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E-Browsing: Serendipity and Questions of Access and Discovery

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Abstract

Browsing is an essential component to discovery. Understanding the foundations of browsing patterns and preferences is crucial in developing effective e-browsing environments. It is important to understand how researchers in diverse disciplines have described their discoveries in terms of browsing, searching, and serendipitous encounters. Examining the works of scientists, social scientists, and humanists through the lens of discovery will reveal essential components to be aware of in developing e-browsing environments. In turning to a wide range of sources, often outside traditional library literature, we deepen our understanding of what it means to browse in an electronic environment. As librarians, we have an obligation to create physical and virtual spaces that cultivate wonder and curiosity and acknowledge varied paths to discovery. Electronic browsing options must become more robust if libraries are to be vital to scholarly communication. In this presentation, we focus on the language and experience of browsing, with particular attention to serendipitous discovery, in order to encourage librarians, particularly those in public service, to more effectively articulate concerns and opportunities to developers.

"[Browsing in the electronic environment] is the continual disappointment" (Megan Ward, Assistant Professor of English at Point Park University).

Browsing is an essential component to discovery. Understanding the foundations of browsing patterns and preferences is crucial in developing effective e-browsing environments. It is important to understand how researchers in diverse disciplines have described their discoveries in terms of browsing and searching. Megan Ward, Assistant Professor of English at Point Park University, expresses the frustration many scholars feel when they are curious, attempting to untangle a nest of thoughts and questions. Ward wants to graze about in a lush information ecosystem that allows her to explore and challenge the boundaries of her questions and follow leads while not losing her way as she traverses numerous paths. This desire to browse is an intention that is not sufficiently described in the library literature, nor supported in our numerous search tools and discovery layers.

E-browsing reaches into all areas of library systems. We intend to acknowledge these implications, yet maintain our focus on the language and experience of browsing, in hopes of rejuvenating a discussion of browsing. We want to create a space full of vivid imagery and metaphors, exploring the unrealized potential of e-browsing in an academic context. Librarians have a unique window into moments of uncertainty, wonder, and intense frustration that scholars and students experience when using our online tools.

We contend that the current state of the discussion around browsing in libraries requires a complete reassessment of what we mean by browsing and how it can be applied in an electronic context. We believe that "discovery" is best understood as a complex interplay between both searching and browsing, yet these terms have become conflated in the library literature. We hope, here, to extract particular elements of the discussion of physical browsing spaces, challenge previous contexts, and to disunite the recently conflated terms browsing, search, and discovery. To achieve this goal, we argue that one must remove the discussion from the context of libraries, to leave the "library echo-chamber" (Gray, 2013), and explore more broadly the ideas around discovery as discussed by scientists and humanists over the past century.

Before stepping outside the library echo-chamber, it is useful to examine the library literature on browsing as it has developed in response to the advent of the Internet and increased volume of scholarly production. In the late 1970s and continuing through the 1980s, browsing physical library collections was discussed largely in theoretical terms in the library literature with authors attempting to come to an understanding, both theoretical and operational, of the meaning and value of browsing both in libraries and outside of libraries (cf. O'Connor, 1988; Bates, 1989; Liestman, 1992; Massis, 2011). Starting in the early 1990s, with the rise of electronic bibliographic databases and the Internet, digital library catalogs, and other tools, the library literature began to shift away from understanding browsing in a theoretical space and toward understanding browsing in a strictly operational space (e.g., Kwasnik, 1992; Hemminger, Lu, Vaughn, & Adams, 2007).

More recently, as search engines and discovery systems have pervaded the library environment, discussions of browsing have been lost to discussions of search functionality and a broader (and potentially less meaningful) search for functional discovery systems. For example, the Hemminger et al. (2007) survey of academic researchers in the sciences is indicative of the shift toward search and away from browsing on the part of both the researcher and the academic library. Indeed, the literature is peppered over the last decade with survey research focused on "discovery" that, in reality, is focused on "search" (Hemminger et al., 2007; Rowlands & Nicholas, 2008). Bates (2007) attempts to define browsing in a formal way, harkening back to the good old days of theoretical discussion. Indeed, many authors have revisited the traditional library browsing experience with a glimmer of nostalgia (cf. Kirk, 2010, Cunningham et al., 2013), and in some cases, a glimmer of derision (Barclay, 2010), but little helpful direction, has been presented, especially regarding how to translate the browsing experience into the electronic environment.

Over the past few years, we have seen an increase in discussion of discovery in the context of information search and retrieval. In many of these studies, the authors conflate browsing, search, and discovery under the general umbrella of information retrieval (e.g., Barclay, 2010). In other cases, researchers have used simple analyses of web site usage (e.g., log analysis) to assess information-seeking behaviors (Nicholas, Huntington, Jamali, Rowlands, & Fieldhouse, 2009). It has become fairly rare to find discussions in the literature about browsing electronic information sources that are not directly tied to and/or conflated with search.

We see this as an opportunity to consider how browsing interacts with the concepts of search and discovery in an online environment. Instead of thinking of browsing in isolation, some information scientists, such as Bates (2007) and Hjorland (2011), are interested in studying the interplay among these various activities. Hjorland (2011) emphasizes that browsing (and presumably searching) is an orienting strategy, one which he believes is socially constructed. While browsing may be "a broader and less systematic kind of orientation strategy compared with systematic searching," Hjorland (2011) argues that it is still driven by specific purposes and needs that are, consciously or unconsciously, the result of social knowledge.

The Potential of E-Browsing Tools

Let us turn our attention to the current ecosystem of electronic browsing tools. Browzine, by Third Iron, is one of the most recent library tools on the market devoted to e-browsing. Its generally positive reception demonstrates there is a desperate need for browsing support. These tools reassemble journal articles that were once separated in the name of findability. As we browse their new, reassembled form, we become aware of the seams and joints. They have bound the articles back together into volumes, and in doing so, we become more aware of what we want from a browsing experience. Browzine allows us to view the electronic journals in their entirety in order to duplicate the physical browsing experience. We are left wanting deeper, systemic connections among the articles, authors, and ideas, with both historic and contemporary reach, allowing scholars and students to find their own varied paths to discovery.

We would like to share a way of visualizing these varied paths to discovery by turning to Aldo Leopold, early-twentieth-century scientist and naturalist. He describes his hunt, or "search," in terms of wandering:

> One way to hunt partridge is to make a plan, based on logic and probabilities, of the terrain to be hunted. This will take you over the ground where the birds ought to be. Another way is to wander, quite aimlessly, from one red lantern to another. This will take you to where the birds actually are. The lanterns are blackberry leaves, red in October sun. (Aldo Leopold, *A Sand County Almanac*)

What we notice in Leopold's writing is evidence of his integration into his environment. He describes himself as wandering aimlessly, yet he clearly moves from one bright red blackberry leaf to another. He sees the land through the highly cultivated lens of a naturalist. His ability to engage seamlessly with his environment is, in part, due to his training and sensitivities and also due to the organization of his environment. This prompts us to imagine a tool that would allow you to move among nodes that might only be visible to you, making use of your own highly cultivated lens.

These varied paths to discovery are often not fully articulated by the scholars themselves, though many are left with memorable sensations of the discovery process. We find articulations of these paths and sensations in the writings and works of artists and critical theorists. A forthcoming book, *Think Like Clouds,* is a collection of Curator Hans Ulrich Obrist's notes and diagrams. Though not entirely decipherable, we witness his expansive, yet particular, thoughts as he conducts interviews with artists and researches exhibitions. As we trace his thoughts and lines, we follow a network of lines documenting his path of inquiry.

The Language of Browsing

Though less commonly used, this Oxford English Dictionary definition of "browse" helps us to visualize the activity of grazing as a valuable way of taking in sustenance.

> *browse, v. intr.* To feed on the leaves and shoots of trees and bushes....

Grazing, or browsing, is a way of taking in raw material that is then processed into more refined academic works. Once published, these works often provide no indication of the author's route to discovery. James McClellan (2005), a scholar of the history of scientific publication, writes, "The route a scientist takes in making a discovery is...often quite different from the presentation he or she makes to persuade others of the correctness of a claim." He describes the "confused reality" that lies behind one of his own landmark works. He argues that once a scholar develops a rational narrative, the accidental factors that influenced the discovery disappear from the text.

We all create rational narratives when we communicate our ideas and discoveries. These narratives tend to dominate more nuanced discussions of the "confused realities" that are often a part of curiosity and wonder. Neil Degrasse Tyson, director of the Hayden Planetarium and advocate for space exploration, values wonder and curiosity not only as valid intentions but as imperative to the future of scientific inquiry. He describes his first experience at a planetarium as a child, becoming both lost and more connected to the universe, his sense of what is possible growing exponentially, and juxtaposes this against the "shut up and sit down" environment of modern education (Monkey See, 2010).

Both McClellan and Tyson offer vivid language describing the experience of discovery. They compel us to support their paths of discovery—to support the path to discovery of all information seekers—but are we doing this in the electronic environment?

As librarians, we have an obligation to create physical and virtual spaces that cultivate wonder and curiosity and that acknowledge the varied paths to discovery. As many of our library spaces become more like airport terminals, offering comfortable seating, Wi-Fi, and snacks, what are we doing to facilitate electronic discovery? One could argue that we have done much to support

discovery via search with better user interfaces and improved discovery layers. But how are we facilitating researchers making connections in the electronic environment? It is important here to note that we are not simply referring to items they search for but to things they might not think to search for or among subjects they would not have considered to be connected. Providing avenues to discovery though browsing in the electronic environment is crucial to allowing for this type of discovery.

When thinking about making connections, we think of connecting dots, much like a constellation. The big dipper is a valuable model here—it is evidence of humans trying to make sense of the heavens. It is especially valuable here because it embodies both wonder and the rational narrative. It reminds us that we are all confronted with the desire to make sense of things. When we look up into the sky at the big dipper, we are making connections, drawing a line from one point to another, enclosing the objects, concepts, and space between them. When we make these connections, we allow our understanding of the relationships to deepen.

As we consider the role of librarians and work to develop a discussion around browsing, Lewis Hyde's study of trickster figures helps us to loosen our adherence to traditional boundaries. Hyde explores how artists have played the role of trickster figures throughout history, challenging rules, norms, and boundaries, and, in doing so, make the community aware of boundaries they had not previously acknowledged (Hyde, 1999). As a field and as individuals, we must acknowledge our rational narratives and tap into our significant experience in helping scholars and students explore ideas.

Lessons from Physical Browsing

Proximity

As librarians know from working with students and scholars, the articulation of a research question can be influenced by proximity and access to sources; this is certainly true in electronic as well as physical environments.

According to various browsing usability studies, proximity is a factor in physical browsing and must also be considered in e-browsing (Hinze and McKay, 2012). People tend to choose books that are at hand, that are located in familiar places, and are at eye level (O'Connor, 1988, p. 209). However, as critics of browsing point out, this is highly problematic for interdisciplinary books, which can only occupy one space on a library shelf (Barclay, 2010). This is clearly an opportunity for e-browsing: How do e-browsing platforms facilitate better discovery of these types of materials? This raises the question of visual proximity of images and tags that could offer digital browsers a more tactile experience, something that is a key aspect of browsing physical materials (Hinze & McKay, 2012). In Hjorland's (2011) explication of Bates's (2007) concept of browsing, he articulates the relationship between vision and touch:

> Because humans are so strongly reliant on vision, bodily motion often mirrors visual search, in that the second stage of browsing often involves physical movement toward items of interest, which movement, of course, also supports closer visual inspection.

In addition to the visual proximity among texts, one must also consider how easily a reader can move within the text, flipping between pages, chapters, and supplementary material such as indices and appendices. In a recent issue of the Carnegie Mellon University student newspaper, *The Tartan,* Justin Yan describes his frustration with electronic textbooks. His description of the learning potential of physical textbooks provides insight into what people wish were possible in electronic tools. "There's no option to keep your finger on the answer page to check if you're right after finishing problems. All of that is now within the depths of a computer screen. The formula is 20 clicks away, and answers are almost impossible to retrieve..." (Yan, 2013). Often, we associate millennials and electronic facility; studies increasingly disprove the idea that younger students begin college understanding all that technology has to offer them (Considine, Horton, & Moorman, 2009). Some of our students would rather work with print books

and feel uncomfortable with the variety of electronic tools available to them. This speaks again to a need to create better, more intuitive tools.

Access

Examining proximity naturally raises issues of access, which influences the development of ideas. For instance, historian James McClellan points out that the opening of the archives in the former Soviet Union influenced the course of historical research, reminding us that access to materials is key (McClellan, 2005). However, access, when applied to electronic browsing, points to the publisher and disciplinary boundaries that block potential paths of inquiry. We also explore access in a larger sense of feeling empowered and equipped. Access to materials facilitates discovery of information in the truest sense. Again, we turn to Aldo Leopold for insight into empowerment and discovery:

> Acts of creation are ordinarily reserved for gods and poets, but humbler folk may circumvent this restriction if they know how. To plant a pine, for example, one need be neither god nor poet; one need only own a shovel. By virtue of this curious loophole in the rules, any clodhopper may say: Let there be a tree—and there will be one. (Aldo Leopold, *A Sand County Almanac*)

What are the acts of creation in libraries? These are the successful moments of discovery on the part of users of the information systems we provide. The role of the librarian, or of the library, is decidedly not to play the part of Leopold's gods and poets. It is not to play the part of "information gatekeepers" (a term we still hear with alarming frequency). Our role is to, at best, provide tools and guidance, to encourage the process of discovery. This includes discovery by many means, by methods that promote serendipitous discoveries.

Serendipity

According to our friend the Oxford English Dictionary, serendipity is defined as "the faculty of making happy and unexpected discoveries by accident. Also, the fact or an instance of such a

discovery." Serendipity, the word, is an entirely made-up concept, arguably a serendipitous one. Horace Walpole rather fancifully coined the term in a letter to Horace Mann in 1754 when he compared a discovery he had made to those he had read about in a silly tale, *The Three Princes of Serendip,* who, as they travelled, "were always making discoveries by accident and sagacity, of things they were not in quest of" (qtd. in Liestman 1992). Strictly speaking, serendipity is encountering something you did not know you needed. This phenomenon is an intrinsic part of our reference interviews.

What is more, serendipity suggests surprise and delight—not emotions many of our students often associate with research—it is unexpected, and there is an implied joy in the connection with a particular discovery or source. Perhaps we are more at home discussing serendipitous encounters in the language of artistic inspiration, but this kind of joy is possible in the research and writing process. Enhanced e-browsing environments will facilitate more serendipitous connections, leading to better, more innovative ideas.

In our conversations with vendors and developers, it is important to tighten and reflect on our research vocabulary. Instead of using library jargon, we need to think about the skills and experiences we are seeking to build and foster. Furthermore, our tools need to value and facilitate serendipitous encounters that encourage interdisciplinarity and boundary crossing. Scholars of human-computer interaction refer to browsing as "gesture based interaction," which they describe as "natural" (Aslan, Murer, Primessnig, Moser, & Tscheligi, 2013). As a way to incorporate this kinesthetic experience, touch screens will likely play a large part in incorporating gestures into e-browsing. We have already seen this to some extent with Google's Digital Bookshelf.

Conclusions

So where do we go from here? Where do we place the burden for facilitating discovery? Currently, we place much of the burden on the users of the information systems we provide, causing them to circumvent, hack, and avoid the very discovery tools we are bringing to the table. The burden

should not rest on the users to navigate our troubled waters. Libraries and those who create tools for them need to radically reimagine what we mean by discovery, bringing search and browse back to the table to help develop more effective discovery systems that allow for all modes of discovery—structured and unstructured, linear and serendipitous. It is impossible to go on with the creation of discovery tools that offer only one set of solutions, search, and presume that we are doing right by our users.

Librarians and system designers are surrounded by scholars and users who have an enormous amount of value to bring to this discussion. Not just as victims of our usability studies, but as collaborators in the process of building more effective systems that can help reimagine how research is conducted and to rediscover what we mean by discovery.

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