What Happened to the E-book Revolution?: The Gradual Integration of E-books into Academic Libraries

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Volume 10, Issue 3, Fall 2007
DOI: http://dx.doi.org/10.3998/3336451.0010.302

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This paper was refereed by the Journal of Electronic Publishing's peer reviewers.

Abstract

An examination of the literature published about electronic books (e-books) between 2000-2007 helps to determine the factors that may have influenced academic e-book offerings and the adoption of e-books in academic libraries. The literature reflects e-book concepts and offerings dating back to 1945, as well as studies and perceptions of opportunities and challenges related to e-books. In an attempt to explain why the integration of e-books into academic library collections has been very gradual during this period, this article presents a summary of the literature that addresses issues related to electronic versions of books that are made accessible online. This includes both books that are digitized and born digital.

KEYWORDS: e-books; electronic books; ebooks; digital books; academic libraries; collection development; digital publishing; Google Books Library Projects; e-book providers; ebook providers

Within the past ten years, the academic library market has experienced surges of interest in e-book acquisition. These surges have been generally influenced by vendors’ product offerings and the related coverage by the media. There is now sufficient historical data available to identify specific factors that may have influenced the interest in and integration of e-books in academic libraries.

As librarians gain more experience in reviewing and assessing e-book offerings, their evaluation criteria for the acquisition of e-books become more established and consistent. The e-book environment is constantly changing with the development of new technologies, changes in e-book providers, and library digitization initiatives. Academic librarians have realized the importance of framing their e-book decisions according to the particular dynamics of their institutions, particularly the curriculum and users’ information-seeking behaviors and technology preferences. Library systems have been developed to integrate social networking and course management software into library services and to redesign library catalogs as part of a larger attempt to streamline the process from discovery to delivery. An emerging understanding of users’ information-seeking behaviors and technology preferences in relation to e-books and other electronic sources is reflected in the literature published within the last seven years.

Likewise, the growth of the academic e-book market can be traced through the library literature. In 2000, Donald T. Hawkins conducted a literature search on e-books in the Dialog database and reported an explosion of e-book articles in the previous two to three years. More than one third of the 2003 Charleston Conference Proceedings was indexed as electronic publishing. A search of the database Library Literature and Information Science Full Text for variations of the terms “e-book,” “electronic books,” and “digital books” also retrieves an increasing number of sources mentioning e-books. There were 91 retrievals pre-1995; 113 for 1995-1999; and 600 retrievals for 2000-2007.
History of E-Books

In 1945, Vannevar Bush wrote a remarkably forward-thinking article in *The Atlantic Monthly* calling for the intelligent and creative use of technology to facilitate the storage and retrieval of information. In the article, Bush described the “memex,” a conceptual device used to store, retrieve, and display personal books, records, and documents. Bush also described the capability to have multiple items open simultaneously, and to add notes to the projected items. Inspired by Bush’s article, Andries van Dam, a computer scientist at Brown University, worked for many years with a small team to develop a way to store and retrieve text using computers. By 1967, van Dam and his students developed the Hypertext Editing System (HEP), which allowed text to be read on a computer screen. In 1968, computer scientist Alan Kay described the Dynabook device, which was similar to a laptop computer with a graphical user interface. Although the first prototype would not be built for four years, Kay saw that it would further facilitate the exchange of information. Kay’s vision was broad: “Just as the book was an extension of the oral medium, so is the computer an extension of the print medium.”

Subsequently some notable initiatives ultimately made digitized public domain texts freely available via the Internet and helped propel e-books into the public eye. On July 4, 1971, Michael Hart keyed in the words of the “Declaration of Independence,” launching what later became known as Project Gutenberg. Today, more than 20,000 public domain titles are freely available on the Internet as a result of the ongoing Project Gutenberg cooperative effort. In 1996, Brewster Kahle founded the Internet Archive, a non-profit organization intended to preserve Web pages and other content in order to prevent the Internet from “disappearing into the past.” The Internet Archive’s collections include the texts of Project Gutenberg and the Million Book Project (an initiative to create “a free-to-read, searchable collection of one million books, primarily in the English language, available to everyone over the Internet”), as well as other freely available collections of e-texts. Kahle’s organization has a cooperative relationship with Project Gutenberg, contributing texts to the Gutenberg collection while helping to host and distribute the content.

As use of the Internet became widespread in the late 1990’s, some publishers and vendors began thinking about hosting and selling e-books. At that time, the process of making books available on line usually involved keying in or scanning published print books, proofreading them, and converting them to an online format, commonly HTML. Although computer files for print books often existed, publishers rarely had rights to sell the e-book versions. Thus, the creation of early e-book collections was a laborious and expensive undertaking involving book scanning and manual manipulation of the text and layout. With the launch of NetLibrary in 1999, more than 2,000 e-books became commercially available to libraries. Two competing e-book providers – Questia and ebrary - entered the marketplace with different access models in 2000 and 2001, respectively. Both Questia and ebrary experimented with marketing their services directly to end users and promoting institutional accounts to librarians, with mixed results. Questia sold weekly, monthly, and yearly subscriptions marketed to individuals. Anyone could search the collection for free, but only subscribers could view or customize documents. ebrary and NetLibrary now sell e-books exclusively to libraries; Questia markets its service directly to students as a research service.

During this experimental period, some product and marketing trends began to emerge for e-books. Those first library e-book collections contained many computer, business, and reference titles, reflecting the strengths of providers’ collections. A study of NetLibrary transaction logs showed that the average time a user spent in an e-book session was 10.9 minutes, “with a median time of 3.1 minutes per session.” The analysis of NetLibrary usage data suggests that this e-book collection was used as a database for ready reference. This corroborates Clifford Lynch’s statement in 1999 in regard to e-books: “Digital versions are more like reference databases than traditional books that are read sequentially from beginning to end.”

Soon after the Internet bubble burst in 2001, NetLibrary, a venture capital-financed company that was not yet profitable, experienced serious financial woes. Librarians feared that NetLibrary would go out of business altogether, and sales dwindled. NetLibrary went up for sale, and was acquired by OCLC in January 2002.

RoweCom, an e-journal provider, failed to pass library customers’ payments on to publishers, resulting in the non-fulfillment of some 2003 journal subscriptions and a subsequent bankruptcy filing in early 2003.
Although this company was not an e-book provider, its demise had a negative impact on the e-book environment as well. With the financial difficulties experienced by NetLibrary and the demise of RoweCom, librarians worried about the viability of newer vendors and became increasingly sensitive to the risks involved in investing in electronic resources.

In 2004, two new e-book providers, Ebook Library (EBL) and MyiLibrary, were founded. Both companies aimed to improve upon available e-book products and services by offering flexible and innovative pricing and access models.

In late December 2004, Google announced its Google Print Library Project (later renamed Google Books Library Project) in cooperation with the New York Public Library, the University of Michigan, Harvard, Oxford and Stanford. Digitized collections from these libraries were made available in Google Book Search. Users can view bibliographic information about the books and access limited portions of the digitized books still in copyright, as well as view and download entire books that are out of copyright. Since 2004 additional partners have joined the project, including the Committee on Institutional Cooperation (CIC), a library cooperative comprised of twelve university libraries. Each library and the CIC has a different agreement with Google. Some of the institutions are focusing on the digitization of their distinctive or special collections to provide users with online access to unique materials without duplication of effort. The Project also enables the libraries to preserve the print copies of their materials by making only electronic versions available.

During this time, various publishers began developing in-house e-book publishing initiatives that enabled them to host and sell e-books directly to libraries. The publishers include Elsevier, Oxford University Press, Springer, and Taylor & Francis, plus a host of others. Most of these publishers also sell some or all of the e-book collections from the e-book pioneers like EBL and NetLibrary.

The books digitized by the Google Books Library Project that are not in the public domain are primarily being used to point searchers to copies available for purchase; users can search across the collection and are able to see only snippets of books that match their search criteria. Even though this type of use is different than the use of the other e-book offerings discussed in this section, the project may have affected the e-book landscape more than any other provider because it made entire library collections and special collections available on line in a short period of time. Several hundred thousand titles were made accessible electronically by the Google Books Library Project’s initial offering, a total that other e-book providers had not been able to provide in five years. The Google initiative supplied the processes and resources for librarians to make large collections available electronically and to create digital copies of books in order to archive and preserve the print books. Other e-book providers have worked directly with publishers to digitize their content, limiting the e-book collections offered to libraries to those selected by the publisher or the e-book provider. The Google initiative empowers librarians to select the titles to be digitized, emphasizing the librarians’ collection-management knowledge—expertise that is not leveraged by other e-book providers.

Librarians’ Perspective

Last spring ebrary surveyed 583 librarians at 552 libraries (77% of them academic libraries) to identify their thoughts about e-books. The survey revealed that the primary method of discovering e-books is the online public access catalog (OPAC), and that overall, librarians do not believe that users are taking advantage of e-book collections. Allen W. McKiel, who analyzed the survey, surmises that the OPAC may not be the best interface for e-books. He suggested that e-books be promoted as research resources through instruction and integration into the curriculum. Librarians themselves had not done much to integrate e-books with other library resources beyond loading MARC records into the OPAC. Neither librarians nor instructors were linking to e-books in course management software, course reserves, and reading lists. This type of integration into the curriculum by instructors would help raise awareness of e-books and get students into the habit of using them.
The survey also indicated that there are some serious barriers to the use of e-books. Respondents said that "lack of awareness" was the primary barrier to use, followed by "difficult to read," "difficult to use platforms," and "lack of training." McKiel suggests that instruction could be the cure for all barriers except "difficult to read," and he dismisses that barrier as perhaps indicating a preference for the print format. These findings suggest that if librarians focus efforts on instruction and promoting the integration of e-books into the curriculum, the usage of e-books may increase.

Even so, other barriers must be surmounted: 80% of the respondents found e-book acquisitions models confusing, representing another significant barrier to adoption on the part of librarians. This indicates that there are lingering insecurities among librarians related to the purchase of e-books instead of their print equivalents. Even if the purchase models and related processes are well understood, issues such as whether the library owns a digital copy or will have access to a digital copy in perpetuity are often still gray areas, making the purchase of e-books seem risky. Publishers and aggregators will increase their viability in the e-content marketplace if they can distinctly articulate the services and options that they can provide to libraries.

Although e-books cannot be integrated and adopted into academic libraries without the involvement of librarians, faculty and students may be the determining factor in whether e-books are used and adopted for teaching and learning. As technology evolves, researchers, faculty, and students will seek out information in new ways; understanding these behaviors and expectations can help predict how e-books will progress in academic libraries.

**Academic Community’s Perspective**

Several studies investigating information-seeking behaviors have reported similar findings concerning how academics discover and use information sources. \[19\] A study to identify the users and uses of digital resources in undergraduate education in the humanities and social sciences, conducted at the University of California-Berkeley, concludes that “faculty use a variety of strategies for negotiating the digital morass. For most, the path of least resistance is the one usually taken – a Google search, a walk down the hall or an email to a colleague, a visit to the website of a trusted archive, or often one’s own eclectic ‘collection’ of digital stuff.” \[20\] Those findings are supported by the IMLS-funded study, “Sense-Making the Information Confluence: The Whys and Hows of College and University User Satisficing of Information Needs.” \[21\] This is a study of the information-seeking behaviors of college and university faculty and students, and it included a total of eight focus group interviews with 31 faculty, 19 graduate students, and 28 undergraduate students; and 15 semi-structured interviews with six faculty, four graduate students, and five undergraduate students in May and June 2005. \[22\]

The focus group interview results reported that undergraduate students value the convenience of accessing electronic sources from anywhere and at any time. Graduate students and faculty want access to both physical collections and electronic sources. All of the respondents indicated that it is difficult to find information in library systems and suggested a universal login and password to access electronic sources. Amazon.com was cited as an example of a retrieval system that is easy, convenient, and fast; it is often used to find bibliographic information that is then copied and pasted into the library OPAC. All of the participants reported that they use Web search engines such as Google or Yahoo because they are convenient and provide current information. The participants in the semi-structured interviews indicated that Web search engines also are used as familiarization tools. They also use e-books as general reference sources and to locate the paper format of other sources included in the e-book bibliographies. They said they often print electronic text, if permissible. \[23\]

Although the results of these interviews are not generalizable because of the small sample size, they do support the findings of other reported studies. \[24\] These responses indicate that current methods for discovering and delivering e-books may be viewed as barriers to access and adoption.

**Barriers to E-Book Adoption**

Despite the attractive features of e-books, such as 24/7 availability and remote access, they have not been
integrated into library services as well as digital information such as electronic journals and articles.

According to Barbara Blummer, a library statistician from the Center for Computing Sciences, e-books represent only 5% of academic library collections. Between 15% and 60% of special library collections are comprised of e-books and only 2% of public library collections include e-books. Such a low representation of e-books in library collections calls for an investigation of the barriers to e-book adoption.

Several themes consistently appear in the literature on the barriers to the adoption and integration of e-books into library collections, services, and systems. These include the lack of e-book and hardware standards; incompatible rights and operability; unrealistic price, purchase, and access models; and limited discovery and delivery options.

Lack of Standards and Hardware Development

There are no standards for the development and distribution of e-books; therefore libraries must support multiple formats, software, hardware, and acquisition, purchasing, and usage models. This presents daunting challenges in integrating e-books into academic library acquisition, discovery, and delivery systems.

The most common delivery system offered by e-book providers and publishers is via the Internet, in PDF format. The hardware devices most commonly used to view e-books are library workstations or personal computers. Some believe that most people read e-books on laptop or desktop computers, and that electronic displays are difficult for people to see or to read for lengthy periods of time. However, the Poynter Institute, a journalism think tank in Florida, reports that “[a] much larger percentage of story text was read, on average, online than in print: 77% online, 62% in broadsheet, and 57% tabloid.” Their study also indicated that once a reader selected an item to read, almost two-thirds of the online readers read the entire text online. A study of “screenagers,” or 12-18 year olds, conducted by Marie L. Radford and Lynn Silipigni Connaway, indicates that user behavior may be changing in favor of receiving, reading, and sending more content online. This new generation is much more comfortable with reading content from computer screens and mobile telephones. If these findings are accurate and if the reading devices that currently are being developed do provide easy-to-read displays, the electronic display may no longer be a barrier to e-book adoption.

Incompatible Rights and Operability

Walt Crawford, Senior Analyst for the library group RLG and monthly columnist for American Libraries and EContent Magazine, wrote, “Digital rights management causes compatibility problems that sharply limit e-book potential.” There are multiple authentication policies and procedures that are difficult for information seekers to manage. The academics who participated in the study, “Sense-making the Information Confluence,” specifically mentioned the difficulty of accessing electronic sources through library portals because of the multiple logins and passwords required to access the sources. In libraries where more than one e-book platform is available to library patrons, common tasks such as navigating through an e-book, copying, pasting, and printing may work differently from one e-book platform to another. This creates confusion for library users and librarians alike.

The lack of interoperability of e-book hardware requires libraries to support e-books on different hardware platforms—not just workstations or laptops, but also dedicated readers, PDAs, and mobile phones, as well as various MP3 players for digital audio books. Academic information seekers do not want to be limited to one platform—they want to access the same e-books from home and the office, as well as from laptops and other electronic devices such as PDAs, mobile phones, and MP3 players.

Unrealistic Price, Purchase, and Access Models

Market expectations for acquiring and purchasing e-books may not be realistic for e-book providers and publishers. There is a general feeling that e-books should cost the same or less than print books. This assumption is based on the premise that it is less expensive to provide content electronically than it is in
print. However, this is not necessarily accurate. With "born digital" e-books, the entire publishing process—writing, editing, formatting, etc.—remains constant. With the multiple types of e-books, providers must account for the cost of hosting the content, maintaining and improving the features of the platform, and providing tech support. The publishing and distribution costs associated with e-books have affected the pricing models, which are still in flux.

Currently, there are various pricing models available to academic libraries, including purchasing e-books on a title-by-title basis, subscribing to an e-book collection, or leasing e-books, as well as some variations of each of these options. Each pricing model has distinct advantages and disadvantages, and must be carefully considered. For instance, the lease model may be affordable and convenient for short-term use, but carries a risk when academic users do not have the option for continuous access to the digital content or when academic librarians do not have the means to preserve and archive the digital content.

There are generally two options for access models: multiple, simultaneous use, or the one book, one user model carried over from the print world. Most e-book providers offer one access model or the other, although ebrary is experimenting with offering both models at different prices. Respondents to the ebrary survey said they were dissatisfied with the single-user access model still used by NetLibrary. “I view it as both a technology issue and a pricing/content issue because it uses technology to artificially restrict access, which is counter-intuitive to the purpose of using technology to increase access at lower costs,” McKiel wrote.

Since the early adoption period, librarians have wanted to be able to use e-books for interlibrary loan requests. However, publishers generally prohibit this use because of technological limitations in offering temporary access to unaffiliated users. Some e-book providers, such as EBL and MyiLibrary, have tried to offer short-term lending models to address this issue. EBL offers a pay-per-use option that can be utilized to fulfill interlibrary loan requests. Recently, MyiLibrary announced a partnership with NRC-CISTI to provide a new “eBook Loans” service in which libraries can pay $25 to access an e-book for 30 days.

A total of 80% of the librarians responding to the ebrary survey reported that the e-book pricing and purchase models are confusing and make it difficult to integrate e-books into library systems and services. These deter academic librarians from acquiring e-books, since the librarians do not have the time to devote to these additional responsibilities and to learn new systems for acquisition and billing.

Limited Discovery and Delivery Options

Although e-book bibliographic records are often loaded into the library catalog, academic users find library catalogs difficult to use in comparison to Internet search engines like Google and Yahoo, or Web sites like Amazon.com. Research indicates that users prefer to use sources that are convenient and familiar to them. The librarians surveyed by ebrary indicated that very little integration for the discovery of e-books has occurred besides including the MARC records in the OPAC. Based upon users’ experiences with library catalogs and their expectations of the electronic environment, McKiel suggests that this method of discovery may not be sufficient for e-books.

Searching, downloading, and reading e-books often require learning new technologies and approaches. This learning curve can be challenging to populations who have little access, training, or experience with technology. Some academic users are not comfortable learning and using new technologies and do not want to ask for assistance; therefore, they are not likely to access and use e-books even if they discover them in the library catalog.

Opportunities for E-Books in the Academic Library

User studies indicate that the academic community wants full-text content that is easily discovered and delivered via the Internet. Andrew Pace recommends "providing patrons with what they want when and how they want it, and providing patrons with the means to uncover what they want when they aren’t sure what exactly that may be." What they want includes good search and discovery tools, better meta-discovery tools than currently offered by federated technology, and direct links to content.
Carol Tenopir, a professor in the School of Information Sciences at the University of Tennessee and a frequent contributor to Library Journal, believes that e-books “can be finding aids..., can be combined with print-on-demand and available for easy purchase,” and can provide librarians with the opportunity to easily and quickly provide access to shared collections. The digitized book serves the library as place, building physical collections. It also makes the library a tool for librarians to provide their constituents with what they need, by providing access to full-text electronic information that can be accessed at any time, from anywhere, she says.

Although there are still barriers to the adoption of e-books in academic libraries, e-books provide an opportunity for librarians to offer the academic community what they want—direct access to full-text content. Academic librarians can promote and market their e-book collections within the academic community in information literacy classes and as part of the curriculum through teaching and learning. E-books also can be included as a discovery tool in library online catalogs and Web browsers can provide seamless access to full-text content.

Librarians, e-book providers, and publishers must keep an open dialogue and be willing to experiment with new models and initiatives in order diminish the barriers to e-book adoption in academic libraries. Other barriers can be addressed through planning for the integration of e-books into the academic environment, attending to the user population's needs, and implementing promotional efforts. By undertaking these tasks, librarians can promote the integration of e-books into the academic environment for teaching and learning and facilitate their discovery and delivery within library systems and services.

NOTES


20. Harley et al., "Use and Users."


23. Ibid.

24. Harley, et al., "Use and Users;" OCLC, College students' perceptions; "HotTopics 2006."


32. Ibid.


