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## **So long, Johannes, and thanks for all the books**

### **Beyond Gutenberg *and* the Ebook**

*Book* - noun - a written or printed work of fiction or nonfiction, usually on sheets of paper fastened or bound together within covers.

*Libroid* - noun - <Latin. *librum* “Book“ + Greek. *eides* “similar“> a book-like work for multimedia electronic reader

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Note: As a distance education student located 5367 miles from Brighton, I chose to avoid dealing with the postal system and instead use only *digital* artifacts for this assignment. Throughout the module I tracked readings that provided information and concepts relevant to books in general but most particularly digital ebooks, hypertext, mobility and the new—and old—literacies required to deal with them, as well as the debate on the future of print publishing. All artifacts were acquired online and a slide show of relevant newspaper, magazine, and blog articles, along with images and videos, can be seen at: <http://portal.sliderocket.com/AFJAS/Ebooks-Final>

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Humans have been placing their ideas, their experiences, their data and their observations of the world onto surfaces for thousands of years. Cave paintings<sup>1</sup> are the earliest forms of “preserved communication” of which scholars are aware, and the progression has since passed through stone tablets, papyrus scrolls, cuneiform, bamboo books, and hand-lettered manuscripts which, in the West, culminated with the creation of the lavishly illustrated manuscripts of the Middle Ages, of which the Irish Book of Kells<sup>2</sup> is an outstanding example. Along the way, the data placed on these surfaces evolved from easily-identifiable depictions of real-world objects to symbols to letters of various alphabets, with characters remaining common in areas of Asia.

Printing first appeared using carved stone or wood to create patterns which could then be imprinted onto a paper surface. Thanks to Johannes Gutenberg<sup>3</sup> in the West—and scholars in Korea 200 years earlier—the invention of movable metal type enabled the eventual mass production of books, magazines, newspapers and other forms of printed writing.

With the appearance of digital media, which result from the ubiquity of computers and computer-driven devices, the presentation of information has evolved to an entirely new level. It is no longer static, it is

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1 Lascaux, France cave paintings are dated at the Paleolithic Era more than 17,000 years ago.

2 The Irish Book of Kells is an illuminated manuscript of the four books of the Gospel dated around 800 CE.

3 Gutenberg invented metal movable type around 1439 (metal movable type had earlier been invented in Korea around 1230 and earthenware movable type in China two hundred years earlier), and was the first in the world to invent the printing press.

no longer restricted to text-only, sometimes accompanied by still images, it no longer requires extensive technical skills to produce, and it no longer requires expensive and time-consuming means of both production and dissemination.

Today the computer is the tool that enables the creation of “new media”; the various forms of digital-based communication that are now supplementing, if not over time supplanting, the form of communication reproduction that has been prevalent in the West since the invention of the movable type printing press. Digital media include email, websites, blogs, videos, podcasts, mobile phones, and tablets—as well as over-the-air delivery of digital radio, digital television, and digital movies. The content is composed of various combinations of words (or characters), images, moving images, and audio. Gutenbergian media utilized words (or characters) and images in the production and conveyance of information in that most Gutenbergian of media, the book. Today, the creator of a book has at hand two additional elements: *moving images* and *audio*. These two elements, combined with the traditional words and still images, provide all the tools necessary to create entirely new forms of information presentation. A book can now be created that appears to come to life: it shows motion and it makes sounds.

These two additional book elements, *sound* and *motion*, are alone sufficient to produce a great change in the nature of books, but there is more. Computer-based books also offer *interactivity* and *dynamism*. Interactivity enables the reader to interact with the book's elements to conduct such operations as search for words or phrases, use touch or a mouse to follow a hyperlink to additional information either within the book or exterior from the book somewhere on the World Wide Web, or change the font size or style. The reader can also activate a video or audio recording related to the content of the book, access definitions of words or terminology, see comments from other readers of the book or make comments oneself, engage in online forums with other people who have read, or are currently reading, the book, and write “virtual notes” in the book itself. Furthermore, when a reader puts the book down to continue at another time, the book will “remember” where the reader left off. Additionally, the book's table of contents and index can be “live”, so that the reader simply has to click on a contents or index entry to immediately jump to that location in the book.

The above elements are concerned with the content and structure of the book, and are radically different in themselves from traditional books. There are two other areas that digital books affect that are perhaps even more radical in their empowerment of authors to create and transfer their writings into the hands of as many readers as possible, or at least into the hands of their particular target audience: *production* and *dissemination*.

Currently there are more than 1.3 billion personal computers in the world. The International Telecommunication Union estimates there will be 5.3 billion mobile cellular subscriptions worldwide by the end of 2010. Access to mobile networks is currently available to 90% of the world population and 80% of the population living in rural areas.<sup>4</sup> Almost all personal computers are capable of producing an ebook. At the lowest production level—a text-only ebook—all that is needed is a word processor. Since most computers also handle images, images too can be placed within a book using most word processors. Again, most word processors have the capability of saving a document in a format which can be read by others, either in the word processor's native document format (such as .doc for Microsoft Word or .odt for OpenOffice) or in the current documentation standard established by Adobe (.pdf). At the very least, a text-only document can be saved in the universal .txt format.

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<sup>4</sup> International Telecommunication Union (ITU) (2010) [www.itu.int/ITU-D/ict/material/FactsFigures2010.pdf](http://www.itu.int/ITU-D/ict/material/FactsFigures2010.pdf) accessed on 27 November 2010

For more sophisticated ebooks with embedded video and audio, other creation tools are available. Many are either free or available for a slight charge. The point, however, is that to be a “publisher” of an ebook is far different from being a publisher of a printed paper book. For all practical purposes, there are no hard costs, although the the traditional tasks of keyboarding, editing, proofing, layout and graphics of the "manuscript" are still required, whether performed by the author or by someone hired for the work.

Another stage of publishing that can be avoided is that of the author's search for a publisher. It is difficult, at best, for a new author to find a publisher. It requires a great deal of effort, the printing and mailing of manuscripts to the few prospective publishers who may have shown interest in the book, and, most of all, a great deal of time. While there are publishers seeking out ebooks for their catalogue, an author today can easily avoid the entire publisher search and self-publish.

Production and publishing of an ebook are examples of the radical difference between traditional books and ebooks. An even greater difference is in the marketing of a book once it has been created. Historically, a publisher would handle marketing of a book. For most new authors, the publisher's primary marketing efforts would consist of encouraging the author to go out and find people to buy books. The author would contact bookstores, talk radio shows, newspaper book reviewers, and anyone else he or she could think of, incurring all expenses him or herself. The publisher would handle the book orders, when received, and if a certain minimum order of sales was achieved, occasionally send out a small royalty check to the author.

With digital ebooks, everything changes. There is no longer the pretense of the publisher conducting marketing and actively seeking out publicity and sales. Everything is in the hands of the author/publisher, where in most cases it already was. However, the author has an advantage. In the case of a non-fiction book, for example, the author likely wrote about a subject of which he was very knowledgeable. Being knowledgeable, he also likely knows the key online players in the world of that subject. He knows the relevant bloggers, he knows the most popular podcasters, he knows the magazines and newspapers that feature articles on the subject, he is familiar with the authors of key books on the subject. He is also familiar with, and preferably is already active in, the major online forums dealing with the subject. In short, the author knows who are the people most interested in his book's subject, and where they are to be found. This is a tremendous advantage in rapidly spreading the word about the existence of the book.

The third function of a traditional publisher is that of dissemination. A publisher needs to physically move a book into distribution channels, either directly to online or brick-and-mortar bookstores, or to distributors and wholesalers who can in turn distribute the book to various retail outlets. The physical shipping and administrative handling of this process is labor-intensive, time-consuming and expensive. To make things even worse, historically many of those books that reach retail outlets end up being destroyed for lack of sales—a direct loss of money for the publisher.

An ebook avoids this entire distribution process. As Brabazon has written: “The great innovations of digitization are convergence and mobility, the capacity to move digital files with integrated visual and aural content through space.”<sup>5</sup> Thus, there is no physical ebook; there is only the “pattern” of a book, encoded digitally and residing on one or more servers, waiting to be downloaded by a purchaser. No human need be actively involved in the entire sales and distribution process. An author/publisher in California can place a book on a website which is then seen by someone in Rio de Janeiro or Karachi or Manchester. That person decides to buy the book. They click on the “Buy” button, follow the onscreen

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5 T. Brabazon, “Mobile learning: the iPodification of universities”, *Nebula*, Vol. 4, No. 1, March 2007, p. 20

instructions to complete the payment, the payment is automatically verified, an instant notice is sent to the purchaser with instructions on how to download the book, and the buyer downloads the book onto his computer or ebook reader. The entire process can happen in minutes with no human intervention at the publisher's end of the transaction.

## **Ebook Readers**

There have been a number of ebook readers available for some years, but it was with the release of Amazon's Kindle <sup>6</sup> that ebooks finally came into their own. Prior to the Kindle, ebook readers were cumbersome, lacked a sharp screen display and, perhaps most importantly, were not centered on any standard ebook format. The Kindle, produced by the world's largest online bookseller, changed everything. Backed by the size of the company and its huge catalogue of books, the Kindle quickly became the world's best-selling ebook reader.

The Kindle's fans found it to be an excellent ebook reader,<sup>7</sup> but it was *only* an ebook reader. Many people prefer to read their ebooks on a multi-use device instead of having to purchase a special device simply to read ebooks. When the Apple iPad <sup>8</sup> launched in 2010, that multi-use device appeared. The iPad not only had many other uses—music, games and web browsing were key functions—it could also offer books that contained not only text and black and white images, as did the Kindle, but color images, audio and video. The first of the multimodal ebook readers had arrived.

While the iPad may have been the first multimodal ebook *reader*, the “book” had not yet caught up with the technology. Yes, there were many iPad applications that made use of all of the features of the device, but there were not yet multimodal monographs to fully match the iPad's capabilities. Nor, some wondered, should there be.

## **Effects of Hypertext**

Carr <sup>9</sup> argues that the use of hyperlinks in onscreen text (the hyperlink being the absolute core element of the World Wide Web) is visually confusing and distracts the reader from the text itself. In short, highlighting areas of the text that can (whether or not the reader chooses to) lead the reader off into other, perhaps related information, interferes with digital literacy and makes the decoding of that text more difficult.<sup>10</sup>

Research into the effects of hypertext and multimedia on readers has indicated possible concerns. Rockwell and Singleton have produced results indicating that “participants in the more media-rich groups acquired less information from the presentation.”<sup>11</sup> Participants also reported that “the text-audio-video presentation was less interesting than the text-only condition.”<sup>12</sup> The researchers surmised however, that because audio and video provided the same information as the text, multimedia learning might be more effective if the audio/video channels conveyed supplemental information rather than

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6 Kindle - [www.amazon.com/kindle](http://www.amazon.com/kindle)

7 "E-reader sales greatly increase in 2010," *Working on the Go*, blog, 22 December 2010, <http://worktogo.blogspot.com/2010/12/e-reader-sales-greatly-increase-in-2010.html>

8 iPad - [www.apple.com/ipad](http://www.apple.com/ipad)

9 N. Carr, “The web shatters focus, rewires brains”, *Wired*, 24 May 2010, [www.wired.com/magazine/2010/05/ff\\_nicholas\\_carr/](http://www.wired.com/magazine/2010/05/ff_nicholas_carr/) accessed on 1 December 2010

10 Hyperlinking interference has been carried to an extreme by such “services” as Aapture, which “intelligently” creates hyperlinks on websites to the presumed financial benefit of the websites' owners.

11 S. Rockwell and L. Singleton, “The effect of the modality of presentation of streaming multimedia on information acquisition,” *Media Psychology* (2007), 9, p. 179

12 *Ibid.*, p. 187

redundant.<sup>13</sup> This did not stop Rockwell and Singleton from suggesting in their final paragraph that “developers seeking to use this technology to foster increased levels of information acquisition from their message save the bandwidth and focus on text-only presentations.”<sup>14</sup> DeStafano and LeFevre have found that “the increased demands of decision-making and visual processing in hypertext impaired reading performance,”<sup>15</sup> while another study found that “Interrupting reading with links did not affect reading comprehension or speed, but affected participants' subjective experiences.”<sup>16</sup> The issue remains unresolved.

### **New Literacies**

Text-only ebooks will continue to require the same form of literacy as do traditional printed books, primarily the ability to read, understand, and apply in the appropriate language, with the additional need for basic computer literacy.

Multimodal ebook readers require additional technological literacies, but few, if any, more than already needed for basic use of the device for other purposes. The readers additionally make available the use of a variety of modalities to match the appropriate learning modalities of the person reading the ebook. People learn in a variety of ways and an ebook-reading device such as the iPad allows an aural learner to hear, a visual learner to see, and even a tactile learner to, in some degree, touch.

Literacy is of no value without access. No matter how useful and important a particular book may be to someone, if they have no access to that book, their literacy goes to waste. Access to analogue books is difficult for many, particularly in underdeveloped countries. Because of their ease of duplication and dissemination, ebooks have the potential to break through this “information blockade” to reach billions of people at little or no cost other than that of their creation and, of course, the initial cost of the person's ereader. This equipment cost will continue to decrease as have the costs of all previous electronic devices such as computers, portable music players and mobile phones.

Neil Postman wrote, in reference to such inventions as the microscope and the telescope, that “A technology which begins by giving us access to new facts about the world may end by creating new *ideas* about the world.”<sup>17</sup> Postman further stated “technology is always an idea disguised as a piece of machinery. To go beyond the machinery to the idea is the quest of media ecology.”<sup>18</sup> I would suggest that Libroid and other multimodal books, while not new inventions as such, merge communication features in such a manner that we too may begin to look at the world differently.

Expanding from text-only to multimedia creates entirely new possibilities and needs. As Gunther Kress has written, “In the high era of writing, when the logic of writing dominated the page, the organisation of the page was not an issue,”<sup>19</sup> however “on the screen, the *textual entity* is treated as a *visual entity* in ways in which the page never was.”<sup>20</sup> Combined with the images now provided by multimodality, there is, to use Kress' term, a need to work with a “visual grammar”.

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13 Ibid., p. 187

14 Ibid., p. 188

15 D. DeStefano and J LeFevre (2005), “Cognitive load in hypertext reading: A review”, *Computers in Human Behavior* 23, p.1616.

16 D. DeStefano, A. Pyke, M. Rutledge-Taylor and J. LeFevre (2005). “Effects of interruptions on readers' actual and perceived reading performance in hypertext,” in P. Kommers & G. Richards (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2005*, Chesapeake, VA: AACE. p. 1694-1701 (Abstract)

17 N. Postman, “Media Education”, in *Teaching as a Conserving Activity* (1979) New York: Delacroix Press, p. 187

18 Ibid.

19 G. Kress “What is literacy?” in *Literacy in the New Media Age*, London:Routledge (2003) p. 66

20 Ibid., p. 65

The word “polysemic” refers to text that has multiple meanings. Margaret Mackey suggest that the page of a book can be polysemic <sup>21</sup>, in that the addition of an accompanying illustration can give a section of text a different meaning than would be understood by the text alone. If this is the case of a printed book, how much more polysemic then is a Libroid “page”. The presentation of the entire page can provide a different, or at least enhanced, meaning than would the reading of each separate element of that page, with Libroid's ability to offer text, still images, moving images, music and other sonic elements.

Douglas Kellner believes that “in the emergent multimedia environment, media literacy is arguably more important than ever,” yet he “would resist, however, extreme claims that the era of the book and print literacy is over.”<sup>22</sup> Kellner further states, “Within multimedia computerized culture, visual literacy takes on increased importance. On the whole, computer screens are more graphic, multisensory, and interactive than conventional print fields.”<sup>23</sup> Because multimedia screens can do more, they also require more attention and planning from their creators. The result is to engage additional senses beyond the visual. Bill Cope and Mary Kalantzis write that “Modes of meaning that were relatively separate become ever-more closely intertwined” and “The effect of all these changes...has been to reduce the privileged place of written text in Western culture, progressively bringing the visual and other modes to a par.”<sup>24</sup> I would suggest that text is itself visual and already well privileged. It is visual *images* that have increased in importance in the "reading" experience. They are already dominant in such media as television and film. Among the other modes to which Cope and Kalantzis refer is the sonic, and it would seem that multimedia devices can give sound an enhanced position in the new media experience.

What affect does new media have on literacy and its study? Leu, Kinzer, Coiro and Cammack ask “whether literacy as a term presupposes print, whether it presupposes text. Does literacy mean comprehension of print or comprehension of a message that has permanence in ways that a non-recorded oral message does not?”<sup>25</sup> They answer in the affirmative that “Definitions of literacy must move beyond being located in only paper-printed media,”<sup>26</sup> and that “it is no longer possible to position the print text as the focal text in all instances, with images serving only a supporting role in meaning construction. As many webpages are overwhelmingly an assemblage of images, understanding reading across these images significantly decenters print-based reading.”<sup>27</sup>

Carmen Luke suggests that there has taken place a “transformation of singular print-based literacy into hyphenated, plural, or multiple literacies that acknowledge the diversity of information sources and media that people access, negotiate, and redeploy in everyday contexts,”<sup>28</sup> and that “The process of the [hyperlink] pathways chosen and those passed by demand a particular kind of reading, a cognitive mapping and pathway navigation that is quite different from the relatively choiceless linearity of book-

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21 M. Mackey, “Researching new forms of literacy,” *New Directions in Research*, July/August/September 2003, p. 403-406

22 D. Kellner, “Technological transformation, multiple literacies, and the re-visioning of education”, *E-Learning*, Vol. 1, No. 1, 2004, p.17

23 *Ibid.*, p. 22

24 B. Cope and M. Kalantzis, “New Media, New Learning” in *Multiliteracies in Motion* (Eds: D. Cole and D. Pullen), New York:Routledge, 2010, p.96

25 D. Leu, Jr., C. Kinzer, J. Coiro, and D. Cammack, “Toward a theory of new literacies emerging from the Internet and other information and communication technologies”, *Theoretical Models and Processes of Reading*, International Reading Association, 2004, p. 1583

26 *Ibid.*, p. 1585

27 *Ibid.*, p. 1586

28 C. Luke, “Pedagogy, connectivity, multimodality, and interdisciplinarity”, *Reading Research Quarterly*, July/August/September 2003 Vol. 38, No. 3. p. 398

based print.”<sup>29</sup> Luke also states ““hypertext's multimedia and multimodal interface and gateways to laterally connected and further embedded information sources or knowledge domains come closer to an authentic representation of the interdisciplinary, multimedia, and multimedia connectedness of knowledge as we experience and enact in the contexts of everyday life,”<sup>30</sup> and that “The dynamics of lateral and cross-linked information of hypertext requires and generates a cognitive orientation akin to what is often termed lateral thinking—the very creative, critical, and aesthetic practices many educators are actually “inventing” in classrooms and curriculum.”<sup>31</sup> Multimedia books not only require new literacies, they can produce new ways of thinking.

## **Libroid**

German author and biochemist Jürgen Neffe has created a software application that provides a solution to the possible distracting hypertext problem. Neffe, who calls his publishing company “Publishers of Unprintable Books,” has named his application *Libroid*.<sup>32</sup> Libroid is an iPad<sup>33</sup> application that presents itself differently visually, depending on whether the iPad is held in the vertical (portrait) or horizontal (landscape) position. In the vertical position, a Libroid book is one continuous column with nothing but text. However, when the iPad is held in the horizontal position, an entirely new book appears. On each side of the main text column is a smaller column that contains any of a variety of elements including text with hyperlinks, images (color or black and white drawings or photographs), video, audio, maps, charts, or any other element which would enhance or supplement the text information in the center column. Page numbers are, as with the Kindle, replaced by a percentage bar, and footnotes become “sidenotes.” Readers can create their own links and comments, and share them with other readers through virtual book clubs. Authors can create “never-ending” books with ongoing stories that read like soap operas. Readers can subscribe to these endless books or to ongoing “editions” of a book. Authors and publishers can track use of hyperlinks to see which are the most popular and which should be replaced with new links to information of greater interest. Although all three columns scroll together, presumably an option could be developed allowing the reader to freeze, for example, a video of a story teller and allow the text to continue so that a child, or someone learning a language, could continue to watch the speaker while the narrative text continued to scroll.

Neffe, whose books on Darwin<sup>34</sup> and Einstein<sup>35</sup> were best-sellers in Germany, argues that current ebook readers simply “offer the old world in new garb,” and that “a book needs an author but an author doesn't need a book. At least not that weighs anything, that has to be printed, packaged, posted and sold.”<sup>36</sup> Hence Neffe's referral to Libroids as “disembodied books.”<sup>37</sup> As Neffe writes:

If books can soon be read on all imaginable gadgets that simultaneously display images, play audio and connect to the Internet and other devices, then it is only a matter of time before their authors start to make use of all this multimedia, to produce works that have no place in Gutenberg's universe.<sup>38</sup>

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29 Ibid., p. 400

30 Ibid., p. 401

31 Ibid., p. 401

32 [www.libroid.com](http://www.libroid.com)

33 Neffe intends to also develop a version for Android mobile phones.

34 Darwin: *The Adventure of a Life* - [www.amazon.com/exec/obidos/ASIN/3570010910/westsong](http://www.amazon.com/exec/obidos/ASIN/3570010910/westsong)

35 *Einstein: A Biography* [www.amazon.com/exec/obidos/ASIN/0801893100/westsong](http://www.amazon.com/exec/obidos/ASIN/0801893100/westsong)

36 J. Neffe, “The disembodied book”, *Sign and Sight* (website), 14 May 2009, [www.signandsight.com/features/1872.html](http://www.signandsight.com/features/1872.html) accessed on 15 November 2010

37 Ibid.

38 Ibid.

Although Neffe envisions his Libroid application as liberating the author from the constraints of publishing houses, he also *supports* publishers and has hopes that his application, particularly with its adaptability to many languages, can help national publishing industries, such as that in Germany, in their competition to preserve an important part of their national culture in the face of the American cultural and English language juggernaut.<sup>39</sup>

### **Other types of ebooks**

The standard and multimodal forms of ebooks discussed here are not meant to be exclusive. Ebooks can be read directly on the computer, with the more common format being Adobe PDF. Google recently released an ebook titled *20 Things I Learned About Browsers and the Web*,<sup>40</sup> which uses the new World Wide Web standard of HTML 5. This small ebook may be a prototype of things to come. “Serial novels” are another form, presenting short amounts of a story (or a story being written interactively and cooperatively by a number of authors) either on computer or, more interestingly, through mobile telephones. In Japan, the *keitai shousetsu* (mobile phone novel) is a popular form of the novel.

One such star, a 21-year-old woman named Rin, wrote “If You” over a six-month stretch during her senior year in high school. While commuting to her part-time job or whenever she found a free moment, she tapped out passages on her cellphone and uploaded them on a popular Web site for would-be authors. After cellphone readers voted her novel No. 1 in one ranking, her story of the tragic love between two childhood friends was turned into a 142-page hardcover book last year. It sold 400,000 copies and became the No. 5 best-selling novel of 2007...<sup>41</sup>

Although extremely popular in Japan and other parts of Asia, mobile serial novels are just starting to appear in the West. One website focused on this form of novel is TextNovel.com.

### **The Future**

The question of whether or not ebooks *should* replace analogue books is not just academic, it is meaningless. They *are* doing so. Just as new media literacies are being acquired, if not in place of at least in addition to, traditional printed text literacies. Will ebooks completely supplant analogue books? No one knows for sure, but it is unlikely. After all, did printed books make hand-lettered manuscripts and bamboo scrolls obsolete? Did television eliminate radio drama? Has email replaced all postal letters? Has the iPod caused the audio cassette player or even the CD itself to disappear?

Few can imagine a world without printed books. But that issue will be resolved by time and the future itself, not by discussion or prognostication. What we as academics can do is continue to make the best possible use out of *all* technologies available, be they print, sonic, digital display or technologies yet to come. Multimodal mobile devices offer great opportunities for teaching and learning. But first we must understand how they are and can be used, how they are received, and how they can serve the goal of intelligent, universal literacy and a more engaged, equitable and democratic society.

### **Gutenbergian Books vs. Ebooks**

Are ebooks a useful advance, or are they simply different? This table helps clarify the differences and the value of those differences.

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39 Ibid..

40 Google, *20 Things I Learned about Browsers and the Web*, [www.20thingsilearned.com/](http://www.20thingsilearned.com/) accessed on 28 November 2010

41 N. Onishi, “Thumbs race as Japan’s best sellers go cellular”, *New York Times*, 20 January 2008, [www.nytimes.com/2008/01/20/world/asia/20japan.html?\\_r=1](http://www.nytimes.com/2008/01/20/world/asia/20japan.html?_r=1) accessed on 15 November 2010

## Comparison between Analogue and Digital Books

Printed (Analogue)	Digital
Publisher required	No publisher required (but still possible)
Paper required	No paper necessary. No detrimental environmental results. <sup>42</sup> (although the production of electronic readers does have environmental effects)
Printing press required	No press required
Labor/cost intensive	Labor from author (although a publisher or consultants can provide editing, illustration, layout and other services)
Warehousing (unless Print-on-Demand)	No storage necessary
Distributors keep a percentage of sales	No distributors necessary
Retailers keep a percentage of sales	Retailers possible but not necessary
Retailers determine final price to customer	One world pricing <sup>43</sup> - When sold online, lowest-price can be accessed from anywhere in the world.
Longevity – Can be destroyed but not likely accidentally.	Fragile – can be deleted with a keystroke or by an electrical problem
Protected by storage	Protected by existence of multiple digital copies in multiple locations (preservation through quantification.)
High cost of entry into publishing	Minimal cost of entry into publishing
Advertising intrusive and rare, generally kept to very front and back of book, if at all.	Advertising, including multimedia, can be integrated into the book and updated as needed. Proceeds can subsidize, or even entirely pay for, production and dissemination of the book. Particularly appropriate for self-help, travel and cookbooks.
Gutenberg's invention dramatically increased the number of books in circulation and lowered their cost.	Ebooks can continue the effects of the printing press in a far more dramatic and widespread way.

42 It is reported by *Prime View International*, producers of ePaper, that the Harry Potter series, which so far has sold more than 370 million books needing 290,000 tons of paper, has used the equivalent of 5.8 million trees.  
[www.pvi.com.tw/en/products/p064.php](http://www.pvi.com.tw/en/products/p064.php) accessed on 26 November 2010

43 J. Esposito, "One world publishing, brought to you by the Internet" *The Scholarly Kitchen*, (weblog) Society for Scholarly Publishing, 17 November 2010, <http://scholarlykitchen.sspnet.org/2010/11/17/one-world-publishing-brought-to-you-by-the-internet/> accessed on 28 November 2010.

Book must usually be paid for.	Hundreds of thousands of free (primarily public domain) ebooks through efforts such as Project Gutenberg <sup>44</sup>
High prices customary because of paper, printing, distribution and sales process	Low prices possible because product is not physical and can be sold directly online from author to consumer
Payment billing and tracking throughout entire system	Automatic online payment from purchaser to author
Removed from “backlist” if sales are below minimum.	As digital file, can remain on backlist forever
Text and images only	Text, images, video, audio, hyperlinks, interactivity
Suitable for fiction or long-lasting information.	Ideal for time-sensitive material. Can be produced and updated quickly.
Contents are static and not changed until another edition is printed	Content can be dynamic. Can be updated easily by author with downloads to book owner as needed, or can be updated dynamically through ebook's real-time connection to the Internet. Book can be replaced, or the new update can be installed separately.
No equivalent	Hyperlinks within text can be useful and/or distracting.
No equivalent	Instant dictionary definition, pronunciation, foreign language translation
One book contains one book	One ebook reader can contain thousands of books
No equivalent	Text-to-Speech
Can “dogear” pages	Can bookmark pages and add “tags”
Author can sign book	Digital e-autograph technologies being created. <sup>45</sup>
Holding and carrying a book “feels good”	Comfortable cases, including leather, are available.

The choice of analogue or digital book is dependent upon the content and subject of the book, its target audience, and in many cases, the funds available to produce and distribute the book. Fortunately, it is not an either/or decision. Most books can be published in either or both formats, and if a publisher decides to produce a digital edition, that digital version can be created with content ranging from text-only to a full scale, multimedia work utilizing text, images, video, sound and hyperlinks. What is now offered to millions of would-be publishers is the opportunity to distribute their thoughts and ideas and creations to a world-wide audience, inexpensively and quickly. Gutenberg would likely be pleased.

44 Project Gutenberg - [www.gutenberg.org](http://www.gutenberg.org)

45 Bloom, D., “Writers will begin signing ebooks”, *TechEye.net*, 17 November 2010, <http://www.techeye.net/internet/writers-will-begin-signing-e-books> accessed on 29 November 2010.

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