ROLE OF E-BOOKS IN ACADEMIC LIBRARIES : TOWARDS VIRTUAL LIBRARY

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Abstract

E-books are becoming popular of late because they have several advantages when compared to printed books. E-books provide multimedia information, full-text searching, reference linking, flexibility in searching and browsing, selection of different types of fonts, portability, and interoperability on a variety of devices. E-book reader software allows users to highlight, annotate, underline and bookmark. This paper discusses the role of e-books in academic libraries.

Keywords : Digital Archives/ E-books/ Virtual Library

1. Introduction

Libraries have always served as repositories of the written world, regardless of the particular medium used to store the words. In today's society, the written word is increasingly encountered in digital form. Writers use word processors; readers see words displayed; and researchers can scan countless collections without leaving the confines of libraries . It is mainly due the virtual library.

One of the battle lines between the traditional bibliophile and modern technology is drawn over the concept of the e-book. The production and usage of e-books is growing at a fast pace and warrants serious consideration, especially in Libraries and Information Centers of Indian Universities, Institutions of Higher Education, and other institutions of national importance like IITs, IIMs, and IIScs etc. It can be concluded that there is need to formulate a workable and sustainable strategy in Academic Libraries. It also urgently need that systematic efforts are taken to develop suitable information infrastructure for providing access to e-books.

2. Definition

According to Ana Arias Terry (1) "an e-book consists of electronic content originating from traditional books, reference material, or magazines that is downloaded from the Internet and viewed through any number of hardware devices." These include PCs, laptops, PDA's (personal digital assistants), palm PC's or palmtops, or dedicated ebook readers.

Tony Cawkell (2) notes, the traditional concept of the book includes novels, dictionaries, telephone books, textbooks, anthologies, instruction manuals, proceedings of meetings, and directories. The phrase "electronic books", however, has been applied to some types of CD-ROM systems, palm-top CD players, on-demand text, electronic documents systems of various kinds, and nearly any kind of computer-based text system that needs "hyping up" for marketing purposes .

The Webopedia (3) defines as: "An electronic version of a book. Currently there are two e-book products available, the Rocket eBook, from Nuvomedia (www.nuvomedia.com) and the SoftBook from SoftBook Press (www.softbook.com). Both are small computers size of a paperback and a legal notepad with backlighted screens that allow a user to read, save, highlight, bookmark, and annotate text. Both can download books from a Web site, such as barnesandnoble.com (although the Rocket e-Book requires another PC).

The Wikipedia (4) defines as An e-book (also: eBook, ebook), sometimes called an electronic book, is an electronic (or digital) equivalent of a conventional printed book. The term has occasionally been used ambiguously to refer to either an individual work in a digital format, or a hardware device used to read books in digital format, more specifically called an e-book device or e-book reader

The Wikipedia (5) defines Virtual Libraries as "These are libraries that consist only of resources available in a digital format, which can be accessed locally - stored on a hard disk - or through computer networks - public or private. Unlike digital libraries, virtual libraries do not consist of full text articles and multimedia, instead they are more of an index of relevant, hand-picked links to external resources, mainly on the World Wide Web.

Professional or semi-professional virtual libraries often follow certain guidelines for the selection of content in order to maintain a consistent collection of data. The selection and categorization of information resources of a virtual library is generally handled by one expert or a group experts.

The WWW Virtual Library is one of the oldest examples of a virtual library, started by Tim Berners-Lee and maintained by volunteers. INFOMINE (University of California) is another prominent, growing virtual library.

3.   Types of E-Books

There are different types of e-books available in the market. Some of the types are explained in this paper

3.1   Downloadable e-Book

The contents of e-book are available on a website for downloading to the user's PC. The users do not have to purchase any special reading device and can employ standard and

well-known web techniques to obtain the book. The disadvantages of downloading ebook include the problems of reading from PC screens, unattractive formats, and the time required to carry out downloading operation, particularly in the absence of high speed data lines. Many consumers have only 56K nodes and dial up connections that can be slow, overloaded and unreliable.

3.2   Dedicated e-Books

The contents of the books are downloadable to a dedicated hardware device, which has a high quality screen and a special capability for book reading. Much of the activities of dedicated e-book arena centers around the emergence of dedicated e-book readers hardware devices specially built and designed to improve the reading experience and they incorporate special control to make book reading easy and simple. They have also the facilities for book marking a page, move through the book in a nonlinear fashion. Some readers also incorporate links to dictionaries or thesaurus so that the user can look up the meaning of the words. There is no need for PC or Internet access facilities, because the readers incorporate modems that dial directly into the e-book publisher's server to download books.

3.3   Web accessible e-Books

The book remains on the providers' web site and can be accessed on a fee basis. Readers can purchase the books to receive indefinite access. Users require PC to access this kind of e-book.

3.4   Print-on-Demand Book

The content of a book is stored in a system connected to a high speed, high quality printer from which printed and bound copies are produced on demand. The contents may be accessible chapter by chapter basis, to enable the creation of single copies of customized books.

4.   Technologies Available for Reading E-Books

There are two types of technologies available for using e-books:

- online or Internet-based
- offline or specific e-book reader based

In the online version the user can read the text through an Internet browser and this opens up possibilities of linking to other resources, cross-text searching, utilisation ofdictionaries and so on. There are several organisations which each offer access to tens ofthousands of e-books from a range of different publishers. Examples include:

- Netlibrary (http://www.netlibrary.com)
- Ebrary (http://www.ebrary.com)
- Questia (http://www.questia.com)

In addition many publishers (e.g. Springer and Gale) are now also providing e-access totheir published printed books. In the offline version users will read e-books through special e-book reader software, which can be downloaded, from the Internet. Much of this software is format specific, such as:

- Adobe reader in PDF format (http://www.adobe.com/products/ebookreader)

- Hiebook reader in HI format (http://www.hiebook.com)

- Microsoft reader in LIT format (http://www.microsoft.com/reader/downloads/default.asp)

- Mobipocket in PRC format (http://www.mobipocket.com)

- Palm reader in PDB format (http://www.palmdigitalmedia.com/products/palmreader/free) (Sulli, 2004; Gibbons, 2005).

- There are many e-book online 'stores', such as eBookmall (http://www.ebookmall.com), which offer downloadable e-books in a variety of formats.

5. Advantages and Disadvantages of E-Books

E-books are becoming popular of late because they have several advantages when compared to printed books. E-books provide multimedia information, full-text searching, reference linking, flexibility in searching and browsing, selection of different types of fonts, portability, and interoperability on a variety of devices. E-book reader software allows users to highlight, annotate, underline and bookmark. Almost all reading devices provide adjustable backlighting which enables e-book users to read comfortably in poor lighting conditions, even in bed at night, without disturbing others. For users who are frequent travelers, or who have to carry out research in remote places e-books offer a substitute for print books and provide easier portability. For teachers and students, e-books are a very good classroom teaching tool and are a good device for those with lowhand dexterity. E-books which are available online can be accessed 24/7 from a 'local' desktop, are able to be accessed remotely and more than one person may be able to access the same e-book at a time. For publishers, e-books offer economies in publishing costs and involve no storage, shipping and handling charges. For librarians, e-books do not go out of print, are easy to download, can be customised to suit individual needs (especially by those who may be physically handicapped), allow many people to access the same book at the same time, are free from problems of being misplaced, and do not suffer from wear and tear or theft (Rao, 2001; Snowhill, 2001; Tedd, 2004). In spite of these advantages, e-books are still not very popular. The possible reasons for this could be:

- the technology for creating and accessing e-books (both hardware and software) is not yet mature;

- lack of awareness of software/hardware available for e-books;

- incompatibility with hardware and software of the e-book readers; cost of hardware readers;

- limited availability of titles;

- difficulty in accessing computers or Internet;

- enough printed books in libraries already;

- people are used to reading printed books and do not want to change the habit;

- a lack of awareness of e-books

- problems with printing and downloading (Snowhill, 2001; Tedd, 2004; Urs, 2004).

6   Why E-Books

It is observed that e-books have great potential and bright future to attract users. In addition to this fact, there are some other major factors which also motivate S&T institutions to consider to develop e-books are listed below:

- Can be updated and, stored very easily

- Can be downloaded instantly

- Contain the latest and most updated information

- Users can read an e-book any time

- Due to portability, e-Books can be taken any where on portable computer

- Business and recreational travelers can load e-books on their portable computers without adding weight or taking up space in their luggage Font size can be changed suitably.

- Provide facility to hold and turn pages easily

- Physically disabled users can hear audible e-book

- In buying e-books, the overhead charges like shipping, postal, handling are totally ruled out

- No cost of technical processing and maintenance

- Link can be created in the record of OPAC

- No risk of book theft and tearing and mutilation of pages

- E-books have background music and animations.

- Hyper linking enables users to communicate directly with authors

- E-books save library space

- E-books do not require bindery and repair

- E-books save human resources for shelving and rectification

- Users can not misplace e-books

7.   E-Book Resources and Accessibility : International Scenario

Electronic books are accessible via the Web in a number of forms. Generally, they are texts that have been scanned or typed and either published on a Web server or made available on the Web for downloading. These can be free access or access on payment.

7.1   Free Access

E-Book resources are referred to be a free when access to the sources is not dependent on a subscription or membership in an organization or a publisher. Some of the freely accessible E-book resources are stated below:

7.1.1 Project Gutenberg (http://www.promo.net/pg) Project Gutenberg is the Internet's oldest producer of FREE electronic books (e- Books or e-Texts). It is the brainchild of Michael Hart in 1971. Thousand of e-books are available in this site free of charge. The site is having browsing facility by Author , and by Title. It also provides advanced search facility by Author or by Title (Words). Author wise list of e-books is available at http://www.promo.net/pg/authors.zip and Title wise list of e-books is available at http://promo.net/pg/titles.zip and current list of e-books is available as GUTINDEXALL at the FTP site at the University of North Carolina ftp://ibiblio.org/pub/docs/books/gutenberg/GUTINDEXALL Total of 6267 Total Project Gutenberg e-Books and119 e-Books have been posted so far by Project Gutenberg of Australia.

7.1.2 University of Virginia e-book Library (http://etext.lib.virginia.edu/ebooks/ebooklist.html 1,800 publicly-available e-books including classic British and American fiction, major authors, children's literature, the Bible, Shakespeare, American history, African- American documents, and much more are available. Thousands more titles can be found on electronic text center.

7.1.3 University of Illinois Electronic books (http://www.press.uillinois.edu/epub/books.html) The University of Illinois Press is a growing archive of free e-books, most with full content, features electronic versions of front list and newly released titles. It provides to browse through this collection by author, title and subject free of charge. It also provide full keyword searching across the archive to help the user to locate specific information.

7.1.4University   of   Pennsylvania   Online   Books   (http://onlinebooks.library.upenn.edu/) The Pennsylvania Online Book page facilitates access to books that are freely available over the Internet. This site includes different sections like Books Online, News, Features, Archives. It was founded and is edited by John Mark Ockerbloom, the digital library planner and researcher at the University of Pennsylvania. It includes over 20,000 free books on the Web in various formats. Recently it is updated on October 7, 2004. All are free for personal, noncommercial use. Users can search by author and title, browse new listing, by author, by title, by subject and can browse serial archives.The screen shot of the web allowing access to e-books to the users is given below:

7.1.6 The National Academies Press (http://www.nap.edu/) The National Academies Press (NAP) was created by the National Academics to publish the reports issued by the National Academy of sciences, the National Academy of Engineering, the Institute of Medicine and the National Research Council, operating under a charter granted by the Congress of the United States. NAP publishes over 200 books a year on a wide range of topics in science, engineering, and health, capturing the most authoritative views on important issues in science and health policy. The institutions represented by NAP are unique in that they attract the nation's leading experts in every field to serve on their blue ribbon panels and committees. More than 3,000 books online Free and more than 900 PDFs now available for sale. The screen shot of the web allowing access to e-books to the users is given below:

7.2   Access on Payment

Due to rapid growth and development in the use of modern information and communication technology and the Internet, publishers are now started to shift their publications from print media to online electronic media. Instead of onetime selling printed books they are giving access to books in their server on rental basis like e-journals. Some publishers are selling e-books one time at the real cost of books and again they are charging annual access fees like subscription of e-journals. Some prominent e-book publishers and e-book sellers on Engineering and Technology and other subjects areas are described below.

7.2.1 netLibrary (http://www.netlibrary.com/Gateway.aspx) netLibrary is founded in 1999 and based in Boulder, Calorado, U.S.A. and become a division of OCLC on January 25, 2002. It currently provides about 60,000 ebooks from 400 publishers and adds 2,000 additional titles per month. Full list of books is available at URL: http://www.netlibrary.com/titleselect . The user can create his/her own login and password before access this page. The list of publishers of netLibrary is also available at URL: http://www.netlibrary.com/about_us/publishers/publisher_list.asp netLibrary e-books can also be linked to library's website or integrated with existing cataloguing systems and OPAC using referring URLs behind a password protected page or an authentication system. The screen shot of the web allowing access to e-books to the users is given below:

7.2.2 Kluwer Online (http://www.kluweronline.com/ebooks/sales/) (Recently merged with Springer) Kluwer Online's new eBook platform makes the accessibility of its online eBook collection easier and more convenient for subscribing institutions. IP-enabled authentication is all that's necessary to purchase and view Kluwer's comprehensive array of electronic research information.

7.2.3 Safari Tech Books Online: (http://proquest.safaribooksonline.com/) Safari Tech books is apart of ProQuest Information and learning. Safari Tech Books Online provides powerful tools for libraries to integrate and manage the collection including seamless IP authentication, prominent library branding in the interface, the ability to create links from the OPAC directly to books in the collection, and robust usage reporting.

Safari Tech Books Online is available on an annual subscription basis, priced according to the number of simultaneous users and titles selected. Customers can build collections book by book to meet the needs of the library. The screen shot of Safari Tech Books website is given below:

7.2.4 John Wiley (http://www.wiley.com) More than 300 online publications for researchers and professionals are available in Wiley Interscience. In addition to 300 online publications it features over 1,000 journals, major reference works, online books, Current Protocols, laboratory manuals, and databases as well as a suite of professional and management resources. The site was launched in 1997 and currently caters to over 12 million users in 87 countries. The screen shot of John Wiley website is given below: 300 Online Publications are available

7.3   Other E-Books Providers

In addition to netLibrary, Kluwer online etc. dealing with engineering and technology subjects there are numbers of e-books providers in different variety of subjects like fiction, history, entertainment, college books. Some of the e-book providers dealing with such subjects are stated below:

7.3.1 Questia (http://www.questia.com) Questia is the world's largest online collection of books and journal articles in the humanities and social sciences, plus magazine and newspaper articles. The users can search each and every word of all of the books and journal articles in the collection. They can read every title cover to cover. This rich, scholarly content selected by professional collection development librarians is not available elsewhere on the Internet. Undergraduate, high school, graduate students, and Internet users of all ages have found Questia to be an invaluable online resource. Anyone doing research or just interested in topics that touch on the humanities and social sciences will find titles of interest in Questia. To complement the library, Questia offers a range of search, note-taking, and writing tools. These tools help students locate the most relevant information on their topics quickly, quote and cite correctly, and create properly formatted footnotes and bibliographies automatically. Questia provides a comprehensive research environment to meet students' academic needs.

7.3.2 E-Book Palace (http://www.ebookpalace.com/)eBook Palace is a visitor submitted directory listing over 3,500 titles in popular ebook formats including pdf, lit, html, exe, palm, mobipocket, & Rocket Editions that users can download and read from their desktop, handheld device or read online.

7.3.3 BarnesandNoble.com (http://www.barnesandnoble.com/) It carries downloadable e-books in their E-Book section. CD ROM and diskette e-books available in the general book section

7.3.4 Booklocker.com (http://www.booklocker.com) Booklocker.com, Inc. develops low-cost, author-friendly products, services and programs that help authors publish and market their own works. Their offerings work best with entrepreneurial authors who

actively market their books and want to be involved in the entire process. Their goal is to provide the tools and the knowledge to help them successfully sell their books.

7.3.5 Book-Studio/Studio E (http://www.studio-e-books.com) Book-Studio is a complete book production service. From raw manuscript to delivered book, Studio E provides editing, text preparation, book design, typesetting, and digital or camera-ready layouts ready for the printer. They are also broker of printing and shipping, delivering finished books ready to read.

7.3.6 Word Wrangler (http://www.wordwrangler.com) Word Wrangler Publishing , 332 Tobin Creek Road, Livingston, MT 59047 is publishing fiction and non-fiction E-books partnering with SynergEbooks

7.3.7 Palm Digital Media (http://www.peanutpress.com) Palm Digital Media is the first electronic book publisher to offer contemporary fiction and non-fiction books, newspapers, and magazines for reading on handheld computers including the Palm Organizer, Sony Clié, Handspring Visor, and Pocket PC machines, as well as Windows and Macintosh computers.

8   Issues in the Introduction of E-Books in Academic Libraries

As suggested, the results from the focus group form part of an undergone investigation into the perception and use of electronic textbook material . However the preliminary trends that are emerging suggest that :

- The library environment (in relation to this study the Academic library environment) may form a key part of the process of developing acceptance of electronic textbooks. When purchasing textbooks, there seems to be a preference for the printed book. However, if the content is made available through other means, such as a library collection, then students have suggested that they will overcome the issues of screen readability and experiment with the electronic content.

- The usage and reading patterns for online textbooks needs further investigation as this may impact on the licensing models that are required for aggregated e-book collections. The current trends suggest that students would prefer to use these collections as an electronic distribution process and not as an electronic reading process. That is, they would want to use the electronic textbook collection in a similar manner to an aggregated journal collection-search digitally and then produce a printed copy for the actual reading. If this is the case, then concurrent user-based subscription models could be applied, as the usage is one of search and retrieval, while the reading is done offline. However, as students start to accept online reading, then it is perceived that their time within the aggregated collection will increase and the reading time becomes part of their usage. Limited, shared concurrent user models will need to be applied at a per title level, not on the total collection (as seems the case with some aggregated e-book collections).

Licensing issues for the integration of e-book collections into online learning environments are of importance to libraries and educational institutions. The initial use of the web for some publishers was to support their print textbooks with online support material that could be incorporated into learning shells such as WebCT and Blackboard. As the text itself becomes the online content, licensing should support the ability for academics to integrate this material with their own learning materials. The focus group feedback suggests that e-book integration into the online learning environment may assist in the acceptance of the onscreen reading of e-books.

9.   Experience at Bond University

The electronic book experiences at Bond University Library reflect many of the outcomes reported in other research. A number of studies have investigated the use of e-books in university educational programs and although they have primarily focussed on e-books displayed on hand held devices, the issues raised are similar to those emerging at Bond University ('Online' 2002; Bell, McCoy & Peters 2002; Blumenstyk 2001; Dearnley & McKnight 2001).

E-book technology is clearly a significant issue. For example, difficulty with sustained reading from a screen was one of the most frequently reported problems in the Bond case study, and this is also one of the most commonly cited problems for all types of e-books. While new technological developments are always on the horizon, it will be several years before software and hardware platforms for e-books can provide the high quality display necessary for effective readability (McKenzie 2002). The Bond case study appears to indicate that for e-books delivered over the Internet, there are fewer technology related problems. The issues reported in studies based on hand held devices such as battery life, small screens, software incompatibility, data loss, and so on, do not arise for e-books on the web. However, it could be argued that greater technology reliability is achieved at the expense of portability. There were also many attractive features associated with the technology. The functionality for searching and navigating that is valued by Bond students is a positive aspect reported in most studies. For other features such as the ability to highlight text and make electronic notes, the results are equivocal. While some studies found that these functions were popular, a study by Blumenstyk (2001) found students were disappointed that these add-on services were not as intuitive as they could be. This may be why some Bond students commented that they missed being able to take "normal notes". E-book marketing is another widespread concern. For individuals and libraries alike, the path to choosing and acquiring e-books can be a convoluted one. The Bond University lecturer found the process of arranging e-book subscriptions for his students was an additional burden. For electronic books to succeed, selecting and purchasing them needs to be as easy as ordering and buying from the campus bookstore (McKenzie 2002). As the Books 24x7 and Safari Books experiences at Bond have shown, even libraries that are geared towards purchasing and delivering electronic content can find the journey to acquiring e-books a challenging one. Nevertheless, the usage of e-books in the Bond case study illustrates how the medium is potentially more popular than the print equivalents for the discipline. Although not directly comparable, usage statistics for the two media show that 66.4% of the print

collection was borrowed in its first two years while more than 40% of Safari titles selected have been accessed in the first 2 months of their availability. Bond University is yet to fully explore the opportunities that electronic books offer. Licensed e-content in other formats (for example journal articles from proprietary databases) can be seamlessly integrated into electronic reserves or course packs. E-books fit well into this category, where 'chunks' or chapters of ebooks could be incorporated into required readings for weekly lectures and tutorials. Exciting developments in the area of portal technology and federated searching capability will allow for greater integration of information (books, journals, web, data, code, images) regardless of format.

10. Experience at Auckland University

E-books have become an important part of the learning environment at the University of Auckland and students and staff increasingly appreciate their advantages.

From the very beginning there was an awareness of the need to instruct users (both staff and students) about what is available and what advantages e-books can offer in their particular disciplines, and to point out the potential for using them in an academic environment. A group was formed with the goal to consider the ways e-books could be promoted and better utilised. As one of the steps in promoting e-books the Library has organised a regular e-books course to help both Library staff and users gain a better understanding of what an e-book is and to encourage their use. Most Library staff have attended the course and their response has been very positive. An on-line tutorial from the course is accessible from the Library web pages, explaining main advantages of e-books and how to connect and search netLibrary and ebrary, two major cross-disciplinary e-book collections. The e-book tutorial can be accessed at: http://www.library.auckland.ac.nz/instruct/ebook/ebook.htm.

The education of Subject Librarians and other Library staff was also considered very important as they select and make recommendation for purchases and also educate users. Presentations on each newly acquired e-book resources are organised for Library staff, indicating both how best to use the resources, as well as obstacles they might encounter. It is also very important to make Subject Librarians aware of new e-book titles so they can be added to the relevant course pages. To give e-books more prominence, the Library has created a dedicated e-book page on the Library web pages. This page serves as a gateway to e-books both in the Library catalogue and also the databases. A search through this gateway of the Library catalogue is basically a canned Voyager search and it will find only e-books. The page also lists main e-books databases with very brief descriptions of each database. The name of a database is a live link. On the page there is also a link to a directory of open access e-books which are not catalogued on Voyager as well as a Guide to finding & using E-books. The e-book page can be found at: http://www.library.auckland.ac.nz/ebooks/.

11. E-Book Resources and Accessibility : Indian Scenario

■ The SASTRY at Thanjavur achieves the unique distinction of being the first

University / Institution in the country to purchase the entire e-book library collection of Springer, one of the world's largest publishing company. This e-book library purchased at a cost of Rs.50.00 lakhs offers access to over 8500 full text books in various disciplines like Computer Science, Engineering, Mathematics, Biomedical Engineering, Nanotechnology, etc. SASTRA is the only University in the country to subscribe to this entire suite of e-book collection offered by Springer. With this new addition, SASTRA's library collection, which already exceeded one lakh last month, gets further en-richened offering access to over 1,20,000 full text books. In addition to this vast collection of books, SASTRA also provides access to over 4,000 full-text engineering, scientific and management journals besides access to over 5,50,000 full-text Ph.D. dissertations. SASTRA subscribes to various on-line resources like IEE, ASME, ASCE, ACM, Science Direct, EBSCO, PROQUEST, etc. SASTRA also subscribes to SCOPUS, which is an online database that provides access to bibliographic data for over 14,000 journals. In addition to this, SASTRA has also provided the students with video facilities which provide an entertainment based learning platform. More than 1,600 CDs on diverse subjects are available for the students' viewing.

- To understand more about the users' perspective about e-books and their usability, a study surveyed the researchers at the Indian Institute of Science (IISc) in Bangalore, India and it has concluded that:

  The responses indicated that the students tend to use this new technology more often than faculty members and staff. Those who did use e-books mostly used reference and technical material. The highest response was from the Centre for Ecological Science followed by the Supercomputer Education and Research Centre, and then the Molecular Reproduction Development and Genetics. The majority of the respondents have used computers for over five years for a variety of purposes including e-mail communication, Internet browsing and text processing as well as for other advanced use such as for numerical computing, and DNA sequence analysis. However, use of e-books appears to be very low indicating a requirement for creating awareness and user education about both software and hardware related to eBooks. Only 37 of the 104 respondents had used the free trial offer to Kluwer and Edutech eBooks during July 2004.

- Indian Institute of Technology, Karagpur provided the MetaBrowser (Multimedia e-Book on Brasses) for teaching and learning , the user friendly MM CD on Brass covers a very wide spectrum on the topic. It gives: a detailed phase diagram of the Cu-Zn system; details of various types of Brass and their applications; the variation of microstructures for different combinations of soaking time and temperature; detailed diagrams highlighting the variation of mechanical properties, with respect to different independent variables; a library of brasses that has under-gone various heat-treatments; the effect of de-zincification; a full-length video film on heat-treatment of Brass, highlighting why Brasses have to be heat-treated in this way; a full-length video film on Basic Metallography, stressing on the need to study metallographs, sample preparation, the metallurgical microscope, and the

precautions to be taken while developing structures for metallographic studies; the interesting concepts of multimedia

■   A Study has undertaken in Central Food and Technological Research Institute (CFTRI) about the use of Electronic Resources. In that study only 7 respondents were used the e-books out of 70 respondents. It show only 10% were used the e-book.

■   In addition to Indian Scenario the survey of Task Force of the University ofCalifornia 2001 found that most institutions are still in trial stage with e-books and e-book market viable are not quite in pace.

12. Limtation of E-Book

Though the e-book has great potential and bright future to attract the users it also have some limitations.

■   Physical and Mental Strain: to read an e-book is not comfortable in comparisonwith printed book. It cannot be read in leisure time lying on bed or sofa. It can't be read in open air. Continuous reading of an e-book sitting in front of computer system affects the eyes and nerves.

■   Reading an e-book while traveling in train or bus is not so easy and cheaper in comparison with printed books. Laptop or Palm top with battery system is urgently necessary to read an e-book, which is more costly than a book.

■   In addition to cost, the user has to carry the machine which is difficult and a matter of risk like break / damage or theft.

■   Students, faculties and research scholars those are staying in campus may avail the computer facility during working hours but if any student stays out side campus has to purchase computer and Internet connectivity for reading online ebooks. Common students cannot afford such financial burden. Only in campus students, faculties and research scholars of IIT's, IISc., and NIT's / REC's can avail this facilities. In India there are plenty of private Technical & Engineering Collages who can't afford even in campus facilities.

■   E-book is costlier than printed book. The expenditure of an e-book is sum total cost of e-book plus access charges plus internet connectivity and usage charges which is costlier than that of a printed book.

13. Perspective and Future of E-Books

The e-books are having so many disadvantages and problems but still e-book has its perspective due to the following features:

- Malleability
- Flexibility
- Search ability
- Ubiquity

As per statistics available from open e-book forum June 22, 2004 the sales and production of e-book are gradually increasing. A comparative statement of sales, production and reference is stated in the following figure.

Particulars	First half of 2003	First half of 2004
Unit Sale	288,440	421,955
Revenues	$ 2,516,469	$ 3,233.220

14. Conclusion

Electronic Book have become the vital part of human life in 21st century. The technological advances today make it possible to think in terms of storing all the knowledge of the human race in digital form and several organizations worldwide are experimenting with less-expensive ways to create Institutional Repositories including e-books. For long-term preservation of our knowledge base and cultures we have to find out an economical way to save digital content for future generations.

In the present day Information Scenario, India is very much behind with world Scenario. In the midis of various constraints like administrative, economic etc. , INFLIBNET has taken the steps to encourage the development of e-book in the academic libraries. I am sure that the e-book culture will grow very fast in academic libraries in India.

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