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Interactive Collaborative Books

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Abstract:

Books are one of the most important tools to convey knowledge, they survived to be a convenient and portable source of information. On the other side, Electronic books (e-books) are playing a big role in attracting a huge number of readers, but still paper books are preferable by many people due to some drawbacks in e-books. Yet, Interactive books combines all positive features in ordinary books as well as e-books, the author is introducing a new Interactive Collaborative book that might change the philosophy of reading from a single passive action into a collaborative knowledge sharing process.

1 Introduction

Books also called monographs is a scholarly set of written, printed, or illustrated materials on a single subject or a group of related subjects usually authored by a single person or a small group of people. Press printing of books in the 15th century revolutionized the way people received their information [1]. While handwritten books and manuscripts slowly propagated in the ancient ages, printed press of books reduced the cost and increased availability of books and hence more people had access to knowledge which enhanced civilization [2]. Electronic books or e-books played similar role in knowledge revolution, it increased the level of availability of books and reduced production cost [3]. But will it replace paper books?

Press printing at the 15th century did not stop handwritten books immediately, it survived for a while before it was completely replaced [4][5]. Will the same argument hold for e-books as a replacement for paper books? The author claims e-books will complement paper books but not replace it due to many drawbacks in e-books. The author introduces in this paper an Interactive Book that overcomes mostly all drawbacks in e-books that might replace paper books in the future.

The rest of this paper is organized as follows: The next section describes e-book encoding formats, advantages and disadvantages, next we describe cultural and environmental impact of using e-books. Finally the author introduces his vision of future Interactive Electronic Paper Collaborative Books followed by summary and conclusions.

2 E-Books

In this section we will describe e-book encoding formats followed by advantages and disadvantages of using e-books

2.1 E-Book encoding formats

E-books are encoded using many different formats, each having its advantages and disadvantages, there is no best format for encoding e-books. Some encoding allow embedded images while other encoding are plan text format, most popular encoding allow special features such as bookmarks, table of contents, hyper links.

Among the most popular encoding formats are: eBooks, hiebook, , Microsoft Reader, Mobipocket, Palm reader, Zinio Reader, Libris, Instant ebook, Adobe reader, and HTML. The first two encoding are specially designed to meet special e-book devices, the next three encoding preferably for reading e-books on personal computers. Libris is for mobile devices such as cell phones and Java enabled devices. The last two encoding are for general handheld pocket devices or desktop computers. [6] [7]

2.2 Advantages of E-Books

Among the many advantages of e-books are: (1) e-books does not wear over time or due to intensive usage, (2) text-base e-books can be searched for keywords at a glance, (3) e-books are so portable interms of weight and space, thousand of e-books can be stored on a single DVD that weigh few ounces and occupies negligable space. (4) E-books cost less then ordinary paper books, (5) e-books are environmental safe, it does not require cutting trees to produce papers, (6) e-books has shorter update cycle whereas paper books usually updates only after the current issue is out of print, (7) e-books are faster and easier to cite information and quote text if permission is given, (8) e-books can have hyperlinks connecting valuable and related information, (9) e-books are available and distributed instantly once ready to be published, (10) finally, e-books can be read in low light or total darkness provided it is viewed on a self lighting-device.

2.3 Disadvantages of E-Books

There are some disadvantages of using e-books, some of them are minour and other are considered major disadvantages that if presisted will never have e-books replace ordinary paper books.

Among the disadvantages the following are the most recognized: (1) papers are more comftable in reading text than most digital screens, (2) e-books requires some knowledge in using the technology to view the book, (3) e-books relay on energy to view the book, hence long trips away from energy source might prevent continuous reading, (4) e-books are not suitable for technology phobia personal, (5) copy write issues are still not well handled and hard to trace, (6) some e-books devices might have radiation hazard on the long run, (7) reading e-books might require certain sitting positions to face the screen based on the device used, (8) e-books create different reading habits, (9) most e-books are less convenient to hold side notes and scratches as well as marks and underline text, (10) e-books requires relatively expensive devices to read the book.

3 E-Book Impacts

In this section the author will discuss some of the most important impacts of using e-books on culture and behaviour.

3.1 Cultural Impact of E-Books

After the presence of printing press, authorship became more meaningful. It was suddenly important who had said or written what. This allowed the exact citing of references [8], e-books even added a new dimension of features that might connect the reader directly to the book author's own page and get updated information and feedback for future issues. This type of connection will help in dissolving some cultural barriers on the way to understand and expose to different cultures.

Some senior librarians describes the impact of e-books on culture by the retreat spread of libraries due to the world of electronic publishing and the increase space and fund requirements of paper books. [9]

3.2 Behavioural Impact of E-Books

In order to understand a technology like e-books, one should not just focus on its consequences, but more importantly analyse the development of e-books as part of a broader economic and social pattern. [10]

Electronic publishing of e-books will provide whole new ways of representing and distributing content, giving authors, libraries, distributors and publishers new challenges and possibilities [11].

This new situation will create new roles and new patterns of behaviour. Publishers will no longer be mere producers of paper books, but digital content agents, producing content in several formats and for different distribution channels. Publishers will produce books on paper and on demand in various digital formats, changing the structure of book production.

4 Interactive Electronic Paper Collaborative Books

Interactive Electronic Paper Collaborative Book is a concept introduced by the author that has all the advantages of e-books and paper books described earlier with collaborative features, and overcomes most of the disadvantages in e-books.

4.1 Definition

An Interactive Electronic Paper Collaborative Book or in short i-book is a device of the size of a medium paper book (e-paper) 7 3/4" or 18cm that electronically displays the book content on its electronic paper [12] that mimic the appearance of regular ink on paper. I-books has many interactive features such as saving and sharing bookmarks or handwritten notes for future retrieval.

Interactive books should not be confused with interactive e-books, interactive e-books are electronic books viewed on an electronic book reader such as a PC or mobile device with some basic interaction such as saving notes and bookmarks.

4.2 Features

Some of the proposed features of the i-book are: (1) its electronic paper reflects light just like ordinary paper, unlike a conventional flat panel display, which uses a backlight to illuminate its pixels, (2) electronic paper is capable of holding text and images indefinitely without drawing electricity, (3) it is easier to read at an angle just like normal paper, (4) It is lightweight, (5) durable, (6) and highly flexible compared to other display technologies. (7) i-book contains a small set of electronic paper (say 10) (8) consecutive e-paper holds consecutive contents of the book (9) The reader flip pages just as he would do with ordinary paper books, (10) once the set of e-paper is finished, he can flip back to the first e-paper after pressing a button to view a continuation of the last viewed paper. (11) E-book can save handwritten strokes and marks written on the e-paper, (12) and can easily search any word in the text (13) or written notes and marks. (14) Handwritten notes and bookmarks can be shared with other readers via wireless communication, (15) collaborative reading is enabled by adding a member from the Internet or a nearby ad-hoc network to the list of collaborative friends, pages read by collaborative readers are marked and hence can post discussion or share thoughts on a given topic. (16) i-books are automatically updated by the publisher for any errata corrections and notes from the author, (17) new issues of the book can be downloaded with probably a small fee, (18) notes and marks on old issues can migrate to the new issue at relative text positions. (19) i-book format should be based on XML format to ensure high portability among other devices, (20) an audio out earphone socket is available for optional text-to-speech output.

5 Summary and Conclusions

This history of books undertook many changes, press printing in the 15th century was one of the major revolutions in book history that replaced handwritten manuscripts with printed text books. Electronic book publishing was thought to be the second major revolution that would replace paper books by e-books, but it did not happen due to the many drawbacks in e-books.

The author introduced a concept of interactive electronic paper collaborative book, i-book, that has all the advantages of e-books and overcome most of the disadvantages. Philips has already implemented a commercial electronic paper based on electronic ink technology to hold output for portable use [13] [14]. Phillips e-paper can retain text and images without power for several months and only need small power to update pages[15]. Phillips e-paper is a passive screen, interactive e-papers are needed for the proposed i-book. The author is expecting i-books to show in market very soon since most of the underling technologies used are now available.

References:

- [1] Eisenstein, E.L.: The Printing Press as an Agent of Change (Cambridge University, 1980).
- [2] Wikipedia : Books, Retrieved on May 2007 from <http://en.wikipedia.org/wiki/Books>
- [3] C. Lynch: The Battle to Define the Future of the Book in the Digital World, First Monday Journal, vol. 6, Retrieved on May 2007 from http://www.firstmonday.org/issues/issue6_6/lynch/#12
- [4] Wikipedia : Printing Press, Retrieved on May 2007 from http://en.wikipedia.org/wiki/Printing_press

- [5] M. Jensen: E-Books Retro Glue Protect the Vested Interests of Publishing, The Chronicle Review, CHE, June 23, 2000, Retrieved on May 2007 from <http://chronicle.com/free/v46/i42/42a06401.htm>
- [6] Choose an ebook format, eBook Mall, Retrieved on May 2007 from eBookMall <http://ebookmall.com/choose-format/>
- [7] Wikipedia: E-Book, Retrieved on May 2007 from <http://en.wikipedia.org/wiki/E-book>
- [8] Wikipedia: Printing Press, Retrieved on May 2007 from http://en.wikipedia.org/wiki/Printing_press
- [9] McKitterick, D.: The cultural impact of eBooks. *International academic library conference*, Trinity College, Cambridge University, April 2007. Retrieved on June 2007 from <http://www.cambridge.org/features/exac/programme.htm>
- [10] T. Hillesund: Will ebooks change the world?, *First Monday Journal* . 2007
- [11] J. Meyrowitz: No Sense of Place. New York: Oxford University Press. 1985
- [12] Wikipedia: Electronic paper, Retrieved on May 2007 from
- [13] Rollable displays, Retrieved on May 2007 from Phillips Electronic home page at http://www.research.philips.com/technologies/display/ov_elpap.html
- [14] Wikipedia: Electronic paper, Retrieved on May 2007 from http://en.wikipedia.org/wiki/Electronic_paper
- [15] Phillips Rollable Display Demo, Retrieved on May 2007 from <http://www.anandtech.com/tradeshows/showdoc.aspx?i=2665&p=20>

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