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# Discovery, access and use of information in a “digital ecosystem”

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*Boston University*

# Discovery, Access and Use of Information in a “Digital Ecosystem”

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[This was a response to the presentations of a panel titled: “Setting Directions for Libraries and Archives in the Digital Age” at the Humanities Forum sponsored by the Boston University Humanities Center, October 5-7, 2017]

In 1995, Nicholas Negroponte wrote “The information superhighway is more than a short cut to every book in the Library of Congress. It is creating a totally new, global social fabric.”<sup>1</sup> Fast forward to today and Negroponte’s prediction seems very much on target. The Internet is a means by which we publish, discover and access information, engage in rituals, communicate, transact business, establish and attempt to secure our identities, seek entertainment, receive education, do research, find community, experience bullying and harassment, propagate misinformation, wage war, and commit crimes. In short, there are few parts of our lives that are unaffected by our digital environment.

In 2000, the Library of Congress published *LC21: A Digital Strategy for the Library of Congress*. It begins by asserting

No stereotype of libraries as quiet, uneventful places could survive the 1990s. Whatever stability and predictability libraries once had as ordered storehouses of the treasures of the printed world were shattered by the digital revolution. The intellectual function of libraries— to acquire, arrange, and make accessible the creative work of humankind— is being transformed by the explosion in the production and dissemination of information in digital form, especially over global networks.<sup>2</sup>

Our presenters this morning provide a wide range of efforts to make the resources of libraries and archives accessible in digital formats. Like the Library of Congress, the National Archives and Records Administration’s 1997-2007 strategic plan, updated in 2000, identified electronic records as a significant trend requiring a solution. Now, NARA like the Library of Congress is becoming digital. NARA is guiding the transition of all federal government record keeping from analog to electronic formats. Among the purposes identified in the 2011 Presidential Memorandum was to promote openness of government and to reduce inefficiencies in government. With the draft 2018-2022 strategic plan, NARA proposes to make 500 million pages of records available online through the National Archives Catalog. Certainly, it will be interesting to track any gains in efficiency. My experience leads me to believe that while there may be some, new demands, impossible in an analog environment, will eat away at those gains. It will also be interesting to track use of the digitized records. Beyond simply tracking clicks or

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<sup>1</sup> Negroponte, Nicholas. *Being Digital*. 1st ed. New York: Knopf, 1995, p.183.

<sup>2</sup> National Research Council . Committee on an Information Technology Strategy for the Library of Congress. *LC21 : A Digital Strategy for the Library of Congress*. Washington, D.C.: National Academy Press, 2000, p. 1.

downloads, developing a metric that demonstrates the impact of making these documents available online on government and society would be an interesting project.

Dan Cohen rightly observes that simply converting an analog object to digital, or capturing a born-digital object does not necessarily make it easy to use. At BU, we have many anecdotal reports of our faculty, students, and even library staff being unclear about what they may and may not do with digital objects, legally. What is the copyright status? Fair Use? Contractual/license agreements? When we catalog physical items, we rarely think about providing metadata to clarify how an item might be used. Use of physical texts primarily follow the model of a single concurrent reader. Conversion to a digital object makes copying, distribution, and re-use much easier. The call for clear and standard indications of rights is essential for making digital content usable.

In his book, *Remix*, Lawrence Lessig describes an encounter between the late Jack Valenti and a Stanford student. In a debate between Valenti and Lessig, Valenti asked the students how many had downloaded music from Napster to which 90% of students admitted they had. Valenti asked the student to defend this “stealing.” The student’s response was, “Yes, this might be stealing, but everyone does it. How could it be wrong?”<sup>3</sup> Calling for new approaches to copyright, Lessig goes on to say,

In a world in which technology begs all of us to create and spread creative work differently from how it was created and spread before, what kind of moral planform will sustain our kids, when their ordinary behavior is deemed criminal? Who will they become? What other crimes will to them seem natural?<sup>4</sup>

In this digital age, not only has discovery and access changed, but the social norms around use and re-use. Certainly, clarifying how digital objects can be used is important, but that may not really address the changing societal expectations for how we use information in digital formats.

Dan also raises the question, “How can an array of audiences involve themselves in the use, curation, and even production of these resources?” Jeanette Bastian’s presentation on Community Archives provides several very interesting examples of such engagement. For me they also point to some interesting changes in how we are constructing knowledge and provide a wonderful contrast to the government records maintained by NARA or even the archives maintained by HGARC.

What was not clear 25 years ago, or even at the turn of the century was how living in a digital age would change the way we think, and the way we construct knowledge. Several years ago, one of our faculty members was lamenting Wikipedia’s growing presence on the web, and particularly its creep into the classroom. At root, his real objection was the epistemological model that underlies Wikipedia. Encyclopedia Britannica uses a model in which experts function both as filters and as authorities. Accordingly, the stamp of approval given by such an expert assures both accuracy and

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<sup>3</sup> Lessig, Lawrence. *Remix : Making Art and Commerce Thrive in the Hybrid Economy*. New York: Penguin Press, 2008, p. xvii.

<sup>4</sup> *Ibid*, p. xviii.

the quality of information contained in an article. Wikipedia, on the other hand, assumes knowledge can be constructed, or at least encyclopedia articles can be written via a participatory process of social interaction, requiring no expert.

While the community archives are not always digital, and they are certainly very different from Wikipedia, it seems to me that the epistemology is very similar. Both reject the assumption that there is one reality, one knowledge, one story. It is too much to claim a causal relationship between the Internet and community archives, but I suspect that our highly networked digital environment makes the emergence of groups of people articulating their identity more visible if not easier to facilitate. It also raises some interesting questions as we find ourselves navigating a vast sea of digital information. Who gets to select and organize documentary records? What world view guides decisions of what to keep and what to discard? When multiple stories emerge, by whom and how are they validated? In an age of Alternative Facts and Fake News, how do we discern the difference between dis-information, propaganda, and knowledge that is based in a different view of the world?

A National Library as Alberto Manguel envisions it, serves a different purpose than the Library of Congress (for which serving Congress is its primary mission). In *A History of Reading*, Alberto Manguel says, “Reading ... comes before writing. A society can exist —many do exist — without writing, but no society can exist without reading.... For most literate societies ... reading is the beginning of the social contract...”<sup>5</sup> Such reading is to engage in a formative relationship not just with the book being read, but in the context of a library of books. In his presentation, he raises a series of interesting questions,

- How is a national library to become capable of serving readers and non-readers alike?
- How can a national library convert non-readers into readers?
- How can it transform the perception that most non-readers have of libraries as alien places and books –printed or digital-- as alien instruments, into a cartography in which all share a common, effective intellectual space?

Imagining the library as a place where new readers are formed and old readers reaffirmed as suggested seems to me to be a particularly important and interesting challenge in a digital environment. Research indicates that we read text onscreen differently than in print. Reading web pages in a browser or even a book on an ebook reader like a Kindle is a “rapidly interactive activity. Even new pages with plentiful information and many links are regularly viewed only for a brief period”.<sup>6</sup> Katherine Hayles suggests with hyper-reading we are witnessing a shift in cognitive styles that

can be seen in the contrast between deep attention and hyper attention. Deep attention, the cognitive style traditionally associated with the humanities, is characterized by concentrating on a single object for long periods (say, a novel by

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<sup>5</sup> Manguel, Alberto. *A History of Reading*. New York, N.Y. ; Toronto: Penguin Books, 1997, p. 7.

<sup>6</sup> Weinreich, Harald, Hartmut Obendorf, Eelco Herder, and Matthias Mayer. 2008. “Not Quite the Average: An Empirical Study of Web Use.” *ACM Transactions on the Web* 2 (1): 1–31.

Dickens), ignoring outside stimuli while so engaged, preferring a single information stream, and having a high tolerance for long focus times. Hyper attention is characterized by switching focus rapidly among different tasks, preferring multiple information streams, seeking a high level of stimulation, and having a low tolerance for boredom.<sup>7</sup>

“Hyper-reading and hyper-attention are effective and appropriate techniques for discovering, organizing and accessing information in a media intensive environment. The challenge is to hold these techniques in balance with deep reading and deep attention. The hardware and software used for reading may aid in maintaining this balance. The task remains, however, to develop strategies to nurture both deep and hyper-reading.”<sup>8</sup>

We should include as well what Franco Moretti calls “Distant Reading,” or the use of computational methodologies and tools to analyze an entire corpus of texts, though I don’t have time here to do more than mention it. This is to say that both new and old readers are confronted with challenges and opportunities not previously available in an analog age.

I want to quickly shift our attention toward the role of collecting and preserving for libraries in a digital age. Libraries emerged in an era of information scarcity. Local library collections were carefully curated to ensure that both quality and access to appropriate materials for their clientele. One couldn’t assume, for example, that materials to support the curriculum would be available to or accessible by students beyond the walls of the library.

In an era of information abundance, and particularly with high speed digital access, I wonder if the role of collecting for most libraries should change. Clearly, we want to preserve our intellectual heritage and cultural life. For most traditionally published material, perhaps collecting and preservation should be the role of national libraries, and/or a relatively small number of special “preservation” libraries. Most libraries would take responsibility for collecting and curating truly local unique materials. At the same time, the tasks of organizing digital objects for discovery and access seems to be enormous and vastly different from organizing physical objects. I would suggest these tasks are major priorities for all libraries in a digital age.

Finally, I am struck by the way we continue to rely the same containers for digital content that we used for analog environment. David Weinberger in his book *Everything is Miscellaneous* describes the move from analog to digital formats as a move from atoms to bits. Atoms occupy physical space, require physical arrangement, discovery systems designed for physical objects, and impose constraints on how the content can be reused. Bits remove many constraints for how we organize, discover and re-use

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<sup>7</sup> Hayles, N. Katherine. 2007. “Hyper and Deep Attention: The Generational Divide in Cognitive Modes.” *Profession*, 187.

<sup>8</sup> Ammerman, Jack,. “Reading in the 21st century; reading at scale.” 2015 web: <https://hdl.handle.net/2144/22850>

information.<sup>9</sup> To be fair, they also introduce new ones. I am amazed at how much our roots in an analog age still shape our expectation for engaging with information.

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<sup>9</sup> Weinberger, David. *Everything Is Miscellaneous: The Power of the New Digital Disorder*, 2007.