Postdigital Librarianship

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Abstract

The novel coronavirus pandemic revealed many of the promises of our digital information revolution, but it also revealed many problems and raised fundamental questions about what we can know, what we may hope, and what we should do. As we reimagine what might be possible after the pandemic, librarians and libraries are well positioned to help shape better futures through critical, constructive, and ethical approaches to digital transformation. This paper explores our present information crisis and revolution, previous information revolutions, and strategic directions for integrating new technologies into our lives in ways that may enhance wisdom, hope, and justice.

1. Our Information Apocalypse

The COVID-19 pandemic has been an apocalyptic event. It has been apocalyptic in the popular sense of the word, in that the pandemic was a sudden and global catastrophe. But the pandemic also has been apocalyptic in a more literal sense, as an uncovering of deeper truths and realities.[1] The pandemic quickly became an infodemic; it exposed and exacerbated systemic racial, economic, and other inequities; and it revealed not only the potential of emerging technologies but also many problems with them. Before the pandemic, it was already clear to many such as Ruha Benjamin that it was past time "to reimagine what is possible" in our technological society.[2] The pandemic, and the various crises that accompanied it, have transformed our current information revolution into an information apocalypse. Now, as we begin to emerge from the pandemic, we have a unique opportunity to learn from this revelatory moment as we strive "for another and a juster world."[3]

Libraries have been central in the discovery, creation, and sharing of knowledge for millennia. Initially, the aims of libraries were modest and imperialistic. More recently, guided by professionals attentive to their role in shaping social and cultural dynamics, libraries have become significant sites for cultivating individual and collective agency—often enabling actions

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[1] On the origins of "apocalyptic," see John J. Collins, "What is Apocalyptic Literature," in *The Oxford Handbook of Apocalyptic Literature*, ed. John J. Collins (Oxford: Oxford University Press, 2014), esp. 2ff.

[2] Ruha Benjamin, *Race after Technology: Abolitionist Tools for the New Jim Code* (Medford, MA: Polity, 2019), 1.

[3] W. E. B. Du Bois, *The Souls of Black Folk* (New York: Penguin, 2018), 63.

that have led to social transformation. This remained true during the pandemic: previous investments in digital resources, services, platforms, and practices enabled librarians and libraries to meet many of their community's information needs and challenges. Looking beyond the pandemic and current technological transformations, and reflecting back on a deep history of information access, attention, and agency, librarians and libraries are well positioned to confront the unique information challenges of our time and help shape a better post-pandemic and digitally transformed world.

2. An Information Revolution

Digital technologies have been reshaping our lives and the environments in which we live for decades. Within the last ten years, advances in transformative digital technologies such as big data, cloud computing, and artificial intelligence have increased awareness of and attention to their impacts. Klaus Schwab, founder of the World Economic Forum, claims we are living through "a fourth industrial revolution … that is fundamentally changing the way we live, work, and relate to one another."[4] The philosopher Luciano Floridi argues we are living through a fourth modern scientific revolution, an "information revolution," which is "affecting our sense of self, how we relate to each other, and how we shape and interact with our world."[5] The term "digital transformation" is often used to describe how we manage these rapid, profound, and irreversible changes. The pandemic accelerated digital transformation, further integrating digital technologies into our lives and world. At some point in the near future, when these technologies are a regular part of our lives, the "digital" will lose its salience and we will be, in a sense, "postdigital."

The pandemic has amplified the need for a deeper understanding of the idea and reality of being postdigital. More than a temporal marker, being postdigital should be about critical inquiry into the dynamics of our digital information revolution.[6] We need to critique and integrate these technologies into our lives and institutions intentionally. This requires returning to some fundamental questions in the context of digital transformation about what we can know, what we may hope, and what we should do.[7] The first question is an epistemological challenge: it concerns how we come to understand the world, individually and socially. It forces us to confront misinformation and disinformation, as well as how attention can be apprehended and manipulated for ends that do not align with our desires or intentions (beyond our most basic drives and instincts). The second question concerns ultimate hopes and goals, and requires us to engage in broad and robust discussions about better futures that are not limited by predictable patterns of data or technical optimization. The third question is ethical—concerning how we create a better world collectively and preserve individual autonomy, moral responsibilities, and agency in an increasingly automated environment.

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[4] Klaus Schwab, *The Fourth Industrial Revolution* (New York: Currency, 2016), 1.
[5] Luciano Floridi, *The Fourth Revelation: How the Infosphere Is Reshaping Human Reality* (Oxford: Oxford University Press, 2014), vi.
[6] For a discussion of "postdigital," see Jeremy Knox, "What Does the 'Postdigital' Mean for Education?," *Postdigital Science and Education* 1 (2019): 357-70.
[7] These three questions come from Immanuel Kant's *Critique of Pure Reason*, trans. Paul Guyer and Allen Wood (Cambridge, UK: Cambridge University Press, 2000), 677.

3. The Pre-Digital Library

We have experienced previous information revolutions and gained significant insights from each. The first, connected with the emergence of our species, enabled us to process information reflectively and imaginatively—not just reflexively and automatically.[8] A fundamental challenge we face today concerns how technological automation threatens the dis-automatization and capacity for attention that *Homo sapiens* realized, which liberated human desires from drives. A second information revolution, linked with the development of cities, came with the creation of information agencies (political, economic, religious, and other institutions) to realize shared goals.[9] These forms of structural agency can function autonomously—often becoming oppressive—and require regular human interventions to correct systemic flaws and failures. A third information revolution, following the invention of writing, came with the creation of information artifacts—new information communication technologies to advance the discovery and sharing of knowledge. These artifacts required information and attention management infrastructures and systems, and libraries emerged to collect texts judged worthy of attention and to mediate access through social and technical systems for information agency.[10]

Libraries brought together the values of attention, agency, and access from the information revolutions associated with reflective attention, structural agency, and access to information artifacts. Over a long period of time, these values have become increasingly diverse, inclusive, and equitable, especially after the emergence of modern democratic societies.[11] By the time of Schwab's second, electricity-powered industrial revolution, libraries were the central figure in the information environment inhabiting prominent buildings in the centers of cities and college campuses. As we negotiate a fourth information revolution related to automated and autonomous information processing, our unique challenge—one which librarians and libraries have a unique role in addressing—is to discern how shared histories of reflective attention, structural agency, and information communication technologies can help us integrate digital technologies into our lives that enhance wisdom, hope, and justice.

4. Post-Digital Librarianship

In the 1970s, Marshall McLuhan and Robert Logan observed that the library was as "an old figure in a new ground." "The challenge facing libraries," they said, "is to fully exploit the new technologies while at the same time preserving the best of the past traditions of the library."[12] What McLuhan and Logan observed then, and what the pandemic has recently confirmed, is that librarians have been proactively and productively engaged in the trajectory of digital

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[8] See Frederick L. Coolidge and Thomas Wynn, *The Rise of Homo Sapiens: The Evolution of Modern Thinking* (Oxford: Oxford University Press, 2018), esp. 5f.

[9] See Yuval Noah Harari, *Sapiens: A Brief History of Humankind* (New York: HarperCollins, 2015), esp. 77ff.

[10] See Kim Ryholt and Gojko Barjamovic, eds., *Libraries before Alexandria* (Oxford: Oxford University Press, 2019).

[11] See Wayne A. Wiegand, *Part of Our Lives: A People's History of the American Public Library* (Oxford: Oxford University Press, 2015).

[12] Robert K. Logan with Marshall McLuhan, *The Future of the Library: From Electronic Media to Digital Media* (New York: Peter Lang, 2016), 4, 81.

transformation since the middle of the twentieth century. Libraries have digitized resources, automated operations and access, created new digital services and platforms, and cultivated new information and digital literacies. All of these digital enhancements were beneficial and led to other innovations during the pandemic, but the nearly all-digital work of pandemic librarianship revealed dimensions of the library that cannot be—or perhaps should not be—automated or mediated digitally.[13] In a way, the pandemic provided us with a glimpse of a dystopian or negative postdigital future. Paying attention to pre- and extra-digital elements of the library can help us refine our approach to digital transformation and shape better postdigital futures. I would like to highlight and briefly explore five themes and strategic areas of focus, which may help postdigital librarianship preserve the best of what libraries have been while wisely integrating transformative technologies into libraries to augment what they are today.

4.1. A Human Interface

From the beginning, libraries have been human interfaces for accessing information artifacts. Often this access is mediated through librarians, but libraries also provide human-scaled information infrastructures that enable unmediated access. This has included manuscript, printed, and digital catalogs, as well as the classification and organization of materials in physical and virtual spaces. With all of these library technologies, the aim is to connect people with the information they need or desire. To manage the asymmetry between what a human can process and the amount of information available—which, as Ecclesiastes reminds us, is an ancient problem[14]—librarians attempt to define a centered, although not strictly bounded, context for discovery (i.e., a selected collection). By the end of the twentieth century, the library was decentered in the information environment and selection was largely automated. Now, many consider a search engine or the internet as "a library." While digitally networked resources and services have been important augments for libraries, one clear distinction between the library and a search engine or the internet is the lack of a human or human-scaled interface.

Prioritizing people requires an acknowledgement of and attention to human limits—not just of understanding, but of our existence in space and time. We are embodied, even when we are online, and our physical conditions constrain our ability to be omniscient, omnipresent, and omnipotent. Large-scale search engines and technology platforms can tempt us into thinking that we may transcend our attentional and agentic limits thoroughly. These commercial tools and systems often do not respect the protections that the vulnerabilities of human existence require: personal data protection, humane software design, non-manipulative algorithms, and information discernment. Although librarians should leverage all that can be done digitally, we should resist a dualistic framework that separates online activities from the offline world and explore strategies for holistic hybridity. Libraries' long history of designing human-centered physical information infrastructures can be a model for digital alternatives that respect human limits and diverse needs. At the same time, libraries can continue to be places for fully embodied discoveries, interactions, and experiences.

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[13] See, e.g., Christopher Cox et al., "Looking through the COVID Fog: Toward Resilient, Reimagined Libraries," *College & Research Libraries News* 82:8 (2021): 362f., 368, available from https://crln.acrl.org/index.php/crlnews/article/view/25126/32986.
[14] "Of making many books there is no end, and much study wearies the body," Ecclesiastes 12:12b (NRSV).

4.2. Augmented Intelligence

Automated and autonomous information processing technologies challenge human limits—our autonomy from them, our attention independent of them, and our agency beyond them—but, like every other useful technology, they also can help us transcend our limits. Following the invention of electronic digital computers in the 1940s, leading mathematicians and engineers began working on artificial intelligence. At the same time, other computer scientists were working on a different project: intelligence augmentation. Instead of trying to simulate human intelligence, they worked on technologies that would help humans do intellectual work—technologies that led to the invention of the personal computer and computer networking.[15]

Libraries have a respectable record of automating processes that are good candidates for automation: making technical operations more efficient in the 1960 and 1970s, and creating new search and access processes in the 1980s and 1990s. As many of these processes were commercialized, some have critiqued libraries for an apparently slower pace of automation during the twenty-first century.[16] However, the digital practices developed during this time—digital literacies, digital scholarship, digital pedagogies, etc.—have been critical for empowering people in an increasingly digital age. As AI technologies improve, there may be opportunities to automate more research, instructional, and scholarly work. But it will be important to ensure that automation enhances and does not inhibit human creativity and relationships. A chatbot may be helpful for providing some basic answers to questions, but this static processing of information is rather different from the dynamic understanding that happens in and among humans.

4.3. Knowledge

It is widely recognized that we are facing an epistemic crisis as a society. Information literacy, information studies, and information ethics have evolved within our information society over the last fifty years. Now, librarians also teach digital literacies and digital ethics related to data, algorithms, and AI.[17] In addition, critical information literacy and critical information studies represent a self-critical maturity, which enlarges our understanding of our evolving information environment and empowers more agency within it.[18] Librarians help people cultivate essential competencies not only for surviving but also for thriving in the midst of our information revolution.

While facilitating searches for truth and meaning remains central to librarians' commitment to the discovery of knowledge, librarians need to continue attending to the different ways humans seek and find meaning. This includes diverse ways of knowing, such as Indigenous and other

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[15] See John Markoff, *Machines of Loving Grace: The Quest for Common Ground Between Humans and Robots* (New York: Ecco, 2015), esp. 5-18.

[16] See, e.g., Amanda Wheatley and Sandy Hervieux, "Artificial Intelligence in Academic Libraries: An Environmental Scan," *Information Services & Use* 39:4 (2019): 347-56.

[17] See, e.g., Walter D. Butler, Aloha Sargent, and Kelsey Smith, *Introduction to College Research* (Pressbooks, 2021).

[18] See James Elmborg, "Critical Information Literacy: Definitions and Challenges," in *Transforming Information Literacy Programs: Intersecting Frontiers of Self, Library Culture, and Campus Community*, ed. Carroll Wetzel Wilkinson and Courtney Bruch (Chicago, IL: Association of College and Research Libraries, 2012), 75-80.

wisdom traditions, but also the role of attention in the apprehension of understanding. Many years ago, Howard Rheingold pointed out that attention is the "fundamental" literacy and discipline for leveraging the internet's "architecture of participation."[19] Today, many architects of the internet compete for and commoditize our attention in ways that interfere with our ability to focus and do what we want to do. This functional distraction can lead to an existential form of distraction, if our higher goals and values are compromised and we are hindered from being who we want to be over time. These forms of distraction can lead to a deeper, epistemic form of distraction—a diminishment of fundamental capacities, such as reflection, imagination, reasoning, and metacognition, which enable us to define our goals and values.[20] We must attend to attention.

4.4. Hope

Epistemic crises associated with information and attention challenge our ability to shape shared and inclusive visions of the future. In addition to developing structures and practices for creating a better information commons, librarians and libraries can also facilitate conversations about human potential and shared hopes. Emerging at a time when human civilizations began reflecting on "a deep past" and planning for "a far future," libraries have always been future-oriented institutions—structured to provide long-term as well as immediate access to and use of information.[21] In speculative literature about the end of the world, libraries regularly appear as signs of and structures for hope: information is preserved for the benefit of future generations, as in Isaac Asimov's Foundation series, or libraries are created to facilitate the return of civilization, as in Emily St. John Mandel's *Station Eleven*.[22] Libraries liberate people not only from epistemic bubbles but also from eschatological ones—inviting us to imagine greater ends as well as wisdom.

Ruha Benjamin says we need to "imagine and craft the worlds [we] cannot live without, just as [we] dismantle the ones [we] cannot live within."[23] Libraries can resource and facilitate—with new, ancient, and alternative perspectives—discussions around what John Danaher calls "axiological futurism," the goods we care about and how we attend to the trajectories of those values over time. As institutions, libraries sustain a full experience of human temporality: they enable us to remember the past, anticipate the future, and participate in the present. To reform and transform our information environment, we need radical but realistic hopes that can direct and drive proactive change in the present. Libraries can equip and model such hopes.

4.5. Justice

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[19] Howard Rheingold, *Net Smart: How to Thrive Online* (Cambridge, MA: The MIT Press, 2012), 3.

[20] James Williams describes these three types of attention as "spotlight," "starlight," and "daylight." See *Stand out of our Light: Freedom and Resistance in the Attention Economy* (Cambridge: Cambridge University Press, 2018), esp. 50, 56, 68.

[21] Greg Woolf, *The Life and Death of Ancient Cities: A Natural History* (Oxford: Oxford University Press, 2020), 53.

[22] Isaac Asimov, *Foundation, Foundation and Empire, Second Foundation* (New York: Alfred A. Knopf, 2010); Emily St. John Mandel, *Station Eleven* (New York: Vintage Books, 2014).

[23] Ruha Benjamin, https://www.ruhabenjamin.com/.

Visions of what is good inform visions of what is right. Information and digital ethics—covering concerns related to authenticity, access, privacy, property, security, and community—are at the center of present concerns about a just society.[24] Attempts to leverage new technologies to respond to the COVID-19 pandemic have largely failed because, for decades, technology companies have not developed trustworthy systems and lawmakers have been slow to hold corporations accountable. As Johanna Gunawan et al. point out, "People cannot trust the interfaces they interact with, the devices they use, and the systems that power tech companies' services."[25] Our current information crisis presents an opportunity for librarians, as agents of locally ubiquitous and trusted institutions, to address information justice issues through the structural agency that libraries have cultivated for millennia.

Libraries have good frameworks to work with, such as the Library Bill of Rights and ALA's Code of Ethics.[26] And the important ethical work that librarians have performed for so long should be active at the center of our digital information revolution. With our unique history, professional expertise, and ethical orientation, librarians can have a central role in the digital transformation of our lives and world—leading us into a better postdigital society.

Conclusion

The COVID-19 pandemic revealed or heightened awareness of systemic social problems that have persisted for too long. The pandemic also revealed and accelerated many of the challenges and opportunities of our current information revolution. Our present information revolution, as an information apocalypse, reveals the need for more proactive design and intentional direction of digital and social transformation. This requires us to understand better the dynamics of our emerging information environment, imagine desirable futures, and work to create a better world. Throughout history, librarians and libraries have been agents of both technological and social transformation. The structural agency that library personnel and institutions provide, by curating and mediating access to information and cultivating awareness and action, enables people to understand their lives and world, find meaning and purpose, and participate in the shaping of their futures.

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[24] For a broad scope of what information ethics covers, see John T. F. Burgess and Emily J. M. Knox, *Foundations of Information Ethics* (Chicago, IL: ALA Neal-Schuman, 2019).

[25] Johanna Gunawan et al., "The COVID-19 Pandemic and the Technology Trust Gap," *Seton Hall Law Review* 51 (2021): 1507.

[26] "Library Bill of Rights," American Library Association, http://www.ala.org/advocacy/intfreedom/librarybill; "Professional Ethics," American Library Association, http://www.ala.org/tools/ethics.