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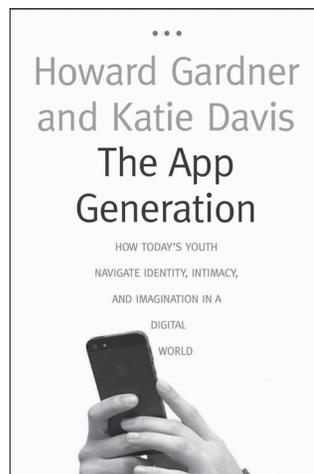
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# The Information Deluge: Navigating the Digital Age with Recent Scholars

As denizens of the twenty-first century, we find ourselves inundated with information, data, and opinion at every turn—in our email correspondence, in our exposure to news, and in our online social relationships. We often find ourselves perplexed about which information sources are trustworthy, about what the data means, and about the boundaries between public and personal information online. For many of us, this seems to be a uniquely anxious time.

In the last few years, a number of authors have addressed this issue of information overload as it affects interpersonal information sharing, individual reading habits, and undergraduate research habits. While everyone in the digital age is dealing with the consequences of changes in the information environment, those of us working in higher education must acknowledge the impact of information overload while striving to build good critical thinking skills and research habits. As an academic librarian, I worry about these issues while helping students learn about information literacy—teaching them to apply thoughtful evaluation of the sources and of the content of information. Looking at several recently published books on the subject, we see that “information overload,” while not new, can now be all-engulfing, and so requires our careful navigation.



## A Sea of Information: Navigating with Ann M. Blair

Worries about having too much information to absorb are actually quite old. In her meticulously documented *Too Much to Know: Managing Scholarly Information before the Modern Age*, Ann M. Blair looks to history and finds numerous complaints that there were too many texts to read, and that finding the correct, most trustworthy texts was becoming increasingly difficult. Many thinkers like Seneca

thought it best to limit what one read to the authoritative canon, preferably re-reading the “good” texts in lieu of reading a new author’s work (Blair 21). As early as 1000 in the Islamic world, scholars felt students were not becoming properly educated because they were depending on compendia for their studies (27). Chinese scholars from 1000 to the 1100s thought students’ dependence on written texts instead of on their memories meant an inevitable diminution of knowledge—and that un-corrected errors in printing would result in increased errors in understanding (32). Faced with copious text, others, like Pliny, decided that limiting what one reads was not the solution to information overload; rather, organizing information was the key (21).

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The aforementioned compendia were actually early attempts to control the flood of information in a manageable way. Blair documents numerous tools and techniques to accomplish information management. Summarizing and compiling were developed in ancient times, and “literary miscellanies” were produced in the second century by Latin, Greek, and Christian writers (20). Note-taking began in the ancient world, and Constantine found value in arranging notes and quotations by theme to increase ease of access for users of texts (21, 28). In eleventh century China, Confucian scholars began putting together anthologies, commentaries, and compilations to assist memory and to help those taking required civil service exams (*CliffsNotes* and *SparkNotes* are nothing new, it seems) (28). In the western world, many readers began to keep personal *florilegium*, in which they recorded “the best” passages from the works they were reading. Though these personal collections were originally intended to ameliorate a scarcity of texts (so that a reader might keep a copy of those best passages, even though required to return a book to its owner), *florilegia* would evolve into useful tools to deal with too much information (34). We inherit many of these and many other organizational tools, and use them to shore up our research today. However, the anxiety of the prior age seems to persist.

## Life on the Shoal: Worrying with Nicholas Carr

Most authors discussing the impacts of the Internet and the World Wide Web harken back to the abrupt change in the production and dissemination of texts in Gutenberg’s day as precedent (Tooby 60). Both these old and new technologies support a democratization of information by increasing access while lowering the price of access. However, with the beginning of the digital age comes complaint and worry about too much information to absorb too quickly. Nicholas Carr, in *The Shallows: What the Internet Is Doing to Our Brains*, covers some of the same historical eras as does Blair, but he quickly moves on to describe consequences of the present flood of digital information, including observed information-behaviors, overviews of neurological studies, and comparisons of pre- and post-digital interactions with texts. In doing so, he chronicles complaints being repeated

in academic circles: researchers no longer read whole books; rather, they skim texts and hyperlink their way to cherry-pick passages for their papers (Carr 9). Non-linear reading, which has become a characteristic of researching in digital environments, challenges our comprehension and shortens our attention span (9, 63). Texts, to be made searchable, are inevitably broken up, bereft of contextual cues (165). While attention is decreased, lower-level mental skills such as hand-eye coordination are reinforced (139), increasing the likelihood that these areas of the brain will

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soon supersede those areas used for extended reading (35). Critics, including Carr, disparage both the fleeting nature of our contact with in-depth information (Carr 9) and the permanency of postings in an information environment with seemingly infinite memory to store what is best forgotten or forgiven over time (Mayer-Schönberger 118). In analyzing the difficulties surrounding information production, access, and use in our time, critics have looked at both the information environment and the information user.

The information environment has become both too simple and too complex, most critics charge. Many difficult concepts or diverse resources become “homogenized” on the web: journal articles, book chapters, textbook materials, newspaper articles, and digitized diary entries all have a similar “look” when researchers no longer have the visual cues of the print world to signal the origins of a resource (Bawden 181). This homogenization encourages a “shallow” understanding of the original material, as researchers grab bits of information here and there, not recognizing the bits are far-removed from their origins (186). The information environment has also become too complex for most users. Researchers struggle to find a coherent argument when faced with a wide diversity of perspectives, and this diversity comes to them through myriad formats: blogs, email, YouTube, and other social technologies. Many information

seekers come to see much of what they find as equally valid or acceptable. While we librarians know they should be evaluating a source thoroughly to determine the author's credentials, on the egalitarian web, this is often a step information-users skip (182).

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Researchers become caught up in the tide. The consequent feelings of frustration and confusion will often result in what some experts call "information pathologies," including information avoidance, information "withdrawal," "satisficing" (accepting whatever is on the first two pages of the search results list, for example), multi-tasking, accepting or creating an interruption-prone work space, and increased impatience (Bawden 183, 185). In this context, one main conclusion of critics is that we can no longer discretely separate the use of social technologies from academic work in college. The distractibility that results from always being "connected," hearing texts "ping" at all hours, obsessing over social media interactions, or worrying that those last few tweets haven't been re-tweeted enough will ultimately diminish the quality of researchers' work because they have not allowed themselves to be absorbed in the task.

## The Flood of Memory: Learning from Viktor Mayer-Schönberger

Even while we worry about researchers' current information-related behaviors, a number of authors encourage educators to think about the future consequences of such substantial digital immersion. In addition to the worries voiced by Carr and others, some authors have found deeper

concerns regarding power and control within community structures. Viktor Mayer-Schönberger, in *Delete: The Virtue of Forgetting in the Digital Age*, notes the dangers of an Internet where information can be "sent out" for public viewing, but can never really be withdrawn. Mayer-Schönberger approaches the power of the Internet from a different vantage point: instead of touting the great advantage of gigabytes of information at one's finger tips, he explores the disadvantages of never being able to forget any of those bytes. His book provides a brief context of those aids for memory developed early in human history, and then moves to an in-depth discussion of Internet memory capacity and structure. While some of the specific details about file sizes and digital storage have become dated since his book was published in 2009, his explanations of the digital information ecosystem layers are key to understanding how we are all participating in a huge information shift. The majority of the book focuses on the nature of memory, its uses and abuses, in the Internet age. Many of his observations compel us to think about our values and our relationship to information, both as commodity and tool.

Mayer-Schönberger reveals that our decisions about what to keep and what to let expire are central to our movement forward in the digital age. He articulates numerous concerns about the staying-power of what we place on the Web. Be it personal information, such as an embarrassing tweet, or intellectually fraudulent material, such as the now-debunked "study" that claimed vaccines cause autism, texts posted to the Internet can then be used by anyone for any purpose—retaining control over the material is next to impossible (Mayer-Schönberger 101). Another fundamental cause for concern is the increased likelihood of "group-think" about societal structures (121) or, in college, about research ideas. A very large bibliometrics study of citations in scholars' papers revealed that increased digitization of scholarly articles doesn't mean people use a wider variety of resources. Counterintuitively, the same articles were cited repeatedly—most likely due to the auto-filtering that some search engines and databases are programmed to do, so that the "popular" articles always rise to the top (Carr 217). The consequence is a narrowing of intellectual exploration. Indeed, all forms of exploration may be at risk.

Having been born into sharing so much of life online, young people are more likely to avoid posting their true

feelings about a topic, lest their friends disagree. They are more likely to avoid a controversial topic at which a future employer might look askance, and they are more likely to assume that everyone should self-censor as a matter of habit (Mayer-Schönberger 109). When digital information cannot be controlled, even by the poster of that information, and where digital memory never forgets, the resulting atmosphere of caution “stifles societal debate” (127). William Powers, in acknowledging that a main function of the constant use of online platforms is to avoid ever being alone, points out that “deep, private reading and thought have begun to feel subversive” (135).

“This dystopian air of caution and self-censorship is completely antithetical to the Lutheran tradition of reform.”

This dystopian air of caution and self-censorship is completely antithetical to the Lutheran tradition of reform. Hans-Peter Grosshans, in an essay in *The Global Lutheran: A Theologian for Modern Times*, emphasizes the need for reason, but in the context of freedom of ideas:

We can learn from Luther that a right use of reason in today’s world is an exercise of freedom. When we are confronted with the task of solving the many problems we have on a daily basis in the various areas of life, we find that preestablished answers, laws, norms, values or ways to order the world are not helpful or applicable. In these instances, we can appeal to reason to develop in freedom our own answers, laws, norms, values, or ways of ordering the world... (183)

Most authors arguing about the impact of life-online hover somewhere between an instrumentalist approach and a determinist position. Instrumentalists argue that Internet “technology enables [pre-existing] behaviors, but it doesn’t cause them” (Shirky 98); platforms in the digital world just provide a space where people can express their needs to be social and to communicate (190). Determinists claim technology has become so pervasive, so intricately

entwined with the information that it delivers, that the two cannot be separated (Carr 207) and that the pairing has come to “embod[y] an intellectual ethic” (45). Though their emphasis is on moving forward from this debate, Gardner and Davis concede, at least implicitly, to the determinist argument—young people submerged in waves of technology cannot help being influenced. Whether we adopt the instrumentalist or the determinist position, our commitment to teaching the liberal arts in the Lutheran tradition of reform urges us to claim the changes before us and shape them.

## Plotting a Course: Moving Forward with Gardner and Davis

Howard Gardner and Katie Davis advance the discussion of information overload beyond a merely descriptive analysis toward a proactive set of options. In *The App Generation: How Today’s Youth Navigate Identity, Intimacy, and Imagination in a Digital World*, the authors suggest a new metaphor for young people’s interactions with the digital information environment. They describe two options for our present use of technology: we may use technology to restrict our choices (and become app-dependent) or to support our creativity and exploration (and thus, become app-enabled). Couched in a substantive discussion of theories of consciousness and original research on creativity, Gardner and Davis provide a framework that acknowledges current concerns and prepares us to move forward.

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In their development of the app metaphor, Gardner and Davis confirm the deep connection of students’ social behaviors and academic habits in the digital environment. The authors acknowledge that the mixing of self-perception, digital tools, and information use does point to worrying trends. Almost a third of students today feel “overwhelmed”

by all that is required of them in their first year of college (Gardner and Davis 77), and most students are adding these first-year stresses to an already-packed schedule. Students entering college now will have spent most of their lives negotiating virtual space for their public personas alongside their fundamental understandings of themselves. The result is an odd mixture of self-focus (69) and a strong tendency to objectify the self (66). The list of accomplishments, internships, and service projects educators often marvel at can be a reflection of this need to project a certain image of self—and the time devoted to creating this persona has left many students little time for deep reflection on their own values or core identities (74).

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This lack of reflection may, in turn, result in an inability to engage deeply with class discussion of texts. Gardner and Davis observe young people working hard to avoid vulnerability (so, young people would rather text than call, and they feign lack of interest in important matters like developing personal relationships). This translates, the authors argue, into an unwillingness to take intellectual risks (103, 141). Ultimately, the authors conclude that more young people today are app-dependent than app-enabled (45), and thus score lower on the Torrence Test of Creative Thinking than previous generations. In measurements over the last twenty years, the authors note declines in: the ability to come up with several ideas at once, in-depth thinking, creating original ideas, employing a range of reactions (including humor and passion), and maintaining curiosity (127-128).

For educators encountering these deficits, Gardner and Davis urge embracing technologies that enable open-ended, creative thinking rather than ones which reinforce dependent, circumscribed conclusions. The authors provide examples of several technologies which encourage original ideas, ones which allow students to create their own knowledge in a constructivist manner, and ones which can appeal to multiple forms of intelligence (Gardner and

Davis 142-43, 180-81). Though also the domain of families, communities, and K12 educators, liberal arts colleges, Gardner and Davis emphasize, will be significant actors in counteracting the current negative trends in the digital information environment. This in-person and immersive undergraduate education comes at a transformative time for students (175-76).

## Around Prexy's Pond, or, Community of Practice at Concordia College

Part of the Mission statement of Concordia College in preparing to send forth “thoughtful and informed men and women” is to embrace Luther’s curiosity and sense of wonder, where there is “freedom to search for truth, with nothing off limits for inquiry and critique.” Faculty members create many opportunities to help students explore what it is to be an engaged citizen of the dawning digital age. I will speak primarily of projects I have helped with in my role as librarian. We see many of these research anxieties expressed by students in the library and classrooms. Librarians support students in their work, helping students find resources for their projects and listening to their worries, their brainstorming, and their evaluation of sources. Because we have a robust program of Information Literacy instruction, many students feel comfortable approaching a librarian with questions and requests. This comfort creates opportunities for moments of person-to-person interaction that Gardner and Davis recommend.

Because we are a small institution, we have flexibility to try smaller assignments that allow students to do hands-on learning, often with collaboration across disciplines. In many departments, librarians and faculty members work together to create stair-stepped assignments for library research within a course; this breaking up of a project into manageable pieces helps students feel more in control of the research process. For a number of classes, students are asked to work mostly with primary sources; this reduces research anxiety because fewer secondary sources are required. Using primary sources exercises students’ critical thinking skills and emphasizes evaluation of the source content; both activities help mitigate the “shallow” understanding of information that Carr laments.

Intuiting Gardner and Davis' idea of an app-enabling use of technology, a number of faculty members have conjoined high-level evaluation and interpretation of primary sources with use of several open-access digital tools, such as *Omeka* and *TimelineJS*. This kind of assignment affords students the opportunity to look at information structures from the point of view of information creation. In building online exhibits for others, they need to think about information access, about the role of metadata in quality control, and about the decisions needed to provide good information via the Internet. For the *Omeka* assignment, students were also asked to think about rights management for their work, increasing their understanding and control over their public persona on the web. In history classes, information-creation considerations overlay the historical interpretation required as a part of the discipline, and students see professors, archivists, and librarians working together as a team to help support the assignment's success.

If, as instructors, we can adopt Gardner and Davis' positive approach to the changes before us, bringing Luther's passion and curiosity with us, our role as a small liberal arts college can be as an anticipatory community, ready and able to help students feel more confident of their work as the first truly digital generation:

The birth of writing did not destroy human memory, though it probably brought to the fore different forms of memory for different purposes. The birth of printing did not destroy beautifully wrought graphic works, nor did it undermine all hierarchically organized religions. And the birth of apps need not destroy the human

capacities to generate new issues and new solutions, and to approach them with the aid of technology when helpful, and otherwise to rely on one's wit. (Garner and Davis 192)

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