05/how-colleges-leverage-data-retain-students-enrollment-cliff-looms.

Goyal, John Kenneth C. 2023. "Awareness of the Electronics Technology Students in Managing Their E-Waste: An Input for Developing an e-Waste Management Policy." *International Journal of Multidisciplinary: Applied Business and Education Research* 4 (8): 2702–17. https://doi.org/10.11594/ijmaber.04.08.12.

Grant-Smith, Deanna, and Melinda Laundon. 2023. "Educator Wellbeing in Higher Education." *Student Success* 14 (3): i–iv. https://doi.org/10.5204/ssj.3236.

Greene-Santos, Aniya. 2024. "Does AI Have a Bias Problem?" *neaToday [National Education Association]*, February 22, 2024. https://www.nea.org/nea-today/all-news-articles/does-ai-have-bias-problem.

Gretzinger, Erin, Maggie Hicks, Christa Dutton, and Jasper Smith. 2024. "Tracking Higher Ed's Dismantling of DEI." *Chronicle of Higher Education*, December 6, 2024.

https://www.chronicle.com/article/tracking-higher-eds-dismantling-of-dei.

Grose, Jessica. 2024. "How to Fix the Crisis of Trust in Higher Education." *The New York Times*, March 6, 2024. https://www.nytimes.com/2024/03/06/opinion/college-enrollment.html.

Gurinaviciute, Juta. 2024. "Forbes Technology Council Post: What Cybersecurity Threats Does the Education Sector Face?" *Forbes*, March 11, 2024. https://www.forbes.com/councils/forbestechcouncil/2024/03/11/what-cybersecurity-threats-does-the-education-sector-face/.

Hammoudi Halat, Dalal, Abderrezzaq Soltani, Roua Dalli, Lama Alsarraj, and Ahmed Malki. 2023. "Understanding and Fostering Mental Health and Well-Being among University Faculty: A Narrative Review." *Journal of Clinical Medicine* 12 (13): 4425. https://doi.org/10.3390/jcm12134425.

Hampton, Lelia, Madeline Schlegel, Ellie Bultena, Jasmin Liu, Anastasia Dunca, Mrinalini Singha, Sungmoon Lim, Lauren Higgins, and Christopher Rabe. 2024. "From Mining to E-Waste: The Environmental and Climate Justice Implications of the Electronics Hardware Life Cycle." *MIT Case Studies in Social and Ethical Responsibilities of Computing*, September. https://doi.org/10.21428/2c646de5.2cbc88c6.

Head, Alison J., Steven Geofrey, Barbara Fister, and Kirsten Hostetler. 2024. "How College Students Respond to Climate Change in Troubled Times: Four Takeaways from Project Information Literacy's Latest Study." *College & Research Libraries News* 85 (9): 382. https://doi.org/10.5860/crln.85.9.382.

Henry, Megan. 2024. "Ohio Gov. Mike DeWine Says He Would Sign a Higher Education Overhaul If Further Revisions Are Made." *Ohio Capital Journal*, June 12, 2024. https://ohiocapitaljournal.com/2024/06/12/ohio-gov-mike-dewine-says-he-would-sign-a-higher-education-overhaul-if-further-revisions-are-made/.

Herzog, Fiona. 2024. "Penn Libraries United Reaches Agreement with Penn, Sets Date for Unionization Election." *The Daily Pennsylvanian*, July 17, 2024. https://www.thedp.com/article/2024/07/penn-libraries-negotiate-union-agreement-election.

Hines, Shawnda. 2025. "ALA Statement on White House Assault on the Institute of Museum and Library Services | ALA." March 15, 2025. https://www.ala.org/news/2025/03/ala-statement-white-house-assault-institute-museum-and-library-services.

Huneycutt, N. 2024. "Silence in the Classroom: The 2024 FIRE Faculty Survey Report." The Foundation for Individual Rights and Expression. https://www.thefire.org/facultyreport.

Husic, Diane White. 2024. "Reframing Sustainability Initiatives in Higher Education." *Sustainable Earth Reviews* 7 (1): 5. https://doi.org/10.1186/s42055-024-00076-9.

Hussar, William J., and Tabitha M. Bailey. 2020. "Projections of Education Statistics to 2028." Annual Report NCES 2020024. Projections of Education Statistics. National Center for Education Statistics. https://nces.ed.gov/use-work/resource-library/report/compendium/projections-education-statistics-2028?pubid=2020024.

Hylender, C. David, Philippe Langlois, Alex Pinto, and Suzanne Widup. 2024. "2024 Data Breach Investigations Report." https://www.verizon.com/business/resources/reports/dbir/.

International Energy Agency. 2024. "Electricity 2024: Analysis and Forecast to 2026." https://iea.blob.core.windows.net/assets/6b2fd954-2017-408e-bf08-952fdd62118a/Electricity2024-Analysisandforecastto2026.pdf.

Irem Y. Tumer, Julie M. Risien, and Roberta L. Marinelli. 2024. "Chapter 7. Research and Service: Connecting the University to Societies and Economies through Transdisciplinary Approaches." In *A Handbook of Higher Education Leadership*, edited by Ed Ray, 151–58. Corvallis, OR: Oregon State University. https://open.oregonstate.education/handbookhighereducationleadership.

Irwin, V, Tabitha M. Bailey, NCES, R Panditharatna, A Sadeghi, and S&P Global. 2024. "Projections of Education Statistics to 2030." Annual Report NCES 2024034. Projections of Education Statistics. National Center for Education Statistics. https://nces.ed.gov/use-work/resource-library/report/compendium/projections-education-statistics-2030?pubid=2024034.

Jain, Muskan, Depak Kumar, Jyoti Chaudhary, Sudesh Kumar, Sheetal Sharma, and Ajay Singh Verma. 2023. "Review on E-Waste Management and Its Impact on the Environment and Society." *Waste Management Bulletin* 1 (3): 34–44. https://doi.org/10.1016/j.wmb.2023.06.004.

Kamola, Isaac. 2024. "State Laws Threaten to Erode Academic Freedom in U.S. Higher Education." *The Free Speech Center*, May 29, 2024. https://firstamendment.mtsu.edu/post/state-laws-threaten-to-erode-academic-freedom-in-u-s-higher-education/.

Karlamangla, Soumya. 2024. "Cal State Professors Reach Tentative Deal to End Strike." *The New York Times*, January 23, 2024. https://www.nytimes.com/2024/01/23/us/california-state-faculty-strike-deal.html.

Knight Foundation. 2024. "College Student Views on Free Expression and Campus Speech 2024." https://knightfoundation.org/reports/college-student-views-on-free-expression-and-campus-speech-2024/.

Knott, Katherine. 2024. "New Title IX Rules Are Out. Here's What You Need to Know." *Inside Higher Ed*, April 19, 2024. https://www.insidehighered.com/news/government/2024/04/19/biden-administration-finalizes-title-ix-overhaul.

———, and Johanna Alonso. 2025. "What's Next for Colleges After Judge Vacates Biden's Title IX Rule." *Inside Higher Ed*, January 9, 2025. https://www.insidehighered.com/news/government/student-aid-policy/2025/01/09/federal-judge-throws-out-bidens-title-ix-overhaul.

———, and Kathryn Palmer. 2025. "'Shortsighted' and 'Dangerous': Colleges Warn of Budget Cuts After NIH Slashes Medical Research Funding." *Inside Higher Ed*, February. https://www.insidehighered.com/news/government/science-research-policy/2025/02/08/higher-ed-leaders-warn-dire-consequences-after.

Knox, Liam. 2023. "Duke's Affordable Action Plan." *Inside Higher Ed*, June 28, 2023. https://www.insidehighered.com/news/students/financial-aid/2023/06/28/duke-expands-aid-affirmative-action-decision-looms.

———. 2024. "Grasping for a Foothold on the Enrollment Cliff." *Inside Higher Ed*, December 20, 2024. https://www.insidehighered.com/news/business/revenue-strategies/2023/05/12/grasping-foothold-enrollment-cliff.

———. 2025. "How Did Enrollment Researchers Get It So Wrong?" *Inside Higher Ed*, January 30, 2025. https://www.insidehighered.com/news/admissions/traditional-age/2025/01/15/erroneous-data-showed-first-year-decline-it-actually.

Kohli, Diti. 2024. "BU and Its Graduate Students Reach Deal That Could End Seven-Month Strike." *The Boston Globe*, October 11, 2024. https://www.bostonglobe.com/2024/10/11/business/bu-grad-worker-strike-contract/.

Lane, P., C. Falkenstern, and P. Bransberger. 2024. "Knocking at the College Door: Projections of High School Graduates." https://www.wiche.edu/wp-content/uploads/2024/12/2024-Knocking-at-the-College-Door-final.pdf.

Lang, Ethan. 2024. "York University, Faculty Association Reach Tentative Deal." *CBC News*, August 20, 2024. https://www.cbc.ca/news/canada/toronto/york-u-faculty-deal-reached-1.7298381.

Lee, Megan, Tyra Byers, and Alyssa Powell. 2023. "Student Perceptions and Interests in Sustainability: Differences among Student Groups and Impact on Student Sustainability Program Participation." *International Journal of Sustainability in Higher Education* 24 (8): 1726–43. https://doi.org/10.1108/IJSHE-02-2022-0058.

Liang, Weixin, Mert Yuksekgonul, Yining Mao, Eric Wu, and James Zou. 2023. "GPT Detectors Are Biased against Non-Native English Writers." *Patterns* 4 (7). https://doi.org/10.1016/j.patter.2023.100779.

Lo, Leo S. 2024. "Evaluating AI Literacy in Academic Libraries: A Survey Study with a Focus on U.S. Employees." *College & Research Libraries* 85 (5): 635. https://doi.org/10.5860/crl.85.5.635.

Lu, Adrienne. 2023. "Diversity Statements Are Being Banned. Here's What Might Replace Them." *Chronicle of Higher Education*, October 6, 2023. https://www.chronicle.com/article/diversity-statements-are-being-banned-heres-what-might-replace-them.

Lund, Brady D., Ting Wang, Nishith Reddy Mannuru, Bing Nie, Somipam Shimray, and Ziang Wang. 2023. "ChatGPT and a New Academic Reality: Artificial Intelligence-Written Research Papers and the Ethics of the Large Language Models in Scholarly Publishing." *Journal of the Association for Information Science and Technology* 74 (5): 570–81. https://doi.org/10.1002/asi.24750.

Mahendru, Puja. 2024. "The State of Ransomware in Education 2024." *Sophos News*, July 11, 2024. https://news.sophos.com/en-us/2024/07/11/the-state-of-ransomware-in-education-2024/.

Maher, John. 2024. "Agents, Authors Question HarperCollins AI Deal." *PublishersWeekly.Com*, November 19, 2024. https://www.publishersweekly.com/pw/by-topic/industry-news/publisher-news/article/96533-agents-authors-question-harpercollins-ai-deal.html.

Mangan, Katherine. 2024. "U. of Michigan Bans Use of Diversity Statements, Recommits to Broader DEI Goals." *Chronicle of Higher Education*, December 5, 2024. https://www.chronicle.com/article/u-of-michigan-regents-ban-use-of-diversity-statements-recommit-to-broader-dei-goals.

Mangan, Katherine, and Brian O'Leary. 2024. "Where Are the White Students? A Chronicle Analysis Shows Their Numbers Are Dropping Faster than Any Other Group's." *The Chronicle of Higher Education*, October. https://www.chronicle.com/article/where-are-the-white-students.

Matthews, Alex Leeds, Amy O'Kruk, and Annette Choi. 2025. "School Shootings in the US: Fast Facts | CNN." *CNN Wire Service*, February 11, 2025. https://www.cnn.com/us/school-shootings-fast-facts-dg/index.html.

McGee, Kate. 2023. "An Effort to Ban Faculty Tenure in Public Universities Has Failed in the Texas Legislature." *The Texas Tribune*, May 27, 2023. https://www.texastribune.org/2023/05/27/texas-university-faculty-tenure-ban-fails/.

Meeks, Kasey, Amy Sutton Peak, and Adam Dreihaus. 2023. "Depression, Anxiety, and Stress among Students, Faculty, and Staff." *Journal of American College Health* 71 (2): 348–54. https://doi.org/10.1080/07448481.2021.1891913.

Melton, Monica. 2024. "AI Has Racist Tendencies. Scientists and Founders Are Trying to Fix It." *Business Insider, US Edition*, April 20, 2024, sec. Tech; AI; BI Prime. https://www.proquest.com/docview/3041826347/citation/E440072576324DEBPQ/1.

"Members." 2024. Sustainable Libraries Initiative. December 20, 2024. https://www.sustainablelibrariesinitiative.org/members.

Michael T. Gibbons and National Center for Science and Engineering Statistics (NCSES). 2024. "Higher Education R&D Expenditures Increased 11.2%, Exceeded $108 Billion in FY 2023." NSF 25-313. Alexandria, VA: National Center for Science and Engineering Statistics. https://ncses.nsf.gov/pubs/nsf25313.

Moody, Josh. 2023. "What Do Universities Owe Their Donors?" *Inside Higher Ed*, November 2, 2023. https://www.insidehighered.com/news/governance/executive-leadership/2023/11/02/what-do-universities-owe-their-donors.

———. 2024a. "Students' Demands for Divestment From Israel Have Mostly Failed." *Inside Higher Ed*, September 25, 2024. https://www.insidehighered.com/news/governance/trustees-regents/2024/09/05/student-divestment-demands-have-mostly-failed.

———. 2024b. "Universities Consider Divestment Demands." *Inside Higher Ed*, May 7, 2024. https://www.insidehighered.com/news/governance/executive-leadership/2024/05/07/universities-weigh-protesters-divestment-demands.

Moreira, Ana, Ola Leifler, Stefanie Betz, Ian Brooks, Rafael Capilla, Vlad Constantin Coroama, Leticia Duboc, et al. 2024. "A Road Less Travelled and beyond: Towards a Roadmap for Integrating Sustainability into Computing Education." arXiv. https://doi.org/10.48550/arXiv.2406.18945.

National Center for Science and Engineering Statistics (NCSES), and Gary Anderson. 2024. "U.S. R&D Increased by $72 Billion in 2021 to $789 Billion; Estimate for 2022 Indicates Further Increase to $886 Billion." NSF 24-317. Alexandria, VA: National Science Foundation. https://ncses.nsf.gov/pubs/nsf24317/.

Nerestant, Antoni. 2024. "McGill Law Professors' Strike Suspended, Students Can Go Back to Class." *CBC News*, October 1, 2024. https://www.cbc.ca/news/canada/montreal/law-students-mcgill-threat-cancellation-1.7338579.

Niche. 2024. "2025 Best Colleges with Sustainability Studies Degrees." Niche. December 20,

2024. https://www.niche.com/colleges/search/best-colleges-with-sustainability-studies/.

Nietzel, Michael T. 2024. "College Faculty & Grad Student Unionization on the Rise, Finds Report." *Forbes*, September 1, 2024. https://www.forbes.com/sites/michaeltnietzel/2024/09/01/college-faculty--grad-student-unionization-on-the-rise-finds-report/.

Palmer, Kathryn. 2025. "Johns Hopkins Plans for Layoffs Amid $800M Cut to Federal Grants." *Inside Higher Ed*, March 13, 2025. https://www.insidehighered.com/news/quick-takes/2025/03/13/johns-hopkins-plans-layoffs-amid-800m-cut-federal-grants.

———. 2024a. "Library Faculty Eliminated amid 'fiscal Insanity' at Western Illinois." *Inside Higher Ed*, August 20, 2024. https://www.insidehighered.com/news/business/cost-cutting/2024/08/20/library-faculty-eliminated-western-illinois-university.

———. 2024b. "Oxford University Press 'Actively Working' with AI Companies." *Inside Higher Ed*, August 5, 2024. https://www.insidehighered.com/news/quick-takes/2024/08/05/oxford-university-press-actively-working-ai-companies.

Paris, Jamie. 2024. "The Exploitation Trap of Hope Labour." *University Affairs*, October. https://universityaffairs.ca/opinion/the-exploitation-trap-of-hope-labour/.

Patel, Dylan, and Gerald Wong. 2023. "GPT-4 Architecture, Infrastructure, Training Dataset, Costs, Vision, MoE." Corporation. *SemiAnalysis* (blog). July 10, 2023. https://semianalysis.com/2023/07/10/gpt-4-architecture-infrastructure/.

Paul B., '11. 2008. "Speaking in MITese." *MIT Admissions* (blog). August 19, 2008. https://mitadmissions.org/blogs/entry/speaking_mitese/.

Paykamian, Brandon. 2023. "How Are Higher Ed Cyber Attacks Evolving?" *GT: Government Technology*, July. https://www.govtech.com/education/higher-ed/how-are-higher-ed-cyber-attacks-evolving.

Perlmutter, David D. 2021. "Advice | Admin 101: Campus Administrators Need Self-Care, Too." *The Chronicle of Higher Education* 68 (5): 1. https://www.chronicle.com/article/admin-101-campus-administrators-need-self-care-too.

Petrow-Cohen, Caroline. 2024. "UC Service and Hospital Workers Launch Two-Day Strike over Contract Talks." *Los Angeles Times*, November 20, 2024. https://www.latimes.com/business/story/2024-11-20/uc-hospital-workers-strike.

Phillips, Jason D, Laura Pitts, Jessica Riedmueller, and Joanna Warren. 2024. "Keeping the Light On: Academic Librarians and Burnout." *The Southeastern Librarian* 72 (1). https://doi.org/10.62915/0038-3686.2066.

Pope, Audrey and HLR. 2024. "NYT v. OpenAI: The Times's about-Face." *Harvard Law Review*, April. https://harvardlawreview.org/blog/2024/04/nyt-v-openai-the-timess-about-face/.

Potter, Wellett. 2024. "An Academic Publisher Has Struck an AI Data Deal with Microsoft – without Their Authors' Knowledge." *The Conversation*, July 23, 2024. http://theconversation.com/an-academic-publisher-has-struck-an-ai-data-deal-with-microsoft-without-their-authors-knowledge-235203.

Potts, Monica. 2023. "Why Republicans Are Targeting Professors' Job Security." *FiveThirtyEight*, May 11, 2023. https://fivethirtyeight.com/features/college-tenure-republican-attacks-education/.

Quinn, Ryan. 2023a. "Grad Worker Unionization Is Booming, Even down South." *Inside Higher Ed*, September 6, 2023. https://www.insidehighered.com/news/faculty-issues/labor-unionization/2023/09/06/grad-worker-unionization-booming-even-down-south.

———. 2023b. "The Toll of a Botched Hire." *Inside Higher Ed*, August 4, 2023. https://www.insidehighered.com/news/faculty-issues/diversity-equity/2023/08/04/texas-am-pays-mcelroy-1m-report-reveals-presidents.

———. 2023c. "War in Gaza Fuels Faculty Free Speech Battles." *Inside Higher Ed*, December 18, 2023. https://www.insidehighered.com/news/faculty-issues/academic-freedom/2023/12/18/israels-war-gaza-fuels-faculty-free-speech-battles.

———. 2024a. "Cornell Interim President Accused of Violating Academic Freedom After Email Leaks." *Inside Higher Ed*, December 5, 2024. https://www.insidehighered.com/news/faculty-issues/academic-freedom/2024/12/05/cornell-president-accused-violating-academic.

———. 2024b. "Many Faculty Say Academic Freedom Is Deteriorating. They're Self-Censoring." *Inside Higher Ed*, November 13, 2024. https://www.insidehighered.com/news/faculty-issues/academic-freedom/2024/11/13/many-faculty-say-academic-freedom-deteriorating.

———. 2024c. "Nevada Professor Who Defended Math Standards Fights Suit Dismissal." *Inside Higher Ed*, December 9, 2024. https://www.insidehighered.com/news/quick-takes/2024/11/05/nev-prof-who-defended-math-standards-fights-suit-dismissal.

———. 2024d. "Non-Tenure-Track Faculty Must Leave Harvard after 8 Years. They're Calling for That to End." *Inside Higher Ed*, October 28, 2024. https://www.insidehighered.com/news/faculty-issues/tenure/2024/10/28/non-tenure-track-faculty-demand-harvard-stop-forcing-them-out.

———. 2024e. "Oregon State University Graduate Student Workers Strike." *Inside Higher Ed*, November 15, 2024. https://www.insidehighered.com/news/quick-takes/2024/11/15/oregon-state-university-graduate-student-workers-strike.

Reitz, Joan. 2013. "Online Dictionary for Library and Information Science." https://odlis.abc-clio.com/odlis_s.html#sustainablelib.

Reuters. 2024. "Time, OpenAI Sign Multi-Year Content Deal." *Reuters*, June 27, 2024, sec. Artificial Intelligence. https://www.reuters.com/technology/artificial-intelligence/openai-signs-multi-year-content-deal-with-time-magazine-2024-06-27/.

Riehm, Kira E, Ramin Mojtabai, Leslie B Adams, Evan A Krueger, Delvon T Mattingly, Paul S Nestadt, and Adam M Leventhal. 2021. "Adolescents' Concerns About School Violence or Shootings and Association With Depressive, Anxiety, and Panic Symptoms." *JAMA Network Open* 4 (11): e2132131–e2132131. https://doi.org/10.1001/jamanetworkopen.2021.32131.

Schanzenbach, Diane W., and Sarah Turner. 2022. "Limited Supply and Lagging Enrollment: Production Technologies and Enrollment Changes at Community Colleges during the Pandemic." *Journal of Public Economics* 212 (August):104703. https://doi.org/10.1016/j.jpubeco.2022.104703.

Scholarly Networks Security Initiative. 2024. "Cybersecurity Resources for Librarians & Publishers." December 13, 2024. https://www.snsi.info/librarian-resources/.

Schroeder, Ray. 2024. "A Near-Future Vision of AI in Higher Ed." *Inside Higher Ed*, September 25, 2024. https://www.insidehighered.com/opinion/blogs/online-trending-now/2024/09/25/near-future-vision-ai-higher-ed.

Schuette, Anthony. 2023. "Navigating the Enrollment Cliff in Higher Education. Spotlight Report Brief." Trellis Company. https://files.eric.ed.gov/fulltext/ED628984.pdf.

Schuhrke, Jeff. 2023. "After 49 Days, the Longest Adjunct Strike in U.S. History Comes to a Close." *In These Times*, December. https://inthesetimes.com/article/columbia-college-adjunct-faculty-union-chicago-49-days-longest-adjunct-strike-in-us-history-ends.

Scolobig, Anna, and Jörg Balsiger. 2024. "Emerging Trends in Disaster Risk Reduction and Climate Change Adaptation Higher Education." *International Journal of Disaster Risk Reduction* 105 (April):104383. https://doi.org/10.1016/j.ijdrr.2024.104383.

Siew, Bhola Randy. 2024. "Strengthening Big Data Security and Privacy in Libraries: A Review of ISO Standards and Real-World Cyberattack Case Studies." *Journal of Information Studies & Technology (JIS&T)* 2024 (2): 11. https://doi.org/10.5339/jist.2024.11.

Singh, Jaspreet. 2024. "OpenAI Signs Content Deals with The Atlantic and Vox Media." *Reuters*, May 29, 2024, sec. Media & Telecom. https://www.reuters.com/business/media-telecom/openai-signs-content-deals-with-atlantic-vox-media-2024-05-29/.

Sivaprasad, P., S. Thanuskodi, and M. Nagaiah. 2024. "Challenges and Hurdles in Establishing a Green Library: Strategies for Overcoming Them." *Electronic Green Journal* 1 (49). https://doi.org/10.5070/G314959708.

Spitalniak, Laura. 2023. "Adjunct Faculty Face Low Pay, Minimal Administrative Support, AFT Finds." *Higher Ed Dive* (blog). November 6, 2023. https://www.highereddive.com/news/adjunct-faculty-face-low-pay-minimal-support-aft-finds/698945/.

Startz, Dick. 2024. "Are Colleges Really Facing an Enrollment Cliff?" *Brookings Institution*, October. https://www.brookings.edu/articles/are-colleges-really-facing-an-enrollment-cliff/.

"Statement on Political Interference in Higher Education." 2024. *AAUP (American Association of University Professors)* (blog). January 23, 2024. https://www.aaup.org/report/statement-political-interference-higher-education.

Stokes, Rebecca Mathews, Bijan Warner, Peter. 2023. "Managing the Demand Cliff." *Inside Higher Ed*, October 16, 2023. https://www.insidehighered.com/opinion/views/2023/10/16/managing-other-enrollment-cliff-opinion.

Sustainable Libraries Initiative. 2024a. "National Climate Action Strategy for Libraries." https://www.sustainablelibrariesinitiative.org/national-climate-action-strategy-libraries.

———. 2024b. "Sustainable Library Certification Program FAQ." Sustainable Libraries Initiative. December 20, 2024. https://www.sustainablelibrariesinitiative.org/about-us/program-faq.

Swaak, Taylor. 2024. "As Fake Applications Soar, Colleges Turn to AI." *The Chronicle of Higher Education*, October. https://www.chronicle.com/article/colleges-see-alarming-rates-of-fake-applications-so-theyre-turning-to-ai.

Taft, Isabelle. 2024. "How Colleges Are Changing Their Rules on Protesting." *The New York Times*, September 12, 2024, sec. U.S. https://www.nytimes.com/2024/09/12/us/college-protest-rules.html.

Tariq, Muhammad Sharjil, and Ayesha Khalid. 2023. "Placing Green IT Awareness and Practices among Universities' Librarians: A NAT Perspective." *The Journal of Academic Librarianship* 49 (5): 102770. https://doi.org/10.1016/j.acalib.2023.102770.

Tewari, Rachna, Mark Simpson, Carson Letot, Joey Mehlhorn, Daniel Foster, Naveen Musunuru, and Brian Parr. 2023. "Expanding Climate Change Education in Agricultural Communities: Lessons from the U.S. Midsouth." *NACTA Journal* 67 (1). https://doi.org/10.56103/nactaj.v67i1.105.

"The AAUP Condemns Escalating Assault on Academic Freedom at Penn." 2023. AAUP (American Association of University Professors). December 19, 2023. https://www.aaup.org/news/aaup-condemns-escalating-assault-academic-freedom-penn.

The Authors Guild. 2024. "HarperCollins AI Licensing Deal." *The Authors Guild* (blog). November 19, 2024. https://authorsguild.org/news/harpercollins-ai-licensing-deal/.

"The Growing Environmental Risks of E-Waste." 2024. Geneva Environment Network. October 9, 2024. https://www.genevaenvironmentnetwork.org/resources/updates/the-growing-environmental-risks-of-e-waste/.

Times of India. 2024. "OpenAI: Major Canadian News Media Companies Launch Legal Action against OpenAI," May 29, 2024. https://economictimes.indiatimes.com/tech/artificial-intelligence/major-canadian-news-media-companies-launch-legal-action-against-openai/articleshow/115817368.cms?from=mdr.

Tribelhorn, Sarah K. 2023. "Preliminary Investigation of Sustainability Awareness and Activities among Academic Libraries in the United States." *The Journal of Academic Librarianship* 49 (3): 102661. https://doi.org/10.1016/j.acalib.2022.102661.

Truong, Debbie. 2023. "A PhD and Full Class Load Gets a CSU Lecturer $64,860 a Year. They Are Striking for Change." *Los Angeles Times*, December 22, 2023. https://www.latimes.com/california/story/2023-12-22/a-ph-d-heavy-class-load-gets-a-csu-lecturer-54-360-a-year-they-are-striking-for-change.

Ulven, Joachim Bjørge, and Gaute Wangen. 2021. "A Systematic Review of Cybersecurity Risks in Higher Education." *Future Internet* 13 (2): 39. https://doi.org/10.3390/fi13020039.

UNESCO Global AI Ethics and Governance Observatory. 2024. "Global AI Ethics and Governance Observatory." https://www.unesco.org/en/artificial-intelligence/recommendation-ethics.

United Nations, Department of Economic and Social Affairs. 2024. "THE 17 GOALS | Sustainable Development." United Nations: Department of Economic and Social Affairs; Sustainable Development. November 12, 2024. https://sdgs.un.org/goals.

United Nations General Assembly. 2015. "Transforming Our World: The 2030 Agenda for Sustainable Development." United Nations. https://documents.un.org/doc/undoc/gen/n15/291/89/pdf/n1529189.pdf.

United Nations General Assembly, Economic and Social Council. 2024. "Progress towards the Sustainable Development Goals." United Nations General Assembly Economic and Social Council. https://unstats.un.org/sdgs/files/report/2024/SG-SDG-Progress-Report-2024-advanced-unedited-version.pdf.

United Nations Office for Disaster Risk Reduction. 2007. "Definition: Disaster Risk Reduction." https://www.undrr.org/terminology/disaster-risk-reduction.

U.S. Green Building Council. 2024. "Higher Education." U.S. Green Building Council. December 20, 2024. https://www.usgbc.org/education/higher-education.

Viveiros, Nelia, M. Gabriela Torres, and Elizabeth Hutchison. 2024. "Legislation Isn't All That Negatively Impacts DEI Practitioners." *Inside Higher Ed*, August 16, 2024. https://www.insidehighered.com/opinion/career-advice/conditionally-accepted/2024/08/16/challenges-dei-practitioners-experience.

Walsh, Dylan. 2024. "A Data-Centered Approach to Education AI." *HAI Stanford University Human-Centered Artificial Intelligence*, February 26, 2024. https://hai.stanford.edu/news/data-centered-approach-education-ai.

Watanabe, Teresa. 2023. "USC and Graduate Students Union Reach Tentative Pact with Big Pay Boosts, Bias Protections." *Los Angeles Times*, November 27, 2023. https://www.latimes.com/california/story/2023-11-27/usc-and-graduate-students-reach-tentative-pact-with-big-pay-boosts-and-bias-protections.

Watson, Julie, and Stephanie Dazio. 2022. "University of California, Workers Reach Deal to End Strike." *AP News*, December 16, 2022. https://apnews.com/article/business-education-california-strikes-16a970385bf508a119ac4e0722b00422.

Weaver, Kari D. 2024. "The Artificial Intelligence Disclosure (AID) Framework: An Introduction." *College & Research Libraries News* 85 (10): 407. https://doi.org/10.5860/crln.85.10.407.

Weissman, Sara. 2024. "Community Colleges 'back to Reality' after Federal Relief." *Inside Higher Ed*, August 8, 2024. https://www.insidehighered.com/news/institutions/community-colleges/2024/08/08/community-colleges-face-end-pandemic-relief-funds.

Wendling, Mike. 2023. "Harvard Letter: Law Students Who Took Anti-Israel Stance Lose Job Offers." *BBC News*, October 18, 2023. https://www.bbc.com/news/world-us-canada-67152271.

White, Jeremy. 2024. "See How Easily A.I. Chatbots Can Be Taught to Spew Disinformation." *The New York Times*, May 19, 2024, sec. Technology.

https://www.nytimes.com/interactive/2024/05/19/technology/biased-ai-chatbots.html.

Winter, Susie. 2023. "Guest Post - What Is Keeping University Chief Information Security Officers up at Night." *The Scholarly Kitchen* (blog). April 21, 2023. https://scholarlykitchen.sspnet.org/2023/04/21/guest-post-what-is-keeping-university-chief-information-security-officers-up-at-night/.

Wolfe, Elizabeth, Artemis Moshtaghian, Kristina Sgueglia, and Liam Reilly. 2023. "Contract Negotiations between Rutgers University and 3 Unions Representing Thousands of Faculty and Staff Continue amid Historic Strike." *CNN*, April 10, 2023. https://www.cnn.com/2023/04/10/us/rutgers-university-unions-strike-monday/index.html.

Woodcock, Claire. 2023. "College Librarians in Florida Are Hoping for the Best, But Preparing for the Worst." *Slate*, June 25, 2023. https://slate.com/human-interest/2023/06/libraries-florida-dei-crt-college.html.

Zahneis, Megan. 2024. "Why U. of Florida Professors Decry 'chaotic' Post-Tenure Review That Failed Nearly a Fifth of Those Evaluated." *The Chronicle of Higher Education*, August 19, 2024. https://www.chronicle.com/article/why-u-of-florida-professors-decry-chaotic-post-tenure-review-that-failed-nearly-a-fifth-of-those-evaluated.