Emerald Insight

The Electronic Library

Availability of e-books in science: case study of University of Delhi
Suresh Jindal Ankur Pant

Article information:

To cite this document:
Suresh Jindal Ankur Pant, (2013),"Availability of e-books in science: case study of University of Delhi", The Electronic Library, Vol. 31 Iss 3 pp. 313 - 328
Permanent link to this document:
http://dx.doi.org/10.1108/EL-12-2010-0159

Downloaded on: 01 November 2016, At: 23:32 (PT)
References: this document contains references to 28 other documents.
To copy this document: permissions@emeraldinsight.com
The fulltext of this document has been downloaded 1046 times since 2013*

Users who downloaded this article also downloaded:

(2013),"Reading strategy and the need of e-book features", The Electronic Library, Vol. 31 Iss 3 pp. 329-344 http://dx.doi.org/10.1108/EL-08-2011-0127

(2014),"Usage patterns and perception toward e-books: experiences from academic libraries in South Korea", The Electronic Library, Vol. 32 Iss 4 pp. 522-541 http://dx.doi.org/10.1108/EL-11-2012-0150

Access to this document was granted through an Emerald subscription provided by emerald-srm:563821 []

For Authors

If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service information about how to choose which publication to write for and submission guidelines are available for all. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com

Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services.

Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.

*Related content and download information correct at time of download.

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

The current issue and full text archive of this journal is available at
www.emeraldinsight.com/0264-0473.htm

Availability of e-books in science: case study of University of Delhi

Suresh Jindal
Central Science Library, University of Delhi, Delhi, India, and
Ankur Pant
Defence Scientific Information and Documentation Center, DRDO, Ministry of Defence, Government of India, Delhi, India

Received 24 December 2010
Revised 30 May 2011
23 September 2011
Accepted 29 September 2011

Abstract

Purpose – The purpose of this paper is to determine whether a sufficient number of e-books is available in science streams from different publishers to satisfy the need of an academic library to develop an e-book collection based on its collection development policy. This study aims to identify e-book equivalents for print books acquired by Central Science Library, University of Delhi.

Design/methodology/approach – This study provides the in-depth quantitative analysis according to title-by-title selection of e-books from various international publishers compared to the recommended books for different science courses of the University of Delhi. The study was conducted following that of Price and McDonald which shows that around 30 per cent of print books have e-book equivalents. The data collected were analyzed by using a simple method of calculation and percentages were calculated to interpret the results of the study.

Findings – The results show that only about 17per cent of print books have e-book equivalents available from different publishers, fulfilling only 9-15 per cent of the requirements of most of the courses – something that does not match the library's collection development policy.

Research limitations/implications – The present study is based on the books recommended in the curriculum of different science courses of the University of Delhi for the academic year 2009-2010. According to subject-wise distribution of e-books variation of about 2 per cent in the findings occurred, as some books are mentioned in the curriculum of more than one course. This study provides some constructive suggestions which may help librarians to explore ways to spend the budget for collection development of e-books in a more appropriate way.

Originality/value – As this paper is based on in-depth quantitative analysis of availability of e-books according to need of a particular academic library, generalization about availability of e-books cannot be made. However, it contributes to trace the growth of e-books and suggests some alternatives to develop e-book collection. Further studies can be done for different library settings to find out their need for and availability of e-books.

Keywords E-books, Electronic resources, Science, Curricula, Online books, Academic libraries, Collections management, Collection development

Paper type Research paper

Introduction

With the growing impact of internet, there has been a revolution in all areas of human endeavour and libraries are no exception to this. In the present context of electronic environments, academic libraries have changed their ways of functioning to satisfy the ever changing diversified users' needs in the technological motivated era. Today access to information available anywhere in the world supersedes the importance of physical location (ownership) of information. There is a shift towards the concept of access to

The Electronic Library
Vol. 31 No. 3, 2013
pp. 313-328
© Emerald Group Publishing Limited
0264-0473
DOI 10.1108/EL-12-2010-0159

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

information from ownership of information. Economic and technological forces are responsible for this change as in the networked environment getting information from a remote location around the world and sharing of information become possible while the financial crunch in the library budget also force the libraries to look at the alternative ways to provide required information to its users. These ways include resource sharing, consortium approach, and purchasing e-journals instead of print journals, etc. As the information available in e-formats is easy to store, retrieve, interpret and disseminate, it provides the better way for collection management against the age old concept of collection development. E-resources are available in different forms like e-journals, bibliographic databases, full-text databases, e-reference sources, e-books, etc. Libraries have generally shown less interest in acquiring e-books in comparison to e-journals due to various economic, technological and social issues related with e-books.

The present study, based on the need of the Central Science Library of the University of Delhi, explores the availability of e-books from different international publishers equivalent to the print books mentioned in different syllabi of Postgraduate and Undergraduate courses of the University of Delhi. This paper gives the insight into the requirements fulfilled by e-books for different courses and it also compares their availability against the criteria for collection development. The paper also provides some recommendations for the development of e-book collections in this print to electronic transition phase, which helps the librarians to explore the ways to spend the budget for collection development of e-books in more appropriate way rather than in a haphazard manner.

Central Science Library

The Central Science Library (CSL) within the University of Delhi is one of the most prestigious libraries under the Delhi University Library System. Since its inception in 1981 the CSL has a vision to become a world class ICT-driven centre of excellence which provides the most user-friendly environment for learning, teaching and research. The aim is for the Central Science Library to become the centre-piece of scholarly activities in the University system for science streams. It provides its services to the departments and centres under the Faculty of Science and Mathematical Science. The library has a huge collection of books and bound journals. Some of the collections are also available in the form of CDs and floppy disks purchased as well as received along with books. CSL is subscribing to around 400 learned and scientific periodicals including abstracting and indexing databases namely Sci-Finder Scholar, MathSciNet, INSPEC, SCOPUS, JCCC etc. in addition to print subscriptions. CSL has online access to a large number of databases available through UGC INFONET Digital Library Consortia (University Grant Commission- Information Network Digital Library Consortia), subscriptions by the University of Delhi and other resources available in the public domain covering approximately 27,000 full-text journals, indexing and abstracting databases and public domain resources. The Central Science Library has a fairly well-developed computer and network infrastructure to facilitate use of its computer and web-based services (http://csl.du.ac.in). Total membership of CSL for the academic year 2009-2010 was 3,199 members which include 1,918 Post Graduate students, 351 PhD Research Scholars, 140 M.Phil. Students, 238 teachers and remaining are others (CSL Annual Report, 2009-2010).

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

Definition of e-books

There are a number of definitions as to what an electronic book (e-book) actually is and comprises. The following is but a sample.

> A book that has been converted to digital form and can be read on a computer, usually via network services or CD- ROM. Electronic Books can expand over print media by adding hypertext links, search and cross-reference functions and multimedia (Computeruser.com, n.d.).

> A book composed in or converted to digital format for display on a computer screen or handheld device (Merriam Webster Dictionary, n.d.).

> Text in digital form or books converted into digital form or digital reading material or book in a computer file format or electronic file of words and images to be displayed on a computer screen or read on a computer through a network or view on a desktop/notebook/dedicated portable device or read on all types of computers or formatted for display on e-book readers (Rao, 2001).

For the purpose of the present article, an e-book is taken to mean the electronic version of a document already in print form. Various issues like linear text vs. hypertext, digitized vs born digital, different file formats and compatibility with various e-book readers are not taken into consideration for conducting the present study.

Advantages and disadvantages of e-books

It is not only about the availability of e-books by various publishers as per the requirements of a particular institution, it is also crucial to have knowledge about the various advantages and disadvantages about the current e-book technology. The features below relate mainly to their use in library and information centres.

Advantages

E-books due to their electronic format provide lot of features that are not possible in books and provide flexibility to the Library and Information Centres; for example, they are accessible 24-7 through campus wide intranet and internet, access at the desktop of multiple users at a time, they may prove cost saving in the long term as they cut the cost of physical storage and do not require shelving, they need not be replaced as online books are updated frequently with new content and with relatively little expense by the publishers and they do not wear out. The electronic retrieval of e-book increases staff efficiency; e-books are of immense help for disabled people like those having impaired vision, as they have adjustable font size and text to speech facilities of e-book readers; and they are also helpful to physically disabled people since e-book readers have the ability to turn the pages with a simple touch of a button. E-book reading devices can hold a number of volumes, and users can search and manipulate content as they provide customizability, beside this e-books may have dictionary and thesaurus support.

Disadvantages

Disadvantages are due to shortcomings of current e-book technology as e-books are device dependent and require device management technology like e-book readers need frequently updating of software, charging batteries as they require power source to operate; they are not at par with print books in comparison to ease of reading, and can

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

be damaged if dropped. Licensing vs ownership issues are complicated; similarly standards, intellectual property rights (IPR) and piracy issues are also crucial in e-books management. Lack of standards does not allow reading all of a library's e-book titles (from different publishers) through a single interface. Standardization of reading devices is yet to be achieved to enhance the readability of e-book readers. Standards for cataloguing the e-books need to be developed so that they can be integrated with library's online management system. Issues related to licensing for archival and simultaneous use need to be settled before purchasing or subscribing the e-books. Low diversity of e-book titles is another big disadvantage. Resistance by staff to change (social problem) is also a hindrance in adoption of e-books by libraries. In view of these, fund expenditure from print books toward e-books causes headaches to the librarians (Fischer and Lugg, 2001; Long, 2003; Rao, 2005; Herther, 2005; Soules, 2009; Abram, 2010).

The advantages and disadvantages based on literature review as discussed above provide a critical holistic view of current e-book status. Libraries should have strong arguments in favour of e-books so that they can divert a portion of their library budgets for developing the e-book collection and justify the same to their higher authorities in context of present budgetary constraints. On the other hand the disadvantages and challenges of e-books cause hindrance in the adoption and proliferation of e-books and its related technology in libraries as there are legitimate copyright and publishers' concerns for copying, printing or e-mailing the text/content for offline use. The issues in e-book collection development are multifaceted and knowledge of pros and cons of e-book technology help the librarians in developing the proper infrastructure and allocating funds in each head.

Need for the study

The university library is the heart of a university which provides the best learning and research environment to the students, scholars and faculty. There is a long tradition in the University of Delhi to provide the best learning resources and literature in different disciplines through its network of university libraries operating under the Delhi University Library System. As the impact of ICT dominates in every walk of life, libraries all around the world start providing their resources and services in electronic form. The University of Delhi has also decided to focus on making the most appropriate e-resources accessible to its users. For this purpose the University of Delhi is involved as a member of UGC-InfoNet Digital Library Consortium; besides this it also has purchased several e-journals and databases (full text and bibliographic) which basically satisfy the needs of research scholars. In the University of Delhi at Central Science Library it is observed that undergraduate and postgraduate students basically rely on subject books, monographs and text books while the research scholars rely on monographs and journals.

Keeping in mind that the CSL has a larger user base of postgraduate students (1,918 for the academic year 2009-2010) in comparison to research scholars and faculty members and their information needs are basically based on textbooks, in late 2009 CSL decided to investigate the availability of e-books according to the requirements of its users (i.e. postgraduate and undergraduate students) based on the curriculum in order to develop the e-book collection. The need for acquiring e-books was felt due to space limitations (as print books require multiple copies for large user base), growing

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

number of users and to provide the users best learning approach as e-books can be accessed all over the campus through campus wide intranet and internet connectivity. Furthermore e-books have better search options and cross reference functions to interpret the subject in a holistic manner. The multimedia content also adds value to the use of e-books as it makes easy to understand the subject. With limited resources and budgetary constraints there is a need to spend the funds in a judicious manner and in the market where different publishers and aggregators provide different licensing/purchasing and access models, it become crucial for the librarians to evaluate the packages of e-books offered by various publishers and aggregators in terms of the library's collection development policy to find out whether the current e-book market fulfill the actual requirement of the library. The present paper focuses on the method adopted for evaluating the availability of e-books from various publishers according to the requirement of the Central Science Library and it discusses the findings. Beside this, the paper also provides the insight into the issues related to e-books based on a literature review which might help library professionals to know the various aspects of e-book technology before acquiring them.

Literature review

E-books, unlike e-journals, are still trying to make their way in libraries' collection. Different platforms, formats, purchasing/licensing models, access models, availability of e-books according to particular needs and issues related to standards are some of the problems that contributed to the fact that librarians took interest in them at first in comparison to e-journals. Before acquiring the e-books it is important for the librarians to have some knowledge about the features, related issues, advantages and disadvantages of the e-books. Many authors have discussed these issues in detail. Abram (2010) discussed the advantages and disadvantages of both print and e-books in the current scenario including factors such as print books have a unique packaging and can be shared or have a second hand use while the e-books having digital rights management (DRM) restrict the users from sharing the e-book with those who do not have access rights. Safety (from electronic virus), privacy and technologically independent features are unique to print books while customizability, multimedia features and environmental friendliness are some of the features unique to e-books. Rao (2004) discussed the different types of e-books with their advantages and disadvantages and gave an overview of e-book technologies such as hardware, software and management software requirements of e-books and discussed that the future of e-books depends on users' acceptance as well as new business models adopted by the publishing groups. Ghaebi and Fahimifar (2011) conducted a survey to find out the e-books acquisition criteria and major restrictions of e-books in academic libraries on the basis of two aspects, focusing on e-book features for academic users and for libraries, in terms of information professionals' attitude towards e-books. A total of 60 information professionals at state universities of metropolitan Tehran were surveyed. According to the information professionals, important features of e-books for academic users include high storage capacity, easy portability, multimedia capability, search-ability, accessibility and hyperlink references. For information professionals important aspects of e-books are space saving, ease of selection and simultaneous circulation. Major restrictions for e-book acquisition include hardware and software restrictions, lack of union catalogue for Iranian e-books and some circulation related

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

issues. Vasileiou *et al.* (2009) discussed the main features of e-books and services provided by nine e-book publishers and 11 e-book aggregators. The e-book market and e-book business models are also discussed in their paper.

There are several issues like evaluation of collections, collection management issues and issues related to standards and business models which need to be well studied before developing an e-book collection. Many authors explored these issues like Wilkins (2007) who gave an overview of managing (acquisition, cataloguing, maintenance, funding, publicity, etc.) e-book collection provided by three main e-book collections (netLibrary, Taylor & Francis and Dawson e-Book Library) used in the University Library of Derby. E-books are provided by the library as a supplement to the printed ones. Rao (2005) examined several issues to integrate e-books into Library and Information Centres to find workable solutions based on identification, selection, circulation, maintenance, quality assurance, pricing, fair use, standards and interoperability, business models and licensing. Kovacs and Elkordy (2000) discussed a practical approach for building a web-based electronic library collection by providing some guidelines based on purpose of the e-library, making the collection development plan, collection evaluation and evaluation of web resources and designing the web-site as an interface to web based e-library collections. Agee (2005) discussed three major approaches for evaluating the collection of the library. These approaches are user-centred evaluation; physical assessment and assessment of specific subject support. User-centred collection evaluation is helpful in determining the usefulness of library collection according to the need of its users. Surveys through questionnaire can be conducted among students and faculty for assessing the library's holding, circulation data collected through online management system provide the statistics regarding frequency of individual title. Physical assessment provide the useful information for conducting the collection evaluation such as physical condition of the books, copyright date, language, number of copies, content and density of titles in different subject areas. It helps to compare user demand with available resources. Specific subject can be assessed by comparing the library's holding to core curriculum guides (checklists) such as Choice review, reading lists for various courses, publishers subject collection, etc. The paper also discussed the benefit of collection evaluation for the librarians as it give the insight into the available resources, the requirement/ need and future collection development criteria such as whether to shift for e-collection or retain with print collection.

Culbertson and Wilde (2009) examined the use of OCLC WorldCat Collection Analysis Tool at Colorado State University during 2006 for Doctoral programmes in 12 key disciplines. Use of metrics for analysis of monograph and journal holdings and comparison of holdings between institutions is examined. This study provides the in-depth quantitative analysis of the collection based on the data from 1996 to 2006 in comparison to collection of other peer institutions. This research is used to support the demand for additional funding to access more research material. Ciszek and Young (2010) examined the methods of diversity-related collection assessment useful for large academic libraries in their technical paper. Assessment can either be quantitative in nature, dealing with numbers and statistical data or qualitative in nature, measuring human behaviour and opinion. Collection centred quantitative assessment can be done by using the OCLC WorldCat Collection Analysis or comparison to standard bibliographies, while user centred quantitative assessment can be done by using

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

circulation and usage statistics. Collection centred qualitative assessment can be done by the help of diversity subject specialist, diversity collection development statement or using stewardship letter (which material a selector acquired during a particular time period) while user centred qualitative assessment can be done with the help of focus group, patron interviews and survey.

Knowledge about availability of e-books in the market according to particular need guide the librarians to decide the policy for e-book acquisition. Pomerantz (2010) studied the availability of e-books equivalent to print books acquired in the field of nursing and business and found that less than one third of print books acquired have their e-books counterpart. Price and McDonald (2008) compared the print collection of five libraries of Claremont University against the e-book aggregators' holdings and found that only 30 per cent of print titles purchased during 2006-2007 were available as e-book and the publishers have large number of e-books that libraries did not purchased in print. Just (2007) discussed the growth of e-books during the 20 year period (1986-2006) and found that there is a 20 per cent average annual growth in e-book publishing and in comparison to print hard bound the e-books titles are around 11 per cent in US Market for English speaking e-books. For German speaking e-book titles, 1.7 per cent of hardbound titles are available as e-books.

Use and usage studies help the librarians to take managerial decisions regarding fund allocation, developing infrastructure, training of staff and users and deciding promotion strategies. Usage studies are of immense use for managing e-resources including e-books. Levine-Clark (2007) surveyed students in the field of humanities about usage of e-books and found that humanists prefer print over e-books and use e-books for reading only short sections rather than reading long passages or whole chapter. Christianson and Aucoin (2005) studied the usage pattern of print books and their equivalent e-books at Louisiana State Library, where 2,852 titles are available in both print and electronic format. There is a difference between usage pattern of print and e-books, print books were used mostly in comparison to electronic. Usage pattern depends on the academic disciplines; users prefer certain subjects like philosophy in print while others prefer subjects like library science in electronic format. e-book use was more concentrated in fewer titles. Anuradha and Usha (2006) surveyed the use and usability of e-books in an academic and research environment through e-mail questionnaire and found that e-books used mostly were of reference and technical material. The students tended to use e-books more often than faculty members and staff.

Abdullah and Gibb (2008) surveyed the awareness, use and usability of e-books among the students of University of Strathclyde using an online questionnaire and found that 57 per cent of students were not aware of the availability of e-books from the library while 60 per cent of them had never used e-books and those who did use them did not read the e-books in their entirety but instead used e-books for reference purposes (e.g. fact finding and selective reading). The reason behind these is a lack of promotion of e-books through user orientation programmes among students. Posigha (2012) investigated the use and future of e-books in Niger Delta University, Nigeria through a descriptive survey method. Faculty members of the basic medical sciences and the faculty of education were studied using a structured questionnaire. The study also aimed to find out the constraints encountered by male and female lecturers in using e-books. The formulated hypotheses were tested using chi-square test. The

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

constraints faced by faculty members, in decreasing order of their concerns, include lack of e-reader devices, problem of accessibility, reading long text in computer screen, different formats of e-books and lack of awareness among staff. Cox (2007) discussed the importance of e-book usage data for various purposes such as monitoring the uptake of e-books by user community; collection development and management decisions regarding subscription cost, promotion and training. The paper also describes the inconsistency between different vendors in providing usage data as different licensing and access models are there. It highlights the effectiveness of standards like COUNTER in e-book usage data and also emphasises the importance of supplementing the vendor data for usage with surveys and other user behaviour studies. Nariani (2009) discussed the results obtained through an online survey among the science graduate students and faculty of York University, Toronto. This survey found that students spend more time reading books online (41.4 per cent read online for more than 20 minutes) whereas faculty members read specific pages or entries rather than the whole book (only 22 per cent spent more than 20 minutes). 76 per cent of students used e-books while only 44.5 per cent of faculty members used e-books. E-books that are indexed in the catalogue are more likely to be used than e-books which are promoted through other media.

Objective and methodology of the study

The Central Science Library emphasised a title-by-title selection approach to keep the content of e-books within the scope of its collection development criteria based on curriculum, users need and budgetary constraints. Collection development policy of the CSL focuses on systematic and rational building of its collection which include assessing users' needs, selection of resources and evaluating the library's holding regularly. According to the policy, the total fund available for collection development should be distributed in a rational manner among various departments served by the CSL or among various disciplines in which courses are conducted. Presently, 15 departments related to the Science and Mathematical faculty are served by the CSL and the library purchases books on the recommendation of the Heads of the Departments of the respective academic disciplines. The library also has a provision of a separate fund for books of a general nature such as reference books or books of a multidisciplinary nature. To ensure that the books ordered have a certain academic standard and satisfy the needs of maximum users, the books recommended in syllabi are treated as a standard checklist for developing the collection of the Central Science Library. The key factors which are taken into account for allocating the budget for various disciplines are the subject-wise size of collection, amount of allocation used from the previous budget, expenditure on collections, budgetary constraints, the number of students enrolled in a particular course and organisational goals. Every department can make recommendations for purchase of books within its allocated amount.

To answer the question regarding suitability of e-book collection development in the Central Science Library, we needed to know whether the best books (as recommended by the faculty) are available as e-books from various international publishers equivalent to their print counterparts to meet the collection needs of the library. The hypothesis was that if an e-book collection provided by various academic publishers is related to the growing e-book market demand, then to a certain extent an adequate number of e-books should be available according to the needs of academic libraries to

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

start the collection development of e-books. Bearing in mind the previous study conducted by Price and McDonald (2008) for a university library collection, it is estimated that around 30 per cent of the print books mentioned in the curriculum of different science courses of the University of Delhi may have their e-book equivalent.

The research method adopted was to evaluate how the e-book collections of major international publishers compare with the requirements of a particular library. There is less research conducted on the availability of e-books equivalent to the print books collection in the libraries. In some earlier studies such as that of Price and McDonald (2008), the method adopted to check the availability of e-books was to find out the e-book equivalent for print books available through aggregators/ vendors platform. In the present study the method adopted was different from earlier studies, namely the respective publishers' web sites (see Appendix, Table AI) were checked to find out the e-book equivalents to the print books recommended in various post-graduate and under-graduate curricula of the science stream of the University of Delhi. Data collected was analysed by using a simple method of calculation and percentages were calculated to interpret the results of the study.

Nine different courses of post-graduate level namely, Physics, Chemistry, Botany, Zoology, Anthropology, Geology, Statistics, Operational Research, Master of Computer Application (MCA) and four courses of under-graduate namely, Mathematics, Physics, Chemistry and Life Sciences, for the academic year 2009-2010, were considered. The reasons behind selecting these courses were:

- Syllabus of above mentioned courses have given the list of recommended books.
- The text books of above mentioned courses have been found to have high usage rate.
- Number of students enrolled in these courses is more as compared to others.
- Teaching faculty of these courses has shown interest in e-books.

Data collection and data analysis

The list of books recommended in various syllabi was prepared in a spreadsheet (MS-Excel) with full bibliographic details as given in syllabi and it was sorted according by publisher. For the purpose of conducting this study, a total 13 international publishers namely, Wiley Blackwell, Cambridge University Press, W H Freeman, Elsevier (including Academic Press), Springer, McGraw Hill, Oxford University Press, Pearson (including Prentice Hall, Longman, Addison Wesley), Sinauer, Routledge (Taylor & Francis), CRC Press (Taylor & Francis), Garland Science (Taylor & Francis) and Taylor & Francis were selected.

After removing redundant data, a total of 1,625 books having unique titles were found available from the various syllabi for conducting the study; out of those, 1004 books were checked against the stock of the 13 publishers. The remaining 621 books were from small publishing houses (usually local publishers), from publishers having very few books mentioned in the syllabi, from publishers not providing e-books since they are not in the e-book publishing business, and from publishers whose books are not highly used in circulation, so they were not considered for conducting the present study. This list of books was checked title-by-title in the web sites of their respective publishers for their online version (e-books). This list was also cross checked by searching also by author in order to minimize errors. In some sites where an advanced

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

search facility was given, Boolean Operators were used for searching the book titles. Some publishers provided the list of their e-book collection to the library and their lists were used for examining the e-book equivalents of the print counterparts taken for conducting the study.

Out of the 1,004 titles taken for the study, only 172 titles were available online as e-books which are 17.13 per cent of the titles taken into study and 10.58 per cent of overall titles mentioned in syllabi. Among different international publishers Routledge (part of Taylor & Francis Group) had the highest percentage of e-versions of the required books, i.e. 70 per cent (seven books out of ten). The next highest percentage of e-versions of print books was from WH Freeman with 38 per cent, followed by Elsevier with 33.33 per cent, Springer with 18.62 per cent, and Wiley Blackwell close behind with 18.05 per cent.

As Table I and Figure 1 reveal the maximum number of book titles considered for the study was from Wiley Blackwell (277 titles) but only 50 titles (18.05 per cent) were available online. The next highest number of book titles was from Pearson (including Prentice Hall, Addison Wesley and Longman) having 214 books out of which only 14.5 per cent (i.e. 31 titles) were available online followed by McGraw Hill having 113 titles out of which only 11.50 per cent (i.e. 13 titles) were available online. In terms of university presses, Cambridge University Press had 19 e-books (21 per cent) out of 90 books considered for the study. Oxford University Press had 75 titles in the syllabi but it provided a Scholarship Online Module for different subject categories made by the publisher and no single title was mentioned at the time of conducting the study (i.e. 2009).

The data obtained from the various publishers web sites about the availability of e-books were also categorised according to different courses and the course-wise

S.No.	Publisher	Total number of books recommended in syllabus	Number of books available as online (e-books)	Percentage of books available as e-books
1	Wiley Blackwell	277	50	18.05
8	Pearson Group	214	31	14.5
6	McGraw Hill	113	13	11.50
5	Springer	102	19	18.62
2	Cambridge University Press	90	19	21
7	Oxford University Press[a]	75		
4	Elsevier Group	63	21	33.33
3	W H Freeman	21	08	38
11	CRC Press	14	01	7
9	Sinauer	10	02	20
10	Routledge	10	07	70
12	Garland Science	8	0	0
13	Taylor & Francis	7	1	14.3
	Total	1,004	172	17.13
	Other publishers	621	–	–
	Grand total	1,625	172	10.58

Note: [a]Scholarship online module available, single titles were not mentioned at the time of study

Table I.
Number of books available online (e-book) from various publishers

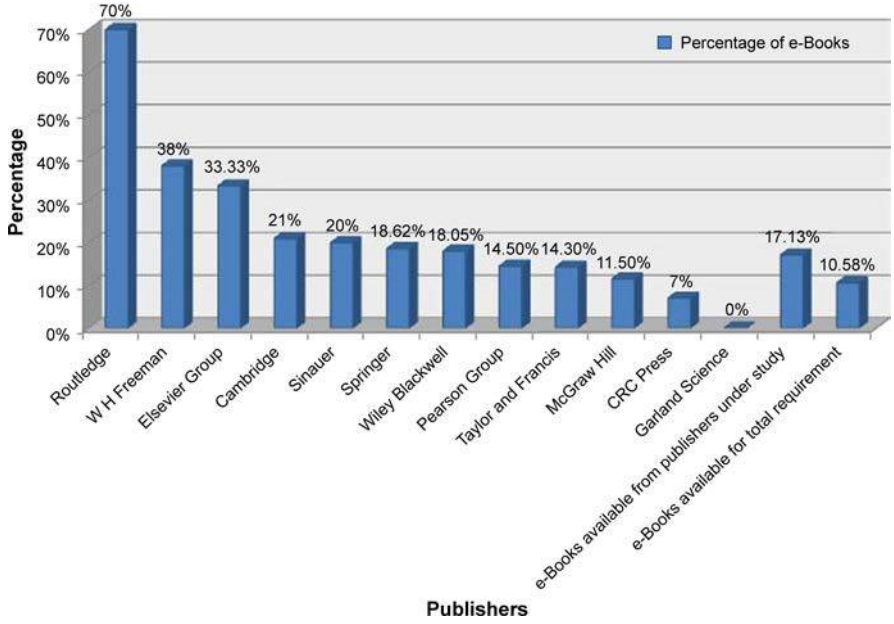

Figure 1.
Percentage of books available as e-books from various publishers

distribution of available e-books was studied (Table II and Figure 2). The highest number of required e-books are available for MCA (Master of Computer Application), i.e. 28 book titles available as e-books out of 214 titles taken for the study (13.08 per cent) followed by MSc in Physics for which 22 titles are available as e-books out of 171 titles (12.9 per cent). The least number of available e-books are for undergraduate courses. If we look at the requirement of the particular course fulfilled by e-books in

S.No.	Course	Total number of books recommended in syllabus	Number of books available as online (e-books)	Percentage of books available as e-books
5	MSc. Anthropology	238	21	8.82
9	MCA	214	28	13.08
7	MSc. Statistics	176	19	11.00
2	MSc. Physics	171	22	12.9
8	MSc. Operational Research	166	19	11.44
6	MSc. Geology	157	10	6.36
1	MSc. Chemistry	149	14	9.4
3	MSc. Botany	120	12	10.0
4	MSc. Zoology	102	15	14.7
12	BSc. Physics	55	2	3.6
10	BSc. Mathematics	31	4	12.9
11	BSc. Life Sciences	23	3	13.0
13	BSc. Chemistry	23	3	13.0
	Grand total	1625	172	10.58

Table II.
Course wise distribution of online books (e-books)

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

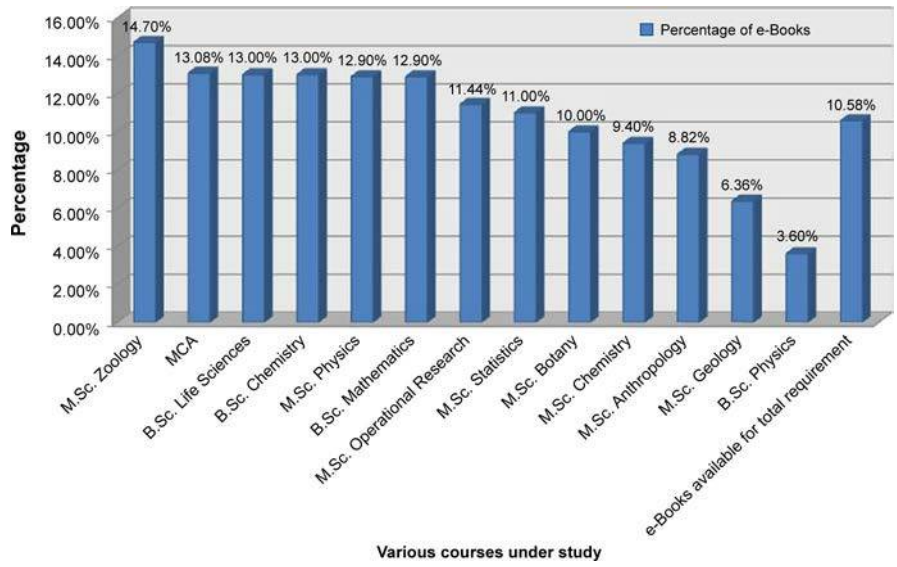

Figure 2.
Percentage of books available as e-books for various courses

terms of percentage, it is revealed that 14.7 per cent of the total requirement of MSc in Zoology is fulfilled by e-books (15 titles available out of 102 titles taken) which is maximum among all courses followed by MCA for which 13.08 per cent of total required books (28 titles available out of 214 titles) are available as e-books.

Research findings and recommendations

In the transition from print collection to e-book collection in academic libraries the availability of e-books equivalent to their print counterparts is not satisfactory according to need of the various science disciplines of the University of Delhi. The findings of this study are as follow:

- e-books cover only about 17 per cent of their respective print counterparts which were considered for the study.
- They cover only 10.58 per cent of total required books as recommended in various syllabi of science stream of University of Delhi.
- The available e-books fulfill only 9-15 per cent of the requirements of most of the courses.
- The present availability of e-books would not certainly meet the collection development criteria which emphasize the books recommended in syllabi as a standard checklist for developing the library's collection to maintain the academic standard, satisfying users' need and the budgetary constraints of Central Science Library.

In the present context of the availability of e-books by different publishers, to develop the e-book collection in academic libraries the following suggestions, drawn on the

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

basis of the research findings of present study and literature review conducted for this study, may be beneficial:

- It is found from the present study that the books recommended by the faculty are not available in electronic form to a satisfactory level while some of the publishers are providing a vast number of titles in various science disciplines. Keeping this in view librarians should negotiate with publishers to provide e-books on a trial basis to the teaching faculty so that they can judge the quality of available e-books in their respective subjects and if found suitable they can recommend them for reading to students.
- While purchasing/subscribing to e-books libraries should consider the requirements of students and faculty on a priority basis, as it is not justifiable to spend a huge amount on money to develop an e-book collection which will not be used to its potential due to its low acceptability and relevancy to the users.
- There are different licensing/ purchase models for e-books such as ownership business model, annual subscription, purchase of individual titles, one-time fee purchase, pay-per-view access to book chapters, single and multi-user, licenses with multiple purchase options: rent-to-own, perpetual access subscription, patron-driven selection, e-book loans model and others (Rao, 2005; Vasileiou *et al.*, 2009). The present study found that only limited number of e-books are available for the books it requires. Librarians can select the required e-books available from the publishers which provide a pick and choose model to start their e-book collection development.
- There are several studies (Levine-Clark, 2007; Christianson and Aucoin, 2005; Anuradha and Usha, 2006; Abdullah and Gibb, 2008; Cox, 2007; Nariani, 2009) that have focused on usage of e-books in a university setup and they examined the requirement of awareness about e-books and usage pattern of users. Librarians should familiarize the users with e-books (their features and related issues) through public domain e-books or by having e-books on a trial basis before purchasing or subscribing to the e-books in any large number so that libraries can be in a better position to make the best use of their money, as librarians have to justify their budget expenditure.
- At present libraries should buy e-books only as supplements to print books; in this transition period librarians cannot take the risk to replace print books with e-books, as e-books are device dependent and require their proper management. Also there are restrictions on downloading, copying, printing and sharing for offline use.
- Libraries should collaborate to negotiate with the publishers and vendors about the e-book business model which best suits the libraries needs.

By carrying out the above mentioned practices librarians can better understand the needs of their users and their information-seeking behaviour together with the requirements related to the infrastructure required for e-books (i.e. hardware and software) and various other issues related to e-books and their usage.

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

Conclusion

In the current ICT-driven era technology has enabled libraries to deliver their resources and services in electronic format to the users at their desktops. Libraries have to provide the right information to the right user at the right time at right place at the right (i.e. reasonable) cost. To provide the best learning resources to their users libraries are subscribing to e-journals, databases (abstracting/indexing as well as full-text) and becoming involved in consortiums for collective subscription. Although at present the availability of e-books, especially e-textbooks, are not on a par with that of print books and there are several issues related with e-books which should be solved, there is no doubt that in future the availability of e-books will increase and they will be the integral part of library resources. However, in the present transition phase from print to electronic format, libraries should not take the risk to replace their print collection with e-books, although they may provide e-books as supplement to print books. Various publishers/ vendors have different licensing/ purchasing models as well as different access models for their e-books) and there is no "one size fits all" package. The publishers' policies for e-books sale are mainly depend on the type of customer whether it is individual or institution (academic, R&D, others) and their need. It is high time for the librarians to think about the future course of e-book development and issues related to e-book including intellectual property rights, standards and rights management. Librarians should also update their current information infrastructure as e-books require high bandwidth in comparison to e-journals since they have multimedia content and a large number of pages which makes the file size quite big and thus requiring high bandwidth to download the e-books. Librarians need to come together to discuss policies regarding e-books and to negotiate with the publishers/vendors. This study was conducted to track the exact availability of e-books according to need of the Central Science Library of the University of Delhi and it should encourage other libraries to similarly trace out the availability of e-books according to their own needs which help the libraries to make a policy for e-book acquisition.

References

Abdullah, N. and Gibb, F. (2008), "Students' attitudes towards e-books in a Scottish higher education institute: part 1", *Library Review*, Vol. 57 No. 8, pp. 593-605.

Abram, S. (2010), "P-books vs e-books: death match?", *Information Outlook*, Vol. 14 No. 6, pp. 30-32.

Agee, J. (2005), "Collection evaluation: a foundation for collection development", *Collection Building*, Vol. 24 No. 3, pp. 92-95.

Anuradha, K.T. and Usha, H.S. (2006), "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, pp. 48-62.

Central Science Library Annual Report (2009-2010), Central Science Library web site, available at: http://csl.du.ac.in (accessed 3 May 2010).

Christianson, M. and Aucoin, M. (2005), "Electronic or print books: which are used?", *Library Collections, Acquisitions, & Technical Services*, Vol. 29 No. 1, pp. 71-81.

Ciszek, M.P. and Young, C.L. (2010), "Diversity collection assessment in large academic libraries", *Collection Building*, Vol. 29 No. 4, pp. 154-161.

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

Computeruser.com (n.d.), available at: www.computeruser.com/resources/dictionary/ (accessed 14 December 2009).

Cox, J. (2007), "Making sense of e-book usage data", *The Acquisitions Librarian*, Vol. 19 Nos 3/4, pp. 193-212.

Culbertson, M. and Wilde, M. (2009), "Collection analysis to enhance funding for research materials", *Collection Building*, Vol. 28 No. 1, pp. 9-17.

Fischer, R. and Lugg, R. (2001), "E-book basics", *Collection Building*, Vol. 20 No. 3, pp. 119-122.

Ghaebi, A. and Fahimifar, S. (2011), "E-book acquisition features: attitude of Iranian information professionals", *The Electronic Library*, Vol. 29 No. 6, pp. 777-791.

Herther, N.K. (2005), "The e-book industry today: a bumpy road becomes an evolutionary path to market maturity", *The Electronic Library*, Vol. 23 No. 1, pp. 45-53.

Just, P. (2007), "Electronic books in the USA – their numbers and development and a comparison to Germany", *Library Hi Tech*, Vol. 25 No. 1, pp. 157-164.

Kovacs, D.K. and Elkordy, A. (2000), "Collection development in cyberspace: building an electronic library collection", *Library Hi Tech*, Vol. 18 No. 4, pp. 335-359.

Levine-Clark, M. (2007), "Electronic books and the humanities: a survey at the University of Denver", *Collection Building*, Vol. 26 No. 1, pp. 7-14.

Long, S.A. (2003), "The case for e-books: an introduction", *New Library World*, Vol. 104 Nos 1184/1185, pp. 29-32.

Merriam Webster Dictionary (n.d.), available at: www.merriam-webster.com/dictionary/ebook (accessed 14 December 2009).

Nariani, R. (2009), "E-books in the sciences: if we buy it will they use it?", *Issues in Science and Technology Librarianship*, available at: www.istl.org/09-fall/article3.html (accessed February 6, 2010).

Pomerantz, S. (2010), "The availability of e-books: examples of nursing and business", *Collection Building*, Vol. 29 No. 1, pp. 11-14.

Posigha, B.E. (2012), "The use and future of electronic books in academic institutions in Nigeria", *The Electronic Library*, Vol. 30 No. 6, pp. 796-808.

Price, J. and McDonald, J. (2008), "To supersede or supplement: profiling e-book aggregator collections vs our print collections", paper presented at the Charleston Conference, Charleston, SC.

Rao, S.S. (2001), "Familiarization of electronic books", *The Electronic Library*, Vol. 19 No. 4, pp. 247-256.

Rao, S.S. (2004), "The electronic book technologies: an overview of the present situation", *Library Review*, Vol. 53 No. 7, pp. 363-371.

Rao, S.S. (2005), "Electronic books: their integration into library and information centers", *The Electronic Library*, Vol. 23 No. 1, pp. 116-140.

Soules, A. (2009), "The shifting landscape of e-books", *New Library World*, Vol. 110 Nos 1/2, pp. 7-21.

Vasileiou, M., Hartley, R. and Rowley, J. (2009), "An overview of the e-book marketplace", *Online Information Review*, Vol. 33 No. 1, pp. 173-192.

Wilkins, V. (2007), "Managing e-books at the University of Derby: a case study", *Program: electronic library and information systems*, Vol. 41 No. 3, pp. 239-252.

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)

Appendix

Table AI.
URL of publishers' web site consulted for the study

S.No.	Web sites consulted	URL
1	Wiley Interscience	http://onlinelibrary.wiley.com/
2	Wiley Plus	https://edugen.wiley.com/edugen/secure/index.uni
3	Cambridge University Press	http://ebooks.cambridge.org/
4	W H Freeman	www.whfreeman.com/
5	Elsevier	www.sciencedirect.com/science/books
6	Springer	www.springer.com/librarians/e-content/ebooks?SGWID = 0-40791-12-377411-0
7	McGraw Hill	www.mhprofessional.com/templates/ebooks/
8	Oxford University Press	www.oxfordscholarship.com/oso/public/index.html
9	Pearson	http://pearsonedindia.com/web/Home.aspx
10	Sinauer	www.sinauer.com/ebooks/index.html
11	Taylor & Francis	www.ebookstore.tandf.co.uk/html/index.asp
12	Course Smart	www.coursesmart.com/students

About the authors

Dr Suresh Jindal has an MSc in Chemistry and a PhD in Library and Information Science from University of Delhi. He has almost three decades of professional experience in practical librarianship. Currently he is head of Central Science Library, University of Delhi and an eminent library professional known for his expertise in the areas of information literacy, e-resources and digital content creation. He has transformed the Central Science Library, University of Delhi into a state-of-the-art-establishment. He is author of a three-volume pioneering study on digital libraries and contributes regularly to LIS Literature. Dr Suresh Jindal is the corresponding author and can be contacted at: scjindal@duls.du.ac.in

Ankur Pant has BSc and Master degrees in Library and Information Science from University of Delhi and currently is pursuing PGDLAN from IGNOU through distance learning. During his short professional career of around two years he has been very instrumental in applying the latest technologies into librarianship. Recently he has redesigned the web site of Central Science Library, University of Delhi. He has worked for Delhi University Library System, University of Delhi; Delhi University Computer Centre and currently is working in the Defence Scientific Information and Documentation Centre, DRDO, Ministry of Defence, Government of India, Delhi. His areas of interest are digital libraries and its services, information literacy, and web site designing.

To purchase reprints of this article please e-mail: **reprints@emeraldinsight.com**
Or visit our web site for further details: **www.emeraldinsight.com/reprints**

This article has been cited by:

1. GhoshMaitrayee Maitrayee Ghosh Maitrayee Ghosh (maitrayee.ghose@gmail.com) is a Librarian at MGIHU, Wardha, India. MGIHU, Wardha, India . 2016. E-books in the mobile age: advocacy and acceptance in India. *Library Hi Tech News* **33**:6, 5-10. [Abstract] [Full Text] [PDF]
2. K. Nageswara Rao, Manorama Tripathi, Sunil Kumar. 2016. Cost of Print and Digital Books: A Comparative Study. *The Journal of Academic Librarianship* **42**:4, 445-452. [CrossRef]
3. Elaine Mulholland, Jessica Bates. 2014. Use and Perceptions of E-books by Academic Staff in Further Education. *The Journal of Academic Librarianship* **40**:5, 492-499. [CrossRef]

Downloaded by TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES At 23:32 01 November 2016 (PT)