

Review

Open e-books: The changing paradigm

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When the medieval scribes invented incunabula, less they imagined that a day would come when all that art of printing a book using movable types will soon be invisible and the impact of e-book on scholarship will prevail. The shift in the emergence of e-books to open e-books is magical. Thanks to the efforts of some of the tech leaders like Adobe and Microsoft in revolutionizing the e-book movement. The authors in this paper have discussed the changing faces of an e-book to open e-book and its impact on scholarship, and also present the future of e-books for the new generation readers and the enabling technologies for rapid usage of these changing e-book paradigms in the emerging publishing industry along with the future of these devices.

Key words: E-books, e-brary, project Guttenberg, open e-book, e-book software, e-book reader hardware, rocket e-book, e-book publishing, contract law, copyright law.

E-BOOKS: AN INTRODUCTION

An e-book is the digital media equivalent of a conventional printed book. It is a special computer file which contains the text of a printed book which may be read on a personal computer (PC), a personal digital assistant (PDA) or an electronic device designed specifically for reading e-books (e-book reader). E-book readers have many features that are simply not available with standard printed text.

Today, very few people bother to memorize entire books. It takes talent, training and dedication to do so. Earlier learning process would probably take the incentive of strong religious belief to accomplish such a monumental feat, like memorizing the Koran when such easier means are readily available for saving and accessing book content. But when necessity dictates, for example, prior to written language and in imagined sci-fi worlds like Fahrenheit 451, humans can expand their memorizing capability far beyond what we consider normal today. But what is a book? Surely, not just a large number of printed paper pages bound together, or a mechanical gadget for displaying text.

A book is a large and meaningful set of words. It can exist in many forms, both analog and digital, but its ultimate destination is the human mind. Computers can remember any sequence of characters or code regard-

less of whether it has meaning. But humans can only deal with lengthy content if it can be interpreted by them. They can store very little raw data but vast amounts of meaningful information. So you might say that when it comes to large sets of data, computers can store anything, but humans can only store books. A book in digital form is an e-book. It need not have a physical form that can be carried around.

In an e-book, the content may be stored as text (e-text) and/or sound and/or images. It may then be copied, distributed and output in a wide variety of ways. It may be distributed by email, ftp, on diskette, on CD-ROM, on DVD e.t.c. Its format may be plain text, HTML, SGML, PDF or any of a variety of encrypted formats. Unless special restrictive technology is applied, an e-book can be freely copied to computers and from computer to computer and saved on digital storage media of all kinds. It can also be printed on a computer printer and read in paper form.

The content of a book can be created by human, communicated from one human directly to another (by voice or other direct signals) or stored in code for later retrieval by him or someone else (if there is agreement on the code). The first codes were visual (written language and its forerunners on the walls of caves). A visual code can be implemented by hand (using a chisel, stylus, pen, e.t.c.) on virtually any solid medium (including sand) or by the use of machinery (like printing presses and typewriters) on media designed for their use (such as

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paper or cloth).

In the past, whatever could be represented visually could be duplicated photographically. And whatever you could duplicate photographically, you could make multiple copies of, using printing equipment at some cost. And whatever could be represented with sound could be recorded using analog media like tape and then duplicated or broadcast at some cost.

Today whatever can be represented visually or in sound can be easily converted to digital form. Once in digital form, it can be stored, copied, and distributed at practically no cost.

ORIGIN OF E-BOOKS

Michael Hart, a student at the University of Illinois, invented e-books in 1971. He would later go on to found project Gutenberg, the first and largest collection of free e-books available online. Random House launched the first commercial e-book in 1981. By the mid-1990s, e-books were beginning to be seen as a legitimate alternative- and also as a potential threat- to traditional print publishing (DeSouza, 2004). This threat has yet to materialize; however, as e-book purchases continue to represent only a very small segment of the total book market. In 2003, for example, e-book purchases in the United States totaled only \$10 million of the \$ 24 billion total book market (DeSouza, 2004). Although e-books continue to represent only a small portion of the total book market place, the e-book supply has grown steadily over the past 20 years, with an average annual rate of growth of approximately twenty percent (Just, 2007). As of August 2006, 135 492 e-books were available in the American market, compared to 1 218 397 hardcover titles.

Early e-books were generally written for specialty areas and a limited audience, meant to be read only by small and devoted interest groups. The scope of the subject matter of these e-books included technical manuals for hardware, manufacturing techniques, and other subjects. Numerous e-book formats emerged and proliferated, some supported by major software companies such as Adobe's PDF format and others supported by independent and open-source programmers. Multiple readers naturally followed multiple formats, most of them specializing in only one format and thereby fragmenting the e-book market even more. Due to exclusiveness and limited readerships of e-books, the fractured market of independents and specialty authors lacked consensus regarding a standard for packaging and selling e-books. E-books continued to gain in their own underground markets. Many e-book publishers began distributing books that were in the public domain. At the same time, authors with books that were not accepted by publishers offered their works online so others could see them. Unofficial (and occasionally unauthorized) catalogs of books became available over the web, and sites devoted

to e-books began disseminating information about e-books to the public.

As of 2008, new marketing models for e-books are being developed, formats are beginning to homogenize, and dedicated reading hardware has been produced. E-books have achieved global distribution, and electronics manufacturers are releasing more e-book readers for general consumer use, such as Amazon's Kindle model, Sony's PRS-500. E-books have seen tremendous market growth in Japan throughout the 2000s and currently have an e-book market worth ¥10 billion.

Before e-Books can create literary nirvana and truly benefit the general public, five things must continue to develop and improve;

- (1) Content creation and publication.
- (2) e-book software.
- (3) e-book reader hardware.
- (4) e-book standards formation.
- (5) e-Book education, distribution and promotion.

CONTENT CREATION AND PUBLICATION

Content refers to the original creative work we are all interested in reading. Whether it is in printed or electronic format compelling content is what drives us to purchase reading material. Remarkably the fashion in which written material is packaged has not changed much in hundreds of years. In fact, it can be argued that the quality of both the physical characteristics and content of books has declined over the last generation. Mass market paperbacks have taken the place of leather bound editions, and commercial fiction gets prime real estate in book stores, while the literary fiction collects dust in the rear.

The printing, storage, distribution and marketing of a book makes publishing a very risky business. Understandably, publishers will publish what they believe will sell in large enough volumes to turn a profit. Simply publishing what one believes will be profitable is usually inconsistent with publishing a wide range of quality literature that appeals to a diverse readership. E-books promise to reduce the financial risk of publishing.

Even after the traditional book survives the arduous (difficult) publication process, its life may be limited for a host of reasons. Some of those reasons include decisions that limit; how many copies should be printed; how will the book be distributed; and how long will store keep the book in stock.

E-books make publishing more accessible

With e-books the cost of book publishing is greatly reduced. One simply has to take the text of a book and convert it into a format useable by an e-book reader. The cost of storage and distribution is negligible. An e-Book is simply data stored on a computer. The only risk associated with authoring an e-book is the time invested in

in writing it. Today most authors write their books on computers. An e-book can be generated from the original document on the computer in a few minutes. The resulting file may be uploaded to an e-book retailer for immediate availability on-line. The publication decision is left entirely up to the author.

The risk to the reader is less for two major reasons; (1) e-book versions of a book cost less than their paper based counterpart and (2) Typically readers are allowed to download, for free, a chapter or more of the book to read at their leisure. Unlike the trailer for a movie, this is an actual sample of the book, not just the highlights. The reader gets a chance to read the author's material and make a determination of whether or not it will satisfy their need.

Authors decide what gets published

One might also argue that the public would prefer for the publishing industry to filter out the "bad" books and make the final determination of what gets published particularly in an e-book environment where virtually anyone can publish and the number of titles available has increased dramatically. Again, the individual reader, if given the opportunity and complete access to information, is much better at determining what will best satisfy their needs. A perfect example of this is the World Wide Web: Today there are perhaps 3,000,000 web sites. Obviously no one has time to visit them all. But good news travels fast online. We learn pretty quickly where to find the good web sites.

Separating the good from the bad

A recent survey of over 900 individuals determined that the most common way one learns about books they enjoyed is through a word of mouth. As access to the Internet continues to proliferate the "word of mouth" recommendations will be communicated via the World Wide Web. Even today, 14% of those respondents indicated that they learned about their last good book through an on-line source. A few years ago this percentage would have been virtually zero.

Today there are, an increasing number of web sites, news groups, discussion boards, and email newsletters dedicated solely to the promotion of African-American books. More importantly, one will find web sites that provide information on very specific and narrow genres. These web sites will address audiences and topics that are considered to small or narrow to be addressed by traditional means today. Soon readers will be able to learn about good new books more easily than they do today.

Established book reviewers are already reaping the benefits of e-books. E-books will allow reviewers to review more books than they would be able to with traditional paper books.

E-book reader software

Just as there are many options for e-book reader hardware, there are more choices for e-book reader software. From a reader's perspective, once the e-book reader hardware has been made, the software decision is made as well. However, from an author or publisher's perspective the decisions are far from over.

E-book reader hardware

Purchasing a dedicated e-book reader may be more convenient. The next few vendors sell specialized e-book reader devices and or software. There is quite a bit to choose from in terms of price and functionality which tends to make the selection process.

One important aspect of e-book readers currently available is that, an e-book purchased for use with one vendor's e-book reader may not always be read on a different vendor's e-book reader. For example, an e-book title formatted for Nuvomedia's rocket e-book can not be read on soft book press' soft book and vice versa. When purchasing an e-book reader one is committing themselves to that vendor's list of available titles and e-book reader's features.

E-BOOK STANDARDS

"By adhering to open e-book standards, publishers can format the content once and it will be readable on all major e-book devices or with all major e-book software."

Standards in this context are the rules which define how e-book files are formatted. In much the same way the English language defines the rules which allow us to exchange ideas with each other verbally; an e-book standard makes it possible for e-book files to be read by any manufacturer's e-book reader.

OPEN E-BOOK

One element of the Open e-book initiative is a specification for e-book file and format structure based on HTML and XML, the languages used to format information for Web sites. The goal of the specification is to quickly create a critical mass of compelling content. A publisher will be able to format a title once according to the specification and the content will be compatible with a wide variety of reading devices. The purpose of the open e-book Publication Structure is to provide a specification for representing the content of electronic books (Hawkins2002) (James (2002). Specifically, the specification is intended to give content providers (e.g., publishers, and others who have content to be displayed) and tool providers minimal and common guidelines which ensure fidelity, accuracy, accessibility, and presentation of electronic content over various electronic book platforms. The specification seeks to reflect established content format standards. The goal of this

specification is to provide the purveyors of electronic-book content (publishers, agents, authors' et al.) a format for use in providing content to multiple reading systems. This specification is based on the premise that in order for electronic-book technology to achieve widespread success in the marketplace, reading systems must have convenient access to a large number and variety of titles.

By adhering to open e-book standards, publishers can format the content once and it will be readable on all major e-book readers. Standards also help protect the consumer's investment in technology. For example, the open e-book compliant products will not become obsolete over night. Future enhancements to the Open e-book standard define provisions for backward compatibility. If next model of the Maytag refrigerator, for example, adheres to the open e-books standard, you may be able to display Sylvia's or B. Smith's recipes without having to worry which vendor generated the e-book recipe.

Standards also have the negative effect of slowing progress for vendors who wish to introduce enhancements. For example, let's look at Microsoft's internet explorer (IE) web browser. IE browsers support enhanced functionality which are not part of the current HTML standard. The good part is, web pages taking advantage of the Microsoft specific enhancements can do some really cool stuff. The bad part is that if you view the page using a browser other than IE, the page may not display properly, even though that browser may adhere to the current HTML standard. The open e-books standard is based upon extensions to HTML 4.0, the very same format used on web pages.

DIFFERENCES BETWEEN ACCESS AND USE OF PRINT BOOKS AND E-BOOKS AND THE IMPACT ON SCHOLARSHIP

A licensing agreement between a library and a publisher is a contract. Contract law and copyright law exist side by side. When a library enters into an agreement with a publisher to give up its users' rights, the contract takes precedence over the Copyright Act. For example, if a library and a publisher agree in a contract that fair dealing will not apply to activities that are specified in the contract, then the contract's provisions prevail regardless of what the Copyright Act provides.

Licensing agreements are an important part of library practice. Libraries must be careful about the restrictions they agree to when they sign these agreements. It is quite possible for a library to enter into a licensing agreement that restricts its users' rights under the Copyright Act.

If a library does agree to restrictions in a licensing agreement, it must abide by the terms to which it agreed. If it does not do so, the library risks being sued for breach of contract. As a matter of good legal and institutional practice, a library must honour the terms and conditions of an agreement it has signed with a publisher.

The small sample of e-book licenses currently in place in Canadian research libraries reviewed in the preparation of this report did reveal that there are restrictions agreed to in some current e-book licenses that negate users' rights or the use of the exceptions provided under Copyright Act. To address the relationship between a contract/license and the Copyright Act, some licenses include wording such as the following:

"Nothing in this Agreement shall in any way limit the ability of the Licensee to engage in or conduct any activity that would not constitute an infringement under Canadian copyright laws, in respect of a copyrighted work (Victoria Owen, 2008).

The research library's role is to collect, organize and preserve works of scholarship. E-Book collections are in the early stages of development and the terms and conditions of their purchase will determine their impact. As seen in the available literature review, there is little information or analysis available yet on the impact of e-books on scholarship. The impact on scholarship would arise from the inability to print selected texts for further study and comparison with other texts, inability to lend material to scholars off-site, and the lack of access for perceptually disabled users to research materials. The literature does show that ease of access and ease of use will determine the success of e-books in the academic environment (Buczynski, 2006).

Demerits of e-books

- i.) If not viewed on computers, e-books require the purchase of an electronic device and /or peripheral software which can display them. If they are to be viewed on a personal computer, it may require additional software.
- ii.) Not all publishers produce the e-book equivalent of their print books. In other cases, e-books are given a lower priority in terms of the publisher's resources, resulting in a disparity in product quality, release dates and the like. This problem is not endemic to ever publisher but has an effect on the quality of the overall pool of merchandise available.
- iii.) All e-book devices require electrical power, resulting in the consumption of electricity.
- iv.) Looking at a screen for a long time may cause eye trouble and sometimes headaches.
- v.) Certain e-book formats may become obsolete and incompatible with future devices.
- vi.) E-book readers are more likely to be stolen than paper books.
- vii.) E-book readers are more fragile than paper books and more susceptible to physical damage.
- viii.) As an e-book is dependent on equipment to be read, it can be affected by faults in external hardware or soft-

ware, such as hard disk drive failure.

ix.) E-books can be hacked through the use of hardware or software modifications and widely disseminated on the internet and/or other e-book readers, without approval from the author or publisher.

x.) If an e-book device is stolen, lost, or broken beyond repair, all e-books stored on the device may be lost. This can be avoided by backup either on another device or by the e-book provider.

xi.) There is a loss of tactility and aesthetics of book bindings.

xii.) Screen resolution of reading devices may be lower than actual paper, making it difficult to read e-books.

THE FUTURE OF E-BOOKS

With the advent of digital distribution, book publishers looked on with horror at what happened to music and software. Unlike music and software however, books are not already out there in digital form. It takes an act of will on the part of a book publisher to enter this realm. Obviously, caution is appropriate. Adobe and Microsoft have worked tirelessly to develop and sustain the integrity of their digital rights management platforms, and this has given comfort and confidence to our publisher partners. Nevertheless, they are cautious. Who can blame them?

Furthermore, publishers have operated a very successful and orderly economic model for about 500 years now. You need a compelling commercial story to woo them into a different model. The slower than expected adoption of e-books hasn't helped this transition. Publishers are very busy managing the exigencies of their businesses, in a climate of shrinking margins and fierce competition. To ask them to divert scarce internal resources into an unproven business model - a model that carries a heightened risk of piracy is not trivial. But until publishers fully embrace the medium and commit all of their new books to digital editions, the value proposition for the digital shopper is diluted Lynch (2001).

It is happening, though from where we stand the future is great. New publishers are signing up every month, loading their titles in the repository. Every month there are thousands of newcomers to <http://www.ebooks.com/>, and the numbers just keep growing. Functionality is the second key driver of e-book adoption Doctorow 2004.

There are many benefits in using e-books; you can search 500 pages in a few seconds, you can carry a thousand books in a lightweight laptop, e-books are typically cheaper than printed books, you can buy an e-book any time of the night or day and have it almost immediately, and so on. But the functionality of the reading platform is another matter. There is a convoluted chain of interdependencies that falls between the time when the consumer forms the desire to buy an e-book and their finally being able to settle down and read their e-book. Support issues can arise at almost every link in

this chain. And they do.

Each technical hoop that a consumer has to jump through represents a disincentive to their coming back again. The process of acquiring a book (and getting the thing to work once you've downloaded it) can be daunting. Oddly, consumers don't voluntarily repeat disappointing shopping experiences. And it's repeat customers that the industry needs, in order to grow and be real. The simple fact remains that e-books are, and will continue to be, cheaper and more useful for specific applications. They will not replace paper books. Nobody claimed they would. The cell phone didn't replace the home phone. People have car radios and Walkmans, but they still have a radio on the bedside table or the kitchen bench. So it is with e-books. As the range grows and the buying and reading experiences improve, the low-cost channel will come into its own.

What happens when a young child begins school and is introduced to an e-book reader? What happens when the child finishes secondary and higher education? What happens when all the educational content is held on a single reader? Where do you think the comfort zone of the next generation will be? Something that will be almost foreign to the next generation of youngsters will be printed matter. Do you think the demands from those coming from this frame of reference will prefer leisure, academic, and reference material in printed form or on an LCD panel? We believe that most of us will see a near extinction of printed works in our lifetime and the end result will occur due to some of the following reasons: Let's first take a look at the school - everyone knows the schools in Western culture, and I suspect around the world, are struggling financially.

Today, a high school chemistry book sells to a school district somewhere between Rs.300 to 350. That's the price of one single book! Imagine if the production costs are cut in half for all school textbooks. School districts will be embracing such programs. The cost savings for a school district would be sufficient enough that every child in a district could be given an electronic reader without cost to the parents and the budgets would still be less than purchasing printed works. This evolution begins the socialization of a generation that will become more familiar with reading from electronic devices than printed works. As this generation evolves, they'll be more inclined to download magazines, newspapers, leisure works and all other forms of reading material. Once it starts, we won't be able to change this generation's preferences.

We need to remember that the human brain is the ultimate storage and retrieval device for books and music and that this means of storage and retrieval fundamentally involves interpretation and change. "Meaning" refers to the brain's interpretive power. We see or hear raw data and remember the "meaning". What results when we have decoded the data and adapted its content to our unique needs and perspectives? Whether it's a pill or a microchip that provides the enhancement, the brain

itself will become the primary storage medium for books - just as it was in the days before written language. Today, advanced computers can store and retrieve everything that their user sees or hears over the Internet. In the future, your enhanced brain will be able to store and retrieve everything that it sees, reads, or hears. Before the end of two decades, we should see the sales of e-matter to significantly exceed all printed works. As we roll into the year 2020, we will see companies, publishing firms, and distributors fold their operations. A rapid decline in printing books, magazines and newspapers will ensue. Our children and grandchildren will likely smirk and roll their eyes every time you open a printed book left over from the old days.

Conclusion

The future brings with it both good and bad, and often more bad than good. What are the consequences of wild-eyed imagination, when there is actually a budget behind it? Books make it to the fringes of the Earth because ink on paper is an amazingly independent, low-tech process requiring no international coordination. It is possible to burn wood for ink, and beat fibers into pulp for paper, with just a fire and a stone mortar. Now, we would transform the paradigm, and every book in the world must soon travel along some world-wide wave guide rather than on a truck or on the back of a camel. When, as our pundits breathlessly proclaim, the last publisher phases out printing on paper, it also means that the first person without an e-book will lose access to a book. Today, on a street corner you can buy a popular title printed on cheap pulp for about Rs.100. No network, no batteries, no antenna, very little waste and apparently fair profit for the publisher. And tomorrow none of this has touched on the serious question of the synergistic effects of the reduction in value of individual works by electronic publishing. If supply of available works precipitates, the value of each will be reduced accordingly. This is already seen in conventional publishing. How much further will electronic publishing take this trend?

My point in all this is precisely that we should beware what power we wield. Yes, we can change the paradigm if we so choose. Powerful people, and people with powerful visions, by working hard and devoting resources, can move the world in amazing new directions. But before this should be done, all of the premises must be examined and weighed. The triumvirate of key questions for reading: Why does the Sunday paper weigh more today? Why the book is returns problem so acute? Why is the bookstore magazine aisle even longer than the soft-drink aisle? To come to the right solutions, these questions must be examined from the standpoint of our ability not only to adapt technology to accommodate, but also to change, perhaps, our perception of what we require daily, and what we can do to reduce our demand or even live without.

Today, we will idealize a future. Tomorrow, we will see an image of our idealized selves, reading an e-book, on a poster on a dirty wall. The message is that reading is edification and that the technology enables reading; it is not clear whether the rest of the world needs to read on an electronic gadget to access their books, magazines, and newspapers, because for most cultures this repository is small enough and localized enough to be published and distributed conventionally with great efficiency. But our desires, when they trickle down, may force others to change for no justifiable reason of their own, and the resultant net cost to the world may end up more with new technology than with old. Though book readers may resemble cell phones both inside and out, this is not like marketing a cell phone, since there is the content of the entire publishing world in the balance. This means that if publishing technology changes, anyone who desires that content will be forced to adapt. There is no question that we can do whatever we please and that science can produce anything imaginable. If what we are producing is not so clearly in everyone's mutual best interest, how far should it go beyond the realm of the imagined? If anything, our experience so far with technology should be an indication that we should tread very carefully into the next several years, and not do or say anything hasty.

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