

This work is licensed under Creative Commons.
Attribution must be given at all times. No commercial or remix use.



THIS IS A DRAFT OF A WORK-IN-PROGRESS.
PLEASE SEND SUGGESTIONS AND COMMENTS TO rshiggin@indiana.edu

Richard Higgins
Indiana University

USABILITY AND THE BOOK

Introduction: First Impressions

The typical book—for this assessment, a bound, physical object printed in the English language—asks to be picked up. The average human hand fits around its spine easily and, once picked up, the book is generally easy to carry from one place to another. The book is therefore portable, especially when carried in one hand at the side of the body. Once held, the book also asks to be opened. A cloth bound book, in particular, has a cover that extends beyond its pages, inviting the action of lifting it up and away to expose the first page (or leaf). Even a paper bound book features a cover that is thicker than its pages, so users perceive that it can be moved aside or up. The typical English-language book also directs its users by opening in only one direction, which prevents misuse if a user can (cannot?) identify the proper direction of the letters. Lastly, the book emphasizes the openness of its physical accessibility by allowing a reader to access any of its individual pages without needing to do more than turn the cover aside. Any page in a book can be accessed without the barrier of additional actions or operations. However, while a user can physically access any part of the content of the book at any given moment, no more than two facing pages can be accessed at any one time.

User Experience

To do what it is designed to do—to enable its data or words to be read—the book's most

This work is licensed under Creative Commons.



Attribution must be given for any and all reuse. No commercial or remix use.

important features are portability and access. I can carry it with ease from location to location and shift it about my body—holding it up or down or to the side—with minimal effort. Moreover, I can turn to any place in the book, mark this place with a scrap of paper or by folding down a corner, move to another place in the book, and then return easily to the place I've bookmarked. My access to its information, once I've read or deciphered it, is limited to a few basic hand and arm movements. Furthermore, the book increases my ability to compile information as I need it and enhances different ways that I might want to interact with its information. For example, in Peter Stallybrass' discussion of the transition from scroll to book (or codex), he notes that the book is more open and amenable to "bookmarking": "it is ... *indexical*, a technology that uses bookmarks like prosthetic fingers to take the reader easily from place to place" (43, emphasis in original). In other words, the book bypasses certain physical limitations of my body—only two hands and ten fingers— to enable my cognition to interact more directly with the book's information. The book's primary limitation is inherent to its open physical nature, however. In general, to understand the book, to know what its contents mean and to comprehend thoroughly what its information transmits, I must read it from front to back, one page at a time.

Goals

From the standpoint of usability, the book is a communication technology. Primary features of communication include efficiency (ease) and effectiveness (clarity), which are similar to some of the goals established by early HCI theory. User experience assessments are more subjective. From this point of view, the book is a product of human culture, a technology that circulates meaningful attributes of human experience. Therefore, in addition to transmitting information, it also conveys stories, narratives, and other kinds of meaning-making forms. Many of these are satisfying, rewarding, entertaining, and even fun.

This work is licensed under Creative Commons.



Attribution must be given for any and all reuse. No commercial or remix use.

Assessments

Question: How efficiently does the book serve its communication function?

At the local level of the individual reader, the book is a remarkably efficient device. Its openness and accessibility allows the reader to interact within some reasonable constraints with all of the book's information. A reader can take notes and respond to a text with an inexpensive stylus device. She can bookmark multiple places for later recall and reconsideration with minimal effort. The book is portable and only requires light (illumination) and literacy to be used. At the group or aggregate level, however, the book requires a great deal of input to succeed as a communication device. It often requires high levels of literacy, which can take years of education to acquire. Printing and distribution of the book are often expensive endeavors. To borrow (libraries) and sell (retail) the book requires high transportation investments and many individual physical efforts. As a technology that replaced scrolls and scribes, the book excels in its efficiency—especially for nurturing the growth of literacy and scholarship. But the physical ease of use it provides is offset by other potential inefficiencies.

Question: How effectively does it communicate?

This question requires more subjective assessment than we might first assume, a reconsideration that has increased with the advent of other text technologies. The answer, in a word, is it depends. At one time, it could be argued, the book was a powerful device for cognition. The book invited authors to produce lengthy arguments and deep narratives, which could hold readers' attention for extended periods of time—even years. The duration of these reading interactions became like extended interludes of continuous thought, shaping and defining specific modes of cognition. For these readers, the book was effective. And if readers needed to move back and forth through the text to recover an idea or reorganize a sequence of details for themselves, the book's form facilitated these actions. But the book is limited in what it can effectively communicate. Bound legislation and laws and collections of records, for example, are not easily made portable and require intensive indexing efforts to successfully

This work is licensed under Creative Commons.



Attribution must be given for any and all reuse. No commercial or remix use.

organize and retrieve their contents. However, certain species of the book developed specifically for the form, such as the novel, are remarkably effective in conveying accounts and emotions of human experiences.

Questions: How is the book aesthetically pleasing? Rewarding? Does the book elicit pleasure in its users?

As both an object and a medium of communication, the book excels as a rewarding experience for its users. The book itself can often be an object of art, beautiful and sublime in the use of color, cover design, type form, and textual features. The weight and size of the book, even, can be pleasing in how they allow the book to conform to its user's hands or facilitate the act of reading in a variety of positions and places. The book is notable for being both convenient and artfully designed. It also enables different styles of reading. I can read a book cover-to-cover and gain the pleasures of deep engagement. Or I can quickly and easily refer to small passages or groups of pages, read and experience them out of order or in any sequence I choose. The book can also be so close to me as to become an extension of my body. I can carry it from the subway, to work, and bring it to bed, all without changing the essential rewards of the book. The willingness and readiness of the book to be available and uncomplaining whether picked up or put down adds to its rewards. For me, to be sure, the pleasures the book can contain—the worlds it enables me to inhabit, the virtuality and imagination it encourages—have offered many ongoing rewards. This is often understood in metaphysical terms. As Rita Felski argues, literary texts enable readers to shed light on human experience and the experiences of others and encourage them to shuttle back and forth between enchantment (with imagination, feeling, knowledge) and skepticism (toward beliefs, behaviors, and actions). The book is often a vehicle for self-recognition, knowledge, and enchantment and, in its capacity to touch our feelings and beliefs, the book may also inspire unease and distress. Nevertheless, it is true that such experiences may not be as common as they once were. For many people the book may seem onerous and too heavy and physical when compared to lighter, more compact devices. But I

This work is licensed under Creative Commons.



Attribution must be given for any and all reuse. No commercial or remix use.

cannot help think that some of the pleasures of the book have been lost if read or experienced outside of the bound, physical book. For book-native texts, many of the book's features, the emotional and intellectual encounters with the book's simultaneous existence as both metaphysical and physical, are missing if read on a computer or with an e-reader.

Design Principles

Yet even if the book ceases to be at the center of readers' experiences, it does still offer some lessons for design and accessibility. I've narrowed these down to the way the book's handles complexity, acknowledges and relies on specific constraints, and embodies attributes (or affordances) that provide for thinking and knowing.

Question: How does the book emphasize its functionality while masking its complexity?

The readiness and portability of the book make it functional, of course, but the book also allows users to interact with it in varying degrees of complexity. For example, if I read a book for a course, the ideas and arguments may be difficult to understand. Its chapters may require hours of reading and rereading for me to achieve comprehension. I may have to move back and forth from one place to another to keep my understanding coherent. But this complexity can be easily overcome when I bring my book to class. If I want my instructor or classmates to think with me about a passage or idea, we can turn together to the text, find our places quickly using the book's sequential pagination, and interact with the book in a straightforward and almost effortless manner. The difficulty I may have had "plowing" through the book becomes moot when I want to dip quickly into it. The book, in other words, allows me to decide how complex the it will be for me. As a casual reader, I may pick up a stray book for only a few minutes; or, as a more serious reader, I might spend a lifetime with a specific book. At the level of this kind of complexity, the object-ness of the book will be part of my experience of it. It will be marked, dog-eared, worn, and stained. It will carry the scars and joys of my experience. But the same book in the hands of a different person may only be used or read for an hour or two. The book,

This work is licensed under Creative Commons.



Attribution must be given for any and all reuse. No commercial or remix use.

therefore, does not impose its complexity on readers unless they decide to use the book for such purposes.

Question: Do the constraints of the book limit its usefulness or enhance its utility?

The book's constraints may seem obvious. It's not keyword searchable, for example. It presents information in mostly small bits, often very differently than a full web page might. This means, as well, that it's only navigable in two directions. The traditional book does not contain hypertext, so web-like browsing is not possible. And the book generally opens only one way and it must be opened the right way to prevent the text from being illegible. The way it's used is fairly straightforward, but to use it *right* takes some significant training and investment, such as literacy education and sustained attention. From a historical viewpoint, however, these constraints have not limited the book's ability to communicate. Quite the contrary, the book in various forms (the Bible, Adam Smith, Jane Austen, Twain, Marx, Orwell, Oprah Winfrey's book club, and so on) has been wildly influential. It has changed the way people think, affected entire generations (think of the influence of Lord Byron's poetry on his Regency audience) of youthful strivers, and influenced countless "movements." The book has been a symbol of radical cultural intervention (e.g., Kerouac's *On the Road*, Joyce's *Ulysses*) and carried into battle as a standard (Mao's *Little Red Book*, Hitler's *Mein Kampf*). The book's ability to produce such influence within the constraints of the simplicity of its bound-leaf design is an example of the impact of purpose-built devices with high functionality. It does, we might say, one thing well.

Even as the book's influence wanes, we are still wrestling with the legacy of text. Literacy and reading remain essential skills and communication and information devices are still constrained by the needs of users to access legible texts. (This would be my greatest complaint about smartphones: their limited ability to render legible text.) From a cultural point of view, a reasonable argument can be made that the book brought information and data to people when they needed it—to those interested in producing political change; to those needing inspiration or identification with another—and its usability made this possible.

This work is licensed under Creative Commons.



Attribution must be given for any and all reuse. No commercial or remix use.

Question: What are the book's most significant affordances?

For much of the book's history it has functioned in various ways: to collect, to communicate, to be sold as a commodity, to record and remember, to create groups of like-minded people. I think its most significant attribute is as a user-friendly thinking device. First, as a commodity, the book had to sell and find audiences to sustain the business model of publishing, so even a "harder" book, one that tackled difficult material and subjects, would typically be reader- and user-friendly. Most authors and publishers are motivated to produce reader- or user-centric books. Second, the book enables individuals to think with others, so a typically solitary act of reading is actually a relational act. The book was one of the most persuasive early virtual technologies (after newspapers, perhaps), encouraging readers to travel by imagination to different social circumstances and parts of the world. The book may not always have succeeded in doing such things fairly or honestly, but the desire of governments and authorities to ban books suggests that the book wouldn't be threatening if it didn't offer individuals and ad hoc groups of people a chance to identify with those different from themselves. Third, forms of cognition have developed alongside the book: the ability to move linearly through a set of (we hope) grammatically correct linguistic structures; the means to absorb information in a logical fashion, without too much data, stimuli, and irrelevant material to detract from a step-by-step movement through an argument, story, or discovery; and the invitation to move at one's own pace, to take as little or as long as necessary to fully experience the book's contents. As a reader, the book might help me develop an identity separate from my family; it could teach me, of course, about scientific principles and spiritual practices and beliefs, but also about social relationships and cultural values. In the long development and refinement of the book's content, texts allowed readers to become more able to understand themselves, other humans, what roles they occupied in the world, and how the world functioned. These attributes are, to be sure, not limited to the book. But the bound object of the book contains a balance of abilities and constraints that shaped generations of cognition. Although

This work is licensed under Creative Commons.



Attribution must be given for any and all reuse. No commercial or remix use.

going forward, this particular process of cognition may itself be limited, we still seem to be attempting to replicate it.

Future of the Book

The book may have little to no future. Book-native texts are still appropriately read in book form, but as our communication and information technology moves forward new forms of reading, cognition, and comprehension will develop, most likely housed in digital devices that emphasize display visual information. During the few years I spent as a book editor the tone was elegiac. Countless people know and love their experience with the book, to be sure, but the book is not only being overtaken by technology: people simply aren't buying books in the same way. (This has struck "mid-lists" the hardest; niche books and bestsellers fare better.) As with music and the album form, the book is likely to be broken up so that chapters and articles, made more and more readable in electronic form, become one primary way that we read. However, I don't think the traditional book should be made to conform to e-readers, as publishers have tended to do so far. Instead of creating the best facsimile of the book in electronic form, writers and publishers (and librarians) should be working on how the book can be reconceived for new "always on" and "ubiquitous" technology environments. Sustained narrative and multi-dimensional arguments can find new, better forms for people to access and engage with.

That is not to say that we can't learn from the book. For example, the original difference between the codex and the scroll is one avenue to explore to reconceptualize how we interact with information. The flattened design of the latest iteration of Apple's iOS, with increasing emphasis on icons and smart folders rather than depth-oriented file structures, comes closer to replicating the accessibility of the book than scroll-like e-readers. While the book may not be an interface to improve upon, there are years of work ahead for improving text and what can be done with it, especially text written and developed for digital-native formats. The book, from my point of view, will become a design inspiration. Not in the manner of skeumorphism, but in

This work is licensed under Creative Commons.



Attribution must be given for any and all reuse. No commercial or remix use.

more conceptual understandings of how the book has been used and engaged with. One method is to focus on the historical uses of the book rather than how it looks.

This is also a time to reconceptualize what we want from text, narrative, and rhetoric in the future. While the book for many, and for a long time, may have provided a partial solution to some modernist paradoxes, such as finding a way to balance intelligence (the reader's agency, ease of use) vs. intelligibility (constraints of the bound book, the sheer volume of texts and books) the problem of the proliferation of many books and mountains of text, when books, as I suggested, in my opening, have become aggregated to such an extent that they cease to be portable or even accessible. Indeed, this problem has haunted the book throughout its existence. Jorge Luis Borges' fantastical explorations of the paradox of a massive library, in the short story "The Library of Babel," that potentially contains *all* books is even more relevant now that data has supplanted text. Borges Library is a vast store of potentially important but often inaccessible source of knowledge.

When it was proclaimed that the Library contained all books, the first impression was one of extravagant happiness. All men felt themselves to be the masters of an intact and secret treasure. There was no personal or world problem whose eloquent solution did not exist in some hexagon [library unit]. The universe was justified, the universe suddenly usurped the unlimited dimensions of hope. At that time a great deal was said about the Vindications: . . . Thousands of the greedy abandoned their sweet native hexagons and rushed up the stairways, urged on by the vain intention of finding their Vindication. (115)

Borges short story contemplates an infinite library, in which people might find the book or the word that would offer them metaphysical solace or self-knowledge. Yet, once the scale of this library becomes fully known, the task of "knowing" all that the library holds becomes an impossibility.

This work is licensed under Creative Commons.



Attribution must be given for any and all reuse. No commercial or remix use.

As was natural, this inordinate hope was followed by an excessive depression. The certitude that some shelf in some hexagon held precious books and that these precious books were inaccessible, seemed almost intolerable. A blasphemous sect suggested that the searches should cease and that all men should juggle letters and symbols until they constructed, by an improbable gift of chance, these canonical books. The authorities were obliged to issue severe orders. The sect disappeared, but in my childhood I have seen old men who, for long periods of time, would hide in the latrines with some metal disks in a forbidden dice cup and feebly mimic the divine disorder. (116)

The story's narrator is a (doomed?) positivist, who believes that somehow, someday, someone will eventually discover the terminus of the library and begin the hard work of putting it in "Order." As we begin the arduous process in our current era of making sense and instilling order on vast troves of digital data, the fever dreams of an agency like the NSA and its intent to mine and process what's being called zettabytes and exabytes of intercepted data, we should keep in mind that one book, just one, could keep a person occupied for a lifetime.

Bibliography

- Borges, Jorge Luis. "The Library of Babel." *Collected Fictions*. Trans. Andrew Hurley. New York: Penguin, 1998.
- Felski, Rita. *Uses of Literature*. Wiley-Blackwell, 2008.
- Hannon, C. "As we may speak: Metaphors, conceptual blends, and usability. *Interactions*." 16.3(2009): 16-19.
- Norman, D. "The Psychopathology of Everyday Things." *The Psychology of Everyday*

This work is licensed under Creative Commons.



Attribution must be given for any and all reuse. No commercial or remix use.

Things. Basic Books, 1988. 1-33.

Stallybrass, Peter. "Books and Scrolls: Navigating the Bible." *Books and Readers in Early Modern England: Material Studies*. Eds. Jennifer Andersen and Elizabeth Sauer. U Penn P, 2002. 42-76.

Thimbleby, H.. "Ignorance of interaction programming is killing people." *Interactions* (2008): 52-57.