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The Curse of the e-Book Metaphor

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The Curse of the e-Book Metaphor

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Abstract

The blessing and curse for the electronic book is that it uses as its controlling metaphor, the traditional printed book, a technology whose standards, unlike the e-book, are well established. Metaphors in digital environments are often visual or iconic and are used in computer-mediated communication to substitute for the underlying code and terminology of an operating system or application. The most common cited example of an iconic metaphor in the digital environment is that of the desktop metaphor, which depicts something that resembles a desktop with the arrangement of documents and folders.

The article examines the well-established standards of the traditional printed book (pagination, table of contents, indices, etc.) and how and why these standards need to be incorporated into an electronic book. The paper discusses the importance of the electronic page layout and why features such as page and character dimensions, margins, and a certain ratio between words and spaces, are important for readability. Problems specific to electronic texts such as the use of color and underlining are discussed, as well as the need for navigation aids to help the user.

The paper also considers suggestions by those who have conducted usability tests or surveys on e-books in an effort to make the electronic word more like the printed word and ultimately more readable.

Keywords: e-book, Electronic book, Interface, Metaphor

“Ordinary words convey only what we know already; it is from metaphor that we can best get hold of something new.” Aristotle

The term metaphor, derived from the Greek words for “carry across,” is specifically the technique of substituting one sign for another in order to make communication more effective. Marcus writes that hundreds of years ago, university students studied rhetoric to learn how to use metaphors (Marcus, 1998).

Metaphors are used to help us understand something new in terms of something already familiar. A few words can be used to understand one thing in terms of another (Tenopir, 1997).

Marcus defines metaphors as, “essential concepts in computer-mediated communication that substitute for the underlying code and terminology of operating systems, applications, and data” (p. 7). Metaphors in digital environments are often visual or iconic. The most common cited example of an iconic metaphor in the digital environment is that of the desktop metaphor, which depicts something that resembles a desktop with the arrangement of documents and folders.

In interface design, metaphors based on already understood concepts and objects help people use unfamiliar software and hardware. If a person has never encountered a program or system before, he or she may have no clue where to begin. The dominant mouse/window metaphor is ubiquitous to people who have learned computer use and understand the “desktop” iconography from life experience, but the metaphor would be lost on others. Iconic metaphors

help make the use of particular functions immediately apparent, as, for example, the icon of a floppy disk that nearly universally represents the “Save” function (Pippin, n.d.). Metaphors can decrease training time and increase ease of learning, use, and memorization. By reducing the operational complexity metaphors can increase initial productivity (Marcus, 1998).

The blessing and curse for the electronic book is that it uses as its controlling metaphor, the traditional printed book, a technology whose standards, unlike the e-book, are well established. From the time of Gutenberg in 1456, it took more than 100 years for pagination, tables of contents, and indices to become standard. While paper, binding, and printing define the traditional book, there is no single technology that defines the e-book. Coyle says, “After hundreds of years of stability, the definition of “book” is being called into question” (p. 315). Printed books have a standardized format, not so for the e-book (Dillon, 2001). Perhaps that is because the electronic book, in its various forms, has only been in existence since the early 1970’s. Many consider the University of Illinois’ Project Gutenberg in 1971 the first generation of e-books (Brown, 2001). These were quite primitive by today’s standards using only capital letters because early computers did not offer the option of lower case (Dorner, 2003). Lynch says most electronic document metaphors are based on the book or paper model because that is what people are familiar with, but designers often fail to support the print metaphor with items like pagination, chapters, and indices (1994). Lynch suggests that the most practical



solution is to build upon the well-established print metaphor, while incorporating search, retrieval, and linking functions to other parts of the book or outside resources, made possible by computers and whose use is second nature to Internet users. Other e-book researchers suggest that the e-book is built more on the metaphor of an electronic or computer database than a paper book, making e-books one distribution channel among many in a multiplying throng which includes electronic journals and electronic databases, not to mention blogs, RSS, and archives like the physics ArXiv at Cornell University (Gibbons, 2003).

Whether or not scholars agree that an e-book is like a database, paper book, or even a computer game, most agree that the transition from paper to an electronic display presents typographical problems. Readers of paper are used to well-defined features, such as page and character dimensions, a certain ratio between words and spaces, and the contrast between the characters and the white page (Landoni, 2000). The Electronic Book eXchange, formed at the first National Institute of Standards and Technology on e-books in 1998, came up with the laudable goal of creating an e-book equal in readability to paper books (Coyle, 2001). Microsoft thought readability so important it invested in ClearType technology for its software reader which triples the resolution of the text on the screen (Wilson, 2002). Adobe, a long time leader in font and publishing technologies, developed CoolType, a font-rendering technology that improves on-screen text resolution on digital liquid crystal display screens such as those used in flat-panel desktop monitors, laptops, and handheld devices (2004). Other firms are betting on electronic paper which would be bound together to create the look and feel of a paperback book. In this instance, the paperback metaphor may be less important than the claims that electronic paper provides greater readability, wider angle views, is viewable in a larger variety of light conditions, and uses significantly less power than typical displays. Even so, IBM designer Robert Steinbugler says, "E-paper is key. The last person to enjoy reading on a stiff tablet was Moses" (Mann, p. 44). Gyricon Media, a manufacturer of electronic paper, claims e-books will never be accepted until text can be displayed with properties similar to that of traditional paper (Terry, 2001).

E-books provide the advantages common to most digital information channels. They can provide information anywhere in the world nearly instantaneously. E-books can include text, graphics, audio, and even video, as well as user-interactivity. Moreover, the instability of the digital information while a serious liability in some ways (particularly as regards copyright and trustworthiness) does provide certain advantages. Information in an e-book can be cut, pasted, or saved for later use. Information in e-books can easily migrate to other

formats; it can be printed out on paper, turned into text or PDF files, even turned into synthesized speech. In short, instability means flexibility (Dillon, 2001). Printed works have long contained links to other works in the form of footnotes and bibliographies. E-books dramatically extend this capability by providing hyperlinks that lead the reader out of the book to other electronic documents and content. A recent E-Book Task Force of the American Library Association (ALA) suggests that the e-book movement is not to replace printed books, but rather to explore how this new technology can help people interact with recorded knowledge (Gibbons, 2003).

The "look and feel" of an e-book has become important and brought the role of the interface designer to the forefront (Wilson, 2002). The e-book interface has two basic components: the text of the e-book and the technology used to display it. By technology I mean the peripherals that allow the reader to interact with the text (Wilson, 2002). That technology can be divided into two parts: software, usually a Web browser, and hardware, such as a desktop computer, laptop, PDA, etc. The E-Book Task Force of the ALA cited the functionality of that technology as one of the four largest roadblocks to the adoption of e-books (Gibbons, 2003). As recently as 2001 there were at least 21 competing e-book formats, many using incompatible proprietary technologies (Dillon, 2001).

Should an electronic book attempt to mimic the long-standing traditional paper book? Some studies suggest that straying too far from the book metaphor makes an e-book less appealing to readers (Gibbons, 2003). Landoni, and co-author Gibb, suggest that for an electronic book to work it must adhere to the paper book metaphor. "It has to resemble, be consistent with, and work according to some or all aspects of the book metaphor with no ambiguities, conflicts, inconsistencies, or confusion" (2000). First, the page metaphor has to be respected. It should be treated as a visual space where information can be easily found and scanned and not be one long giant scrolling page. Second, the logical structure of the book should be considered. The electronic book needs a table of contents and an index, not just a search function. The reader needn't navigate linearly, but certainly needs a road map. Third, the entire e-book, titles, pagination, and typographical aspects, have to be designed to enhance readability (Landoni, 2000). Guthrie agrees that to qualify as an e-book the editorial content must resemble the traditional book in terms of its length, form, and presentation. He also states additional criteria that the content must be contained in an e-reading software program (2002).

Nielson suggests that scannability is a major component of an e-book. He calls for large type, bold text, and use of indentations, bulleted lists, graphics, and captions (1998). Page layout is

important. Short pages and short chunks of text should be used as well as white space page borders. Users found text that stretched from one corner of the screen to the other difficult to read. Researchers at Palo Alto recommend a fixed-page layout (Guthrie, 2003). Publishers of printed books are ultimately concerned with page layout because it adds or subtracts to the total page count and ultimate cost of printing the book, not so with electronic books (Gibbons, 2003). Hill of Microsoft found that eight to twelve words per line are preferred by readers. Long and short lines are disliked. Eleven point font is significantly faster to read than ten point font, and slightly faster than twelve point (Hill, 1999). Table of contents as well as indices can aid the reader in finding information. Navigation icons are also important as they help the user move through the e-book.

Testing found that the use of color tended to confuse the reader, especially in the use of underlining parts of text that the readers thought were links to other pages. However, Wilson suggests that the careful use of a few colors may provide "style" and draw the reader's attention to keywords and phrases (2002).

If the text contains diagrams or formulae, they should be positioned so they are easily comparable without forcing the reader to scroll up and down, or open more windows (Wilson, 2002).

The EBONI project (Electronic Books ON-Screen Interface) conducted tests on portable e-books, versus the Web based e-book, but some of the implications can be applied to both. Opening an e-book should not only be easy, but navigating to the point where the reader last stopped reading should be possible, a type of automatic bookmark. Also, indication of a reader's progress through the book should be accurate and visible. It is not like a paper book where the reader can just look and estimate that they have read about one-third of the book. It should also provide a strong sense of place within the text (Wilson, 2002). Readers tend to negotiate text through spatial memory, remembering the location of a particular passage (Mann, 2001). Nielson found that people read about twenty-five percent slower from computer screens (1998), but some in the EBONI test felt that navigational devices, like pressing keys or buttons to turn the page, actually sped up their reading.

A recent survey of e-book readers highlighted a number of preferences with the most desirable feature being the ability to open the e-book to the last page viewed. Other preferences included bookmarks, page numbers, and a progression bar (Henke, 2002). The E-Book Task Force of the ALA created a long list of functionalities which it believes should be incorporated into future e-book devices. These include the ability to adjust the style, color, and size of the text to match reader preference, the ability to return to the page where the reader left off,

and the ability to virtually turn the page. Other suggestions involve functionalities that enhance readability and understanding or make its content richer than a paper book. These include such items as the ability to search both within the text and other texts, hyperlinks to items in the book, such as a table of contents, as well as related research, sufficient mark up and structure to provide a sense of content involving chapters or sections, and a sense of place that lets the reader know how far along he or she is in the book (Gibbons, 2003). Still, one wonders if a generation that does much of its research over the Internet, with the ability to jump into the middle of a document, finds a sense of place essential (Terry, 2001). Will future readers be as steeped in a traditional book metaphor or will this change?

The E-Book Task Force of the ALA also points out that expectations of libraries and end-users could influence the functional design of e-book products leading to further adoption of the technology (Gibbons, 2003). However, vendors may be less inclined to spend dollars on functionality until the e-book is widely adopted, a catch-22 of sorts.

Technical considerations aside, is there a market for e-books? Without a market to support its development, e-books will go the way of the quadrasonic stereo. Lynch sees "anecdotal evidence that younger people, who have grown up with text on display screens from childhood, are less insistent about printing" (Lynch, 2001). Eco claims some hackers, grown up on computers, have read great literary masterpieces on e-books (Eco, 2003). Readers of digital text tend to create a personal collection of files containing citations and texts created by cutting and pasting from the original. But reading habits are also being altered due to improving screen technology which ultimately makes electronic reading less wearisome and more enjoyable. Still others confess to a feeling of disorientation when reading large texts on a display screen (Brown, 2001). For the time being readers desire choices, traditional print being just one of many.

The usability and popularity of the e-book may be defined by its audience. Two types of books exist: those to be read and those to be consulted (Eco, 2003). For example, novels are read sequentially, from beginning to end, while textbooks tend to be consulted (Wilson, 2002). Wildemuth refers to two perfunctory reading tasks: scanning and serial detailed reading (Gibbons, 2003). Morke found that patrons preferred e-books for scanning or seeking a particular piece of information, but not linear reading (1997). However, this could be based more on practice than preference. A recent collection development study at the University of Texas found selectors of e-book titles placing more emphasis on handbooks, reference, and quick answer titles than normally collected in the print collection (Dillon, 2001). Even so, researchers at

Palo Alto conclude that e-books are best used for educational research and reference purposes. A recent survey of consumers in England also found a preference for education and reference (Guthrie, 2003). An early study by e-book vendor Questia suggests that users read large portions of books or even entire books on topics of specialized interests (Hughes, 2001). Safari is an e-book vendor that specializes in technology. Safari attributes its success to the fact that users can search thousands of tech books simultaneously and pinpoint the section they need (Miller, 2004). Tim Schiewe, former president and CEO of netLibrary, says the ability to search for a word, phrase, concept, or idea and have an e-book instantly scan millions of pages of information is a convenience a traditional book cannot offer (Albanese, 2000). netLibrary defines its e-book model as “applying key functionality that leverages Internet technology” (Connaway, p. 345). One example is the link to *The American Heritage*

Dictionary which is embedded in all netLibrary e-books enabling users to highlight a word and retrieve a definition (Connaway, 2001). The consultancy firm Accenture predicts that e-books will make up 10 percent of all book sales by 2005, totaling 2.3 billion; in all probability mostly reference materials (Dorner, 2003).

Dillon writes, “Like Dr. Frankenstein trying to use electricity and spare parts to create a new life form from nothing, bringing the e-book into existence by attempting to electrify the printed book is turning out to be more complex than any had imaged” (p. 357). Linear text may have ruled the world, but Nielsen says it is time to improve on the past, not simply to match it. He says, “even when electronic books gain the same reading speed as print, they will still be a bad idea” (Nielsen, 1998). According to Nielsen, the problem is that interface designers get led astray because the book is just too strong a metaphor!

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Brian F. Clark is the Reference/Media Librarian at Western Illinois University's Malpass Library. Prior to joining Western, Brian worked for three and half years at Indiana State University where he divided his time between cataloging, instruction, and reference. Before joining the field of librarianship, he spent twenty years as a broadcast journalist working for television stations in New York, West Virginia, Iowa, Florida, and Indiana. He holds two masters' degrees, one in Library Science, the other in Information Science, from Indiana University.