
Electronic Publishing : Impact on Scientific communication

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Abstract

Electronic Publishing, using Web, is accelerating rapidly and proliferating. Electronic publication brought revolutionary changes in the field of scientific communication. Scientific communication is multi-faceted in nature and requires better communication. In accordance, electronic publishing promise to serve all the adequate services that scientific community requires to accomplish their goal. Electronic publishing eliminate distribution cost through electronic communication in all necessary research field like, electronic submission, peer-review process, final appearance of manuscript, collaborative work, joint work, distribution of research result. Assuming that electronic journals are less expensive, especially scholarly journals, offer much lower cost or some journals are freely available on Net. The article briefly focuses on electronic publishing on Web and how information is being exchanged among scientific community and impact on library activities.

Keywords : Electronic Publishing, Scientific Communication, Characteristics, Impact

0. Introduction

Printing publication as a primary source to communicate research results is coming to an end and is being replaced by electronic publishing. Electronic publishing is basically broadcasting, distributing or dissemination of information digitally using computer and communication technology. Researchers acquire new knowledge through research process and intend to communicate this results, opinions, views, discussions, and other types of information through economical, fast, cost effective, time saving method. Traditionally paper based communication is slow, costly, time consuming and frequent copying process which requires large investment. A major concern of the author is to reduce time in peer - review process and final appearance in journal. The advent of Web publishing and communication technology which offer great opportunities to fast, cost effective and efficient electronic communication overcoming the above barriers. The emergence of computer communications technology have accelerated and offers the possibility of using computers and communication networks to create alternative electronic forms of the conventional paper. It is possible that this new forms of computer-based communication would enhance the scholarly communication. The shifting of paper publication to electronic publication brought a new era in the research field; therefore scientists abandoned the paper-based communication. Electronic preparation of manuscript and pervasive use of the Internet for communication within the scientific community has increased recently. Dissemination of new knowledge is an essential aspect of the research process. The costs of on-line publication are cheaper compared to paper-based publication. Studies showed that it is feasible technically too. The Internet has become a medium for information exchange and publishing of peer-reviewed material. Electronic publishing offer many advantages over print publishing, including ease of searching, value added features and universal accessibility.

1. What is electronic Publishing

The word Publication literally means making public and word Electronic refers to information that is stored in computer. Electronic publishing is broadly defined print material produced in digital form. Material is produced electronically may be classified into two categories one is communication and second is information management. E-mail is a means of sending message (communication) and store housing knowledge or resources on CD-ROMs and websites (Information management). Electronic publishing can be represented as –

Electronic Publishing = Web Technology + Computer+ communication technology

Lancaster defined Electronic Publishing as a "Publishing process where the manuscripts are submitted in e-format, edited, printed and even distributed to users in e-form by computer and communication technology. The published information distributed in the form of online, CD-ROM, Networks (on-line, Internet, ISDN), etc.

2. Anatomy of Web and Internet

The world wide web provide a uniform user friendly interface to the Internet, Internet is the largest network of computer network and one of the most important development in universal communication. Internet offers high speed and cheap communication. Internet connects several computers and resources using TCP and IP (Transmission Control Protocol\Internet Protocol), The web pages are the basic unit of the web. Web opens up new possibilities for electronic publishing. Web pages can contain text, picture, graphics and sound file, which are connected by hypertext links. There are four main elements that are required for its creation, transmission and retrieval, URLs, HTTP, HTML, Hypertext link. The web pages are recorded as uniform resources locaters (URLs), transmitted by hypertext transfer protocol (HTTP), writer in hypertext markup language (HTML) and the hypertext function like an electronic footnoting system, web's hypertext links can be embedded within any part of a web page. Hypertext links are highlighted and arranged in a hierarchical format. Web offer increasing availability, high quality information, and ensuring secure data transfer with strategies to search.

3. The characteristics of electronic publishing

3.1 Dissemination

Electronic dissemination is very rapid immediately evident and research views and results can be disseminated faster and cheaper. The benefit of electronic publication to scientists is that the publisher can notify when the latest issue has been posted, table of contents of latest issue and published articles in their area of interest. A major advantage of online journals is the dissemination of review of articles and distribution of the articles becomes fast.

3.2 Accessibility

Electronic information is accessible to all users in all locations. Moreover seamless access, remote access, retrieval and delivery of information are fast overcoming any geographical location.

3.3 Availability

Electronic publishing make information available promptly to all users to their own desktops, therefore obtaining the electronic information much quicker than print versions. An overwhelming acceptance of electronic information in terms of 24 hours prompt availability and possibilities of full text downloading from the researcher's desktop.

3.4 Multiple access

Electronic publishing is not restricted to a single users or any particular location. Multiple users to avoid waiting for document can access electronic information simultaneously and it is possible to download and print from the user's desktop at a time.

3.5 Information retrieval

Possibilities for searching and browsing are a common attribute of electronic publishing. There are good numbers of search engines available that enable to access and retrieve the appropriate articles or

reference. Most of the search engines offer different search option like, author, title, keyword and references. There is no special knowledge that is required for these retrieval methods.

3.6 Usability

The universal accessibility of electronic information, the reader is not required to be in a library or in a specific place where the specific document is located. Electronic journal articles are particularly easy to use and easy to reach on particular articles by following step by step procedure because electronic journal issues is unbundled. Contents of a electronic journal can be easily transmitted and reproduced.

3.7 Technologic capabilities

Electronic publishing possesses best technical features that are not possible with print publishing. Electronic documents can provide animation, high quality of graphics, video sound, virtual reality, forward references and navigational aids such as internal hyperlinks between the text and corresponding tables, figures, and bibliographic references.

3.7.1 Various Links

Electronic publishing facilitate retrieval of cited reference, full text of that article, PDF links, related reference link and keyword link. Links enhance to create articles link to related material on desktop. Links bring together scattered information around the world. The linkage of text with other works enables the scientists to easily retrieve articles that pertain to their area .

3.8 Out of Print

Electronic publishing will not go out of print and new copy can be easily created and reproduced. One can carry several titles at once.

4. Impact on Scientific community & communication

4.1 Electronic submission

Paper publication is an integral part of the scientific community. After the advent of electronic publishing, mostly publishers offer opportunities to the author to submit their manuscript in electronic format to make fast and effective communication among the scientist, editor, reviewer, subject expert and publisher. Electronic submission eliminates and reduce the interval time between peer-review and final appearance in journal. Many publisher request the authors to submit figures, tables and photographic material in electronic format (PDF) and use authors files on screen for editing. Sending a paper in a single file by email is considered to be time and cost saving. The major advantages of electronic publishing is electronic submission which eliminates reproduction and distribution cost

4.1.1 Peer-reviews

It is the essential aspect of the scientific process in which manuscript goes thorough examination by other scientists. They read the article critically and then suggest that should be accepted, rejected, to be revised and improved before final publication. This process is known as peer review. On this process there is always a need for expertise in editing, copy-editing, page-composition and proof-reading. The publisher appoint reviewers, to provide criticism and suggestions about acceptability or necessary revision. The process from article submission to publication can take at least 6 months or 1 year for print journals and review process can take 6-8 weeks with publication once a article is accepted and revised. Electronic publishing and communication reduce this time.

4.2 Self publishing for all

World Wide Web provides scientists with an alternative mode of publishing that is superior to the traditional publishing. Web enables to scientists electronically publishing their own work themselves. This avoid paying hundreds of dollars of publication charge and reprint charges. Self publishing on the web enables scientists to eliminate waiting for 2-3 months or a year for review and printing. Scientists can receive immediate comment or suggestion by other scientists without any copyright control. Many scientists may intend to migrate directly on the Internet, they could create their own online community and create central archive and reader rating of papers, where they could publish their work and directly and contact one another without out side help or intervention. Scientists are interested in approaching and reaching their colleagues as many as possible. Internet can distribute their work as self published electronic preprints and simultaneously submit those preprints for formal journal publication

4.3 Contributing to the Web

Web enables the scientists to contribute their research materials on web. Scientist need no special training, but knowledge to write hypertext markup language. By publishing on web, some scientists make available their research paper on web through the Internet. Web presents a more attractive and powerful medium for electronic publishing.

4.4 Joint or collaborative work

Electronic publishing is an emerging tool within the scientific community. Most of the scientists are using electronic publishing to communicate research results, exchange ideas to other experts or professionals in order to improve or accomplish their collaborative and joint project and can disseminate their findings to funding authority in order to achieve grants . It establishes alliance between authors and readers regarding subject guidance or reprint request. The electronic medium allows the opportunity to debate and discuss either by posting interchanges between readers and authors, as well as reviewers, editor, publisher, related to specific articles.

4.5 Discussion and Messaging

Scientific communities can be build up of discussion group among the scientists to share their view and research results. Basically E-mail is used to convey messages or to carry out discussions. Messaging and networking are two means of using electronic publication for effective communication. Communication through e-mail is one of the most universally accepted which allows more than one person at a time to correspond simultaneously. E-mail message in a file can be sent as e-mail attachments that may contains pictures, video, audio, long text, database files, research articles. E-mail like a letter, therefore research experts use e-mail among colleagues for the exchange of ideas and research results.

4.6 Self-archiving & E-print Archive

Self archive is a repository of digital document in a publicly accessible website preferably a depositing or a simple web interface where the depositor copy or pastes in the metadata and then attaches the full-text document. Software is also being developed to allow documents to be self-archived.

E-prints are the digital texts research articles before and after refereeing. Before refereeing and publication, the draft is called preprint and final draft (refereed and published) is called post-print. E-prints include both preprints and post-prints. E-print archive is a collection of digital document which can be shared with one another that are seamlessly navigable by any user with full-text access. Author can submit their preprint to make it publicly accessible.

4.7 Personal electronic file

The peculiar feature of Web publishing is that it offers hyperlink. The linkage of text enables the researcher to easily retrieve articles that pertain to the area of scholarly interest and allow to develop a personal electronic file of subject related articles in order to fulfill future needs.

5. Impact on Library activities

5.1 Electronic Journals & Cost

Electronic publishing will be comparatively less expensive than the print because it save printing and postage cost. The rising costs associated with print journals like, cost of paper and postage rates are increasing. Some publishers offer free online journals with print. Most of the electronic journals are totally free for all that save maximum budget of library and also beneficial for low budget library, where budget is shrinking and having shortage of manpower.

5.2 Free Electronic Journals

Electronic journals are rapidly increasing and approximately 2250 e-journals are available free of cost over Internet. Some full texts can be accessed electronically and downloaded without subscription fees. Some publishers offer free online access with print copy, The major advantage of electronic publishing is its speed and up-to-datedness

5.3 Free abstract and articles

Electronic publishing offers huge amounts of abstracting services. PubMed is a major abstracting services in the field of medical science which provide powerful search option. HighWire Press today offers more than 150, 000 free full text articles from more than 200 printed journals.

5.4 On shop subscription (One – stop shops)

Some of the subscription agents or publishers provide access to many electronic publications through a uniform interface and with a single password to access all subscribed journals. Specially Elsevier science (science direct) offer approx. more than 1500 electronic journals or consortia subscription. Many publishers offer their journals access via their web pages. To access subscribed titles users are required user name and password and authorization to IP address.

5.5 Exchange of information and ILL

Exchange of electronic information becomes easy and helpful in avoiding buying of several hard copies of the same article and reduce zeroxing activities. One copy of article can be sent to multi users simultaneously. E-journals can move in network environment and one can send copy of a article to the concerned colleague expedite.

5.6 Save maintenance and loss

Electronic publishing enables saving of space and reduces annual maintenance costs. E-journals mitigate missing, delayed receipt of issues, stealing or mutilation problems. E-Journals do not require climate control, de-acidification process etc. Electronic publishing also eliminate binding of documents and future growth of documents.

5.7 Knowledge Management

The knowledge management is a process of creation, structuring and presentation of electronic information and its dissemination by utilizing computing and network communication technologies. The concept of knowledge management moves librarian beyond their traditional role, basically creation, structured, stored, manage and dissemination of knowledge. This process is required to organize large data file and link to other related file and database. In accordance, electronic links allow libraries to build up collection development environment that bring together diverse, scattered information for library collection development policies and reference assistance.

5.8 Preservation

Electronic publishing enables us to capture, storage, long term preservation and long term accessibility of electronic documents for library professional which reduce and eliminates space concern and cost involved in maintenance. Rare and fragile, historical document can be digitized and stored for future use. Electronic archive ensure long-term preservation and eliminates maintenance and space concern.

6. Conclusion

The advent of new information technologies, particular the WWW, offers positive advantages in terms of scientific communication, information exchange and information access. Electronic publishing has the means to make the information immediately available to scientists and possibility for online access over the Internet. Electronic publishing obviously save the reproduction cost and distribution cost. The use of electronic publishing is increasing within the scientific community.

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