

E-Book Technology and Its impact on Libraries

Elsie S. K. Chan
Australian Catholic University, Australia
elsie.chan@acu.edu.au

Paula M. C. Swatman, and Linda Wilkins
University of South Australia, Australia
paula.swatman@unisa.edu.au, linda.wilkins@postgrads.unisa.edu.au

Abstract

As of September 2006 19,000 free e-books are available from the Project Gutenberg Online Book Catalog and over 2 million e-books are downloaded each month from the Gutenberg web site [1]. Academic and scholarly libraries are preparing for a significant shift from physical to electronic material presentation within the next few years. Within this context, we review some recent developments in e-book and its impacts on academic libraries.

1. Introduction

As electronic access to information and entertainment becomes ever more attractive, media such as books, newspapers, music and video are moving to digital format for easy access over the Internet – both in terms of the conversion of existing paper books to digital format ('made digital' books) and the creation of new titles in electronic form ('born digital' books, or 'e-books'). Handwritten codexes and printed books have existed for millennia [2]: arguably, for almost 5000 years since the time of the Mesopotamian civilization. E-books, by contrast, are a relatively recent invention which dates back less than a century. The concept of the e-book was first mooted by Vannevar Bush whose 'Memex', the forerunner of what we now know as hypertext, is best known from his essay "As We May Think", published in The Atlantic Monthly in 1945 [3].

[Memex] was a contraction of "memory extender". Bush described the device as electronically linked to a library and able to display books and films from the library, and further able to automatically follow references from these to the work referenced." [4].

Inspired by Bush's ideas, Douglas Engelbart further developed the concept in 1962 and in "Augmenting Human Intellect: A Conceptual Framework" described a system for collaboratively sharing and working on electronic documents [5]. In 1971 Michael Hart was given \$100,000,000 of computer time at the Materials Research Lab of the University of Illinois and announced that the greatest value created by computers: 'would not be computing itself, but the storage, retrieval and searching of what was stored in our libraries' [6]. He sent an electronic "Declaration of Independence" to as many people as he could reach on the networks of the day and later posted the declaration, which he believed would eventually be an electronic fixture in the computer libraries of 100,000,000 computer users of the future [6]. Later in that year Hart founded Project Gutenberg, intended to make information, books and other materials available to the general public in formats the vast majority of computers, programs and people can easily read, use, quote, and search [7]. As at September 2006, there were 19,000 free e-books in the Project Gutenberg Online Book Catalog and over 2 million e-books are downloaded

each month from the Gutenberg web site [1]. While not providing free book downloads, e-books.com established in September 2000, publishes 69,000 popular, professional and academic e-books which are available for download for the Adobe reader, and the Mobipocket and Microsoft readers at a lower price than the physical print form [8].

An e-book is not simply a book in electronic format, but can even be used as a marketing tool. Baen Books, who publish a number of series, have found that giving away electronic editions of the previous installments on their series to coincide with the release of a new volume boosts the sale of the new book [9].

A detailed history timeline of the development of the e-book can be found on the Guardian Unlimited web site [10] but is beyond the scope of this paper, which focuses on studies of on-going experimentation with a variety of e-book technologies and the impact of e-books on libraries – in particular, on academic libraries.

2. Engaging with E-Book Technology

The term ‘e-book’ is unsatisfactory in many respects. In the case of traditional print books, users can immediately understand and identify elements belonging to book technology. By contrast, the term e-book does not explain either the form or its operations [11]. Endeavouring to understand the term ‘e-book’ a little better, the Electronic Book Exchange (EBX) draft defines an eBook as a digital object which is the electronic representation of a book; adding that, although an e-book may consist of as little as a single page, it is normally thought of as an electronic analogue of a multi-page hardcover/paperback book [12]. The Online Information Exchange (ONIX) is “the international standard for representing and communicating book industry rich product information in electronic form between business partners in the supply chain” [13] and identifies three e-book entities [14]:

- E-book content: a package of text and other content a publisher puts together to be realised in one or more e-book formats
- E-book rendering: a realisation of an eBook content package in a particular format for a particular eBook reader or family of readers, whether for downloading for local use or by remote online access
- E-book component: a portion of text or other content which is used or available to be used in electronic form as part of an e-book content package [15].

As a generalised term, ‘e-book’ was initially applied to three types of appliances: e-book, e-tablet and Personal Digital Assistant (PDA). Only their design, purpose and size distinguished them from software book readers. Reader software can be categorised by e-book format (for example Adobe PDF, HTML and Microsoft readers are examples of e-book document formats).

Audio e-books, also known as digital talking books (DTB), add the dimension of sound to the electronic presentation of textual content. DTB technology allows large amounts of textual information and formatting to be stored, transcribed into a variety of formats, and easily navigated. The EaseReader software, a digital talking book player developed by Dolphin Computer Access, synchronises audio to the text and plays/displays ebooks on desktop and laptop PCs [16].

2.1. Compiler Software for E-Books

A major obstacle to the rapid uptake of e-books is the lack of a widely accepted standard for hardware, software and access.

E-book compilers, computer software packages, turn contents which have been developed and saved as HTML, text pages or sometimes PDF formats into a single executable file. These compilers are readily available commercially and some can be downloaded for free as a trial version for a limit period of time [17, 18] – but as this list makes clear, there is no ‘standard’ available:

- Ebook Maker v.2.0
- Instant eCover Creator!
- Easy PDF: Complete Publishers Tool Kit
- Amazing Web Tools!
- HTML Encryptor Software
- Vend-O-Matic
- eBook Cover Templates
- Do-It-Yourself eBook Graphics Kit
- The Free-To-Sell eBook Package
- eBook Edit Pro
- Activ eBook
- HyperMaker HTML
- HTML Compiler Pro
- Illuminatus v4.51
- NeoBook
- Ebook Creator v.1.0
- ebook Generator
- WinEBook
- Easy Reader v.2.2

2.2. E-books in Public Libraries

The period between 1999 and 2001 saw a surge in e-book reader trials in libraries in the United States, Canada, Denmark, Norway and Australia¹. Responses to trials of e-book reader hardware in Australia, Canada and the US, from pilot group users and librarians alike, were overwhelmingly positive [19]. In Australia, user-participants in the Brisbane Public Library e-book reader pilot study enjoyed the compact, portable nature, adjustable font size, dictionary; and search and book mark functions of dedicated e-book readers; and the librarians were keen to showcase the new technology. Many saw the readers as an opportunity to expose their community to technology as it ‘*came down the pipeline*’ [19].

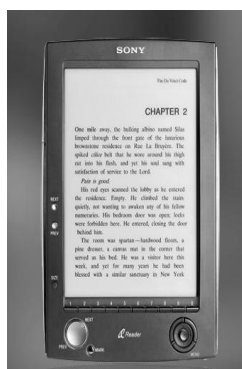
A generic feature of rapid technological change is the proliferation of designs, many of which will inevitably fail over time [20]. At a time when proprietary platforms dominated the marketplace, librarians found it difficult to make decisions about which device to select, which text format to choose; and what copyright arrangements to take up. Librarians who had pioneered e-book reader technology trials in multi-year pilot projects found themselves tied to restrictive access models with exclusive proprietary book file formats. Such formats, which can become obsolete at any moment, restrict the uptake of and support for e-book reader hardware. The limited range of titles available on the hardware also meant their appeal to borrowers faded over time (Lynch 2001). By 2005 a number of these early adopters had concluded that ‘dedicated readers with pre-loaded content were not what patrons most wanted in an e-book’².

¹ For example, Maricopa County Public Library in Phoenix, Arizona had 100 Rocket e-Book Pro readers available for loan in 2001 [19].

² Personal communication: M Williams, Indianapolis-Marion County Public Library US, Nov 30th 2005.

The introduction of software book readers which operate on general-purpose computers and require no additional financial outlay for a separate hardware device or book reading appliance has effectively turned the desktop or laptop into a book reading device, although this means that reading must be undertaken while sitting in front of a computer – not as convenient an experience as ‘traditional’ reading, which can take place anywhere. Many of the users accessing texts electronically on general-purpose computers appear to be doing so in academic and research library settings, where convenience is a less important issue; and where access to a wide range of material is particularly important and time-critical.

A breakthrough technology from Sony has the potential to ‘move the goalposts’ for e-book uptake and acceptance. The Sony Reader™, launched at the Consumer Electronic Fair in Las Vegas in January 2006, replaces the traditional LCD device with electronic paper. Sony believes that this dedicated e-book device may well do for consumption of books by the general public what the iPod has done for consumption of music. The Reader, which is about the size and weight of a small paperback book, displays its text on a page of high-resolution electronic paper using Sony’s proprietary E-Ink™ format [21]. The Reader can hold up to 80 books at a time and e-books can be downloaded from about 10,000 titles at CONNECT, Sony’s online store (where books out of copyright can be downloaded without charge).



It remains to be seen whether the quality of the resolution and ease of use of the Reader will outweigh the proprietary nature of this device (Sony’s previous attempts to restrict access to their own proprietary format, as with the Beta video format, have not proven successful). If consumers take up Sony Readers with the same enthusiasm they have shown for iPods, however, public access to e-books (in libraries as well as from home) may increase exponentially.

2.3. E-books in Academic Libraries

Academic libraries are particularly well-suited to the e-market with their large, expensive and rapidly dated reference books, which are costly to weed out [22]. While all librarians have a professional commitment to efficient document delivery and place priority on offering the content their users require, librarians in research settings are under significant additional pressure to seek optimal methods for: providing access, disseminating, receiving and reporting publications. Students have now come to expect free internet access on-campus; and part-time students require remote, 24/7 access via private ISPs, while researchers place priority on speed, timing and having the latest in cutting-edge technology³. Institutional requirements for the library to provide information in a cost-effective way add to these pressures from competing constituencies.

Electronic delivery systems appear to offer solutions to many of these requirements and differing needs. Online search functions, easier navigation, the ability to cut and paste, well-organised and up-to-date materials, convenience (no carrying of books), paper-saving and lower levels of physical maintenance are all attractive features of e-book provision. A further major attraction (perhaps the most important of all) is the much wider potential access which a move to e-books might be able to bring about. For

³ A prime example of such researcher-driven demand is the members of medical faculties who - on an individual basis - typically rate as the highest users of electronic resources [24].

academic libraries, in particular, reader access to conference proceedings and a broader range of academic journals is a very attractive feature of these new technologies (provided, of course, that conference organisers and journal publishers make their material available in this way).

These features of the research constituency favour electronic delivery and thus offer a partial explanation for the dramatic growth in e-resources as a proportion of academic library budgets. Underpinning the drive for uptake is the fact that electronic publishing has transformed the book into a digital *product* and thus into a market offering. The potential for expanding this market underpins the considerable economic interest in e-books amongst publishers and aggregators.

3. E-Book Business Models

The earliest e-book business models were published in December 2000 by the University of Rochester [23], which compared three emerging models: netLibrary, Questia and ebrary.

	netLibrary	Questia	ebrary
Target Market	public, academic & school libraries	academic students	academic students
Role of libraries	create and purchase access to collection on behalf of patrons	none	market ebrary in exchange for 5% of revenues
Number of documents in the collection	26,000 +	50,000 by Jan 2001; 250,000 within 3 years	not known
Types of documents	monographs	monographs and journals	monographs, journals, annuals, maps and manuals
Method of purchasing access right	by title plus yearly subscription fee	subscription	pay per use
Extent of access	limited to static collection determined by library	entire collection	entire collection
Number of simultaneous users that can use a given text	one user at a time	unlimited	Unlimited
Records provided for library's public catalog?	yes, if MARC records are purchased and loaded	no	no

Table 1 e-book business models in 2000

Source: <http://www.lib.rochester.edu/main/newsletter1-2/vol2-Contents2.htm>

Rao [25] points out that, from the point of view of libraries and information centres, e-books have already enabled the instant delivery of material; in addition to saving shelf space and solving the problem of lost or damaged titles. Rao also points to the advantage which e-books' adjustable fonts offer in providing resources for the visually impaired – and identifies the possibility of offering electronic “course packs” to support specific modules in e-book form for academic courses. In an earlier paper, however [26] he notes that e-book technology creates circulation problems for librarians, whose standard methods of lending and retrieving books do not work so well for e-books – the Digital Rights Management (DRM) technologies in use, as well as the incompatibilities of various proprietary standards, mean that downloaded e-books are frequently locked into a particular format and/or device, making it difficult for readers to access some books in some environments.

It is still very difficult to obtain reliable empirical data on business models in the area of e-publishing and e-books. The Academic Research Libraries (ARL) surveys of 2002 and 2003 [27], designed to discover current academic library activities in this area, identified only publishers' pricing models of all the various components of a complete online business model: "eight of the publishers offered options that included print, plus a fee for access to electronic equivalents; print, plus a fee for access to the full set of electronic titles; or electronic, plus a fee for print equivalents. Many publishers were still offering electronic access free with print, but this option seems to be disappearing in favor of options that secure greater rights for libraries, such as more content, archiving, interlibrary loans (ILL), e-reserves, and course packs" [28].

Table 2 provides a list of some of the key e-book suppliers, with a brief description of their offerings. Many of these publishers are already major academic library suppliers and, although their offerings are still largely 'push' models, greater levels of sophistication in the academic library sector may well see a move towards 'consumer pull' business models over the next few years.

Major e-book suppliers	Descriptions
EBL www.ebilib.com	<ul style="list-style-type: none"> • offers around 18,000 titles from around 90 publishers. • includes options for multiple concurrent use, unlimited access and short-term circulation. • individual e-book chapters can be set aside for reserve lending or be included within course packs.
Proquest Safari Books Online proquestcombo.safaribooksonline.com	<ul style="list-style-type: none"> • prices are weighted based on book demand. • publishes mainly IT books⁴. • offers outright purchase rather than subscription; as well as the option of a small starter package (Cox 2004).
NetLibrary www.netlibrary.com	<ul style="list-style-type: none"> • offers a collection of some 90,000 e-book titles, from more than 300 publishers. • a subsidiary of the OCLC library cooperative. • Accessed by 5,500 libraries and organizations.
ebrary www.ebrary.com	<ul style="list-style-type: none"> • more than 60,000 e-book titles from more than 200 publishers, • accessed by some 500 libraries in 60 countries.
Questia www.questia.com	<ul style="list-style-type: none"> • offers 50,000 e-book titles, more than 119,000 journal articles and over 159,000 newspaper articles • claims to be the world's largest online library of books and journal articles.
Science Direct www.sciencedirect.com	<ul style="list-style-type: none"> • offers over 2,000 journal titles and hundreds of books from Elsevier • claims that users can "access more than 7 million full-text articles and more than 75 million abstract records, from all fields of science"

Table 2 Major e-book suppliers (as at 2004)

4. Issues that Impact on E-book Uptake in Libraries

International multi-year pilot studies, focus groups and case studies conducted with publishers, librarians and library users between 2001 and 2005 revealed a number of concerns that continue to have an impact on e-book uptake in libraries.

⁴ IT books represent a category frequently selected by librarians undertaking e-book trials 'as their audiences are more accepting of their delivery mechanisms' (Michael 2005).

Competing Constituencies: Instead of joining forces in the digital era, libraries and publishers have been fighting a battle sometimes described by librarians as the fight between Good and Evil [29]. Frequently at issue is the fact that libraries aim to address community needs on the basis of sharing, borrowing and recycling – facilities traditionally offered to patrons on a non-paying basis. Publishers’ transaction models for e-books accommodate the concept of controlled sharing only with considerable difficulty [30]. Libraries must also cater to diverse stakeholders. Students welcome the additional features e-texts offer. They want and expect uninhibited access to information in multiple formats where and when they require it. Academics and researchers place far greater priority on the *quality* of content [21]. Archivists are concerned that the move to e-resources leaves unanswered questions about preservation issues and continuity of access over time.

A Plethora of Standards and Devices: Despite attempts by the Open E-book Forum (now The International Digital Publishing Forum)⁵ to provide general access to electronic content, a wide variety of proprietary standards still exist rendering most e-books compatible only with certain devices. The lack of an agreed standard implies that an ‘agreeable machine’ to deliver books to a mass audience has not yet arrived on the scene [31].

Content: Low levels of currency and relevance to reader requirements and the time-lag between printed and electronic versions of texts have presented serious drawbacks to the spread of e-books, particularly in research collections.

Authentication: Products developed by providers and distributors are often not geared to procedures that libraries use for controlling access to e-resources. Agents offering competitive ‘deals’, cast librarians in the unfamiliar and time-consuming role of negotiating terms, generating increased work loads for librarians.

Work flows: Collection managers find that making monthly new selections can generate considerable additional work for some of the library staff [32]. Payment methods can also be comparatively cumbersome and a disincentive for uptake: ‘For e-books to succeed, selecting and purchasing them needs to be as easy as ordering and buying from the campus bookstore’ [32].

Budgetary pressures: Research resources are provided or supported by major national institutions and organisations, and by many local bodies including universities, libraries and archive offices. These bodies are all experiencing funding pressures, and challenges in balancing electronic and non-electronic resource provision [33].

Although the e-book delivery value chain as it currently exists has been described as ‘*ad hoc and fragmented, lacking in leadership and coordinated strategy*’ [33], some signs of progress do exist. Major publishers have now come to the realisation that they cannot afford *not* to have a fully developed e-book strategy [31]. Google’s commitment to an e-book scanning project in partnership with leading universities in the USA and the UK represents a major push to address the dearth of quality material on the Web. These developments have accelerated adaptations in publishers’ business models and supply chains to facilitate e-book uptake [34]. Market forces would therefore appear to favour

⁵ The Open E-Book Forum International Digital Publishing Forum (IDPF) can be accessed at <http://www.idpf.org/>

digital delivery of information to libraries. There are also indications that barriers to the free flow of information and the costs these barriers represent to publicly-funded research may result in policy and legislative moves which will further advance diffusion of e-book technology (for UK see [35]; for Australia see [36]).

One of the most significant social changes the World Wide Web has brought about has been the power it has provided to individuals. The illicit sharing of music over peer-to-peer networks, which has enraged the hugely powerful global music ‘labels’ almost to the point of legal frenzy, are an instance of this new power. ‘Social networking’ sites to enable private (and business-related) personal networks, as well as the rapid growth of blogs which allow individuals to share their views on everything from business to their neighbors’ pets (see, for example, [37]), extend this individual contact still further. It is hardly surprising, then, that users should wish to publish their own videos on the web, for sharing with their friends or for open access to the public – and *YouTube*, founded in February 2005, is a popular free web site which lets users upload, view, and share video clips [38]. This move to individual empowerment through the Web has also had an impact on the publishing industry.

The most popular form of the e-book today is as an Internet service, rather than a physical device. If the Internet is considered a giant library, storing all types of information, then websites are the individual books and magazines in all their varying sizes and content [39]. Nowadays, with easy access to e-book compiler software, an open web site is available to allow everyone to publish their own e-books. E-book web sites have the potential to significantly affect libraries – although this is less likely in the case of academic libraries, where readers must be sure of the provenance of their information. Amazon is leveraging its technological capability to offer a variety of new services. One of these allows readers to lend books stored in their own digital libraries to their friends. Compared to lending paper-based books to people who may return the books to you with dog-eared pages, lending an e-book would appear to offer a number of advantages [40].

In his Long Tail concept, Anderson [41] argued that products in low demand or with low sales volume can collectively make up a market share that rivals or exceeds the relatively few current bestsellers and blockbusters, if the store or distribution channel is large enough. Examples of such mega-stores include the online retailer Amazon.com and the online video rental service Netflix. Libraries have limitations on space and budgets, so that many low-demand paper-based books are not available. The cost of supplying e-books, however, is not nearly so great. Coupled with a larger distribution channel, this lower cost allows readers to access less popular books, providing readers with greater choice – and giving libraries a new lease of life in the digital age.

5. Future Research

We suggest that future directions for research into e-books may fall into three major categories: technology, content and business models.

In the technological area, research can be carried out on improving e-book readers, e-book compiler software or other digital devices such as PDA-phones, likely to be the device of choice for reading e-books in the future. However, these portable devices should meet several key criteria. Screens should be large enough to display video and text (e.g. 10 words per line and 300 words per screen). They should also be capable of running on a number of different operating systems [42] and platforms. Most important of all is that mobile networks must be able to provide sufficient geographic coverage to enable easy downloading; and that charges must be reasonable and affordable.

In the content area, identifying types of content suitable for use with e-book technology has considerable potential for further investigation. Wilson and Landon [43] developed a methodology for evaluating electronic textbooks in 2001. Based on this framework, Wilson [44] tested the performance of e-book readers at the University of Strathclyde and surveyed the type(s) of material best suited for a digital environment. Anuradha and Usha [45] undertook a survey of e-books within the Indian academic environment. The responses indicated that students tend to use e-book technology more often than faculty members and staff. Those who did use e-books mostly used reference and technical materials. This research, while interesting and useful, has the potential to be more widely extended – by geographic region, by culture, or in terms of the sorts of academic environment existing in particular countries. University libraries are by no means uniform in their acceptance of and approach to technology; and further research into e-book technology uptake, acceptance and usage patterns has the potential to offer rich insights into the long-term viability of e-books within an academic environment.

Finally, although this paper has discussed potential e-book theoretical business models, there is considerable room for further research in this area. Today's e-publishing and e-book business models are still in their infancy, with companies experimenting to identify strategies likely to confer a long-term competitive advantage. Research into e-book business models, particularly those taking an e-business perspective or focusing on stakeholder analysis, may well provide a broader basis for reliable prediction – and are additional to the material on e-book business models discussed in Section 3 of this paper.

6. Conclusion

This paper has provided a necessarily somewhat superficial discussion of the history of the e-book and its uptake by and likely attraction for academic libraries. The material covers a somewhat motley collection of academic and industry sources – but we believe that, despite its 'patchwork' nature, this paper provides a useful jumping-off point for future research into the important topic of electronic information provision within academic libraries. The now widely accepted move from physical serials provision to electronic journal access is, we suspect, likely to be merely the first stage in a longer move away from physical provision of academic material. It seems likely that this move will apply across all types of information provision, but academic libraries – with their need for huge volumes of rapidly-changing material – are likely to be most vitally affected.

The paper, having surveyed the history of e-books, the ways in which they are being adopted by users and libraries both public and academic; and the business models which are evolving for e-book publishing and distribution, extrapolates that material to the issues being faced by academic libraries, many of which are already thinking carefully about how to ensure their survival in the 21st century. Although digital formats such as music, movies and newspapers have been thoroughly researched for some years now, research into the impact of digital publishing and e-books for online libraries is still in its infancy. The present paper attempts to identify a number of major issues and likely future trends, upon which further research activities can be based.

7. References

- [1] Gutenberg, Gutenberg Project Main Page, 2006, http://www.gutenberg.org/wiki/Main_Page
- [2] Shneiderman, B., "Codex, Memex, Genex: The Pursuit of Transformational Technologies", *International Journal of Human-Computer Interaction*, Volume 10, Number 2, 1998, pp. 87-106.

- [3] Nyce, J.M. and Kahn, P. (Eds.) From Memex to Hypertext: Vannevar Bush and the Mind's Machine, Academic Press, Boston, 1992.
- [4] LaborLawTalk Dictionary, 2006, <http://dictionary.laborlawtalk.com/Memex>
- [5] ibiblio Internet Pioneers Doug Engelbart, n.d., <http://www.ibiblio.org/pioneers/engelbart.html>
- [6] Promo.net, History and Philosophy of Project Gutenberg, 1992, <http://promo.net/pg/history.html>
- [7] Gutenberg, Gutenberg: The History and Philosophy of Project Gutenberg by Michael Hart, 2006, http://www.gutenberg.org/wiki/Gutenberg:The_History_and_Philosophy_of_Project_Gutenberg_by_Michael_Hart
- [8] Ebooks.com, Our History, 2006, <http://www.ebooks.com/information/about.asp>
- [9] Doctorow,C., Ebooks Neither E, Nor Books, *O'Reilly Emerging Technologies Conference* February 12, 2004, <http://craphound.com/ebooksneitherenorbooks.txt>
- [10] Guardian Unlimited, Ebook Timeline, 2002, <http://books.guardian.co.uk/ebooks/story/0,,627231,00.html>
- [11] Lynch, C., The Battle to Define the Future of the Book in the Digital World, 2001, http://www.firstmonday.org/issues/issue6_6/lynch/index.html
- [12] EBX, The Electronic Book Exchange System, version 0.8, Book Industry Study Group, New York, NY, USA, July 2000, <http://www.ebxwg.org>
- [13] Medra, Media-related Identification and Metadata Standards: an EDitEUR Survey, [5th December 2002], doi: 10.1392/metadata_standards, http://www.medra.org/stdoc/md_standards.pdf
- [14] Mooney, S., Digital Object Identifiers for E-Books: what are we identifying? W3C Position Paper, 2000, http://www.w3.org/2000/12/drm-ws/pp/pye-brook-mooney.html#_ftn9
- [15] ONIX, Draft ONIX International eBook Proposals for Release 1.2, 22 September 2000, Editeur c/o Book Industry Communication, London, United Kingdom, 22 September 2000.
- [16] Dolphin, One Blind Man, a Passport and a Talking PDA in his Pocket!, [1st Sep 2006], <http://www.yourdolphin.com/newsitem.asp?id=105>
- [17] Ebook Suppliers, Easy Ebook Creator, 2003, http://www.ebook-suppliers.com/ebook_software_resale/index.htm?ref=adwords&gclid=COjJrsL4yIcCFRdYTAodhVkJBJw
- [18] Shiratuddin, N., Landoni, M., Gibb F. and Hassan, S., E-Book Technology and Its Potential Applications in Distance Education, *Journal of Digital Information*, Volume 3 Issue 4, Article No. 160, 2003, 2003-02-19. <http://jodi.tamu.edu/Articles/v03/i04/Shiratuddin/>
- [19] Wilkins, L., Coburn, M., Burrows, P., Loi, D., The Trials of Technology: the Brisbane E-Book Reader Trial and Focus Group, Chapter 9, 2001, pp. 223-265.
- [20] Bijker, W., *Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change*, The MIT Press, Cambridge, 1995.
- [21] Sony, Sony Reader Specifications, 2006, http://products.sel.sony.com/pa/prs/reader_specs.html
- [22] Michael, R., What price e-books?, *Campus Bookseller and Publisher*, Aug, 2005.
- [23] University of Rochester, Some Emerging eBook Business Models: netLibrary, Questia and ebrary, 2000, <http://www.lib.rochester.edu/main/newsletter1-2/vol2-Contents2.htm>
- [24] Kennewell, S., Fewer dollars, fewer books, but many more words: the state of campus libraries, *Campus Bookseller and Publisher*, 2005.
- [25] Rao, S.S., E-book technologies in education and India's readiness, *Electronic Library and Information Systems*, Vol. 38, No. 4, 2004, pp. 257-267.
- [26] Rao, S.S. , Electronic books: a review and evaluation, *Library Hi Tech*, Vol. 23, No. 1, 2003, pp. 85-93.

- [27] ARL Statistics, 2001-2002 Expenditure Trends in ARL Libraries, 2004, <http://www.arl.org/stats/arlstat/graphs/2004/aexp04.pdf>
- [28] Case, M.M., A Snapshot in Time: ARL Libraries and Electronic Journal Resources, Proc Conf The New Challenge for Research Libraries: Collection Management and Strategic Access to Digital Resources, March 4-5, 2004, Paper is in press for the Journal of Library Administration, <http://www.arl.org/newsltr/235/snapshot.html>
- [29] Vigen, J., Paulson, K., E-books and interlibrary loan: An academic centric model for lending, 2003, <http://www.nla.gov.au/ilds/abstracts/VigenJ.pdf>.
- [30] Hoorebeck, M., e-books, libraries and peer to peer file-sharing, Australian Library Journal, May, Vol. 52, 2003, <http://alia.org.au/publishing/alj/52.2/full.text/hoorebeek.html>
- [31] Turney, D., Generation e, Australian Bookseller and Publisher, Aug, 2005.
- [32] Abbott, W., Kelly, K., Sooner or later! – have e-books turned the page?, VALA 2004: Breaking Boundaries: Integration and Interoperability, 12th Biennial Conference and Exhibition, 3-5 Feb, Melbourne Convention Centre, 2004.
- [33] British Academy Report, E-resources for research in the humanities and social sciences - A British Academy Policy Review, May, 2005, <http://www.britac.ac.uk/reports/eresources/report/index.html>
- [34] Rosenblatt, B., Public Libraries Offer New Digital Content Formats, The Seybold Report: Analysing Publishing Technologies, Vol. 3, No. 24, 2004, pp. 15-19.
- [35] Harnad, S., Electronic Preprints and Postprints, Encyclopedia of Library and Information Science Marcel Dekker, Inc., 2003, <http://www.ecs.soton.ac.uk/~harnad/Temp/eprints.htm>
- [36] Department of Education, Science and Training (DEST), Backing Australia's Ability –Building our future through science and innovation, 2004, <http://backingaus.innovation.gov.au/>
- [37] Blog for Business, Ask.com, 2006, <http://weblogs.about.com/od/blogforbusiness/>
- [38] YouTube, YouTube Broadcast yourself, 2006, <http://www.youtube.com/>
- [39] James B., "The Electronic Book: Looking Beyond the Physical Codex", SciNet, Nov 20., 2002, <http://www.scinet.cc/articles/ebook/electronicbook.html>
- [40] Edwards, S., Turning Pages for Those Who Can't 2006, <http://www.wired.com/news/columns/0,70052-0.html>
- [41] The Long Tail , The Long Tail, 2006, <http://www.longtail.com/>
- [42] Sperberg, R., 2006 : The year of the e-book?, 2005, <http://www.teleread.org/blog/?p=3315>
- [43] Wilson, R and Landoni, M., Evaluating electronic textbooks: a methodology. Fifth European Conference on Research and Advanced Technology for Digital Libraries (ECDL 2001), Darmstadt, 2001
- [44] Wilson, R., Ebook Readers in Higher Education. Educational Technology & Society, 6 (4), 2003, pp. 8-17, http://ifets.ieee.org/periodical/6_4/3.pdf
- [45] K.T. Anuradha, K.T., Usha, H.S. Use of E-Books in an Academic and Research Environment: A Case Study from the Indian Institute of Science. Program: Electronic Library and Information Systems, Vol. 40, No. 1, 2006, pp. 48-62.