Chapter ~ I

Introduction
Man has been trying to preserve his thoughts for the next generations since time immemorial. This intention of man however manifested expressively and quite systematically during medieval age. To begin with, stone was used for this purpose. Clay tablet and papyrus were also used. A significant change was the invention of paper (in 105 A.D. by Ts’ai Lun) and then the printing press (in 1440 A.D. by Gutenberg). The invention of the printing press went on to revolutionize the print publication production. Though there had been a technological advance, the print publication industry remained somewhat unchanged. Even today, publishers and organizations produce printed journals and libraries to subscribe them.

Journals
Until the late seventeenth century, communication between scholars depended heavily on personal contacts and attending meetings arranged by the early learned societies (e.g. the Royal Society). As the membership of these societies increased, all aspirants of relevant knowledge could not attend the meetings. The proceedings of the meetings usually circulated to aspirants became a place to publish papers that had not been presented at the meetings. This trend moved towards what we now recognise as scholarly journals.

The origin of the modern scientific periodical lies in the development of the newspaper and the establishment of the scientific society. The earliest periodicals appeared in 1665 when the Journal des scavans and the Philosophical transactions of the Royal Society of London were published. At the time when Journal des scavans was being established in France, plans were under way in England to publish a scientific periodical. The first issue of the Philosophical Transactions appeared on March 6, 1665 consisting of 16 pages and contained a dedication to the Royal Society. The Philosophical Transactions has survived for over three centuries. The Journal des scavans and
Philosophical Transactions served as models for all subsequent scientific periodicals. One of the earliest journals that followed this model was a Latin journal Acta Eruditorium (1682) published from Leipzig. Papers reporting original research in physics, chemistry, biology and medicine began to appear in specialized primary journals in the last quarter of the 18th century. (Nisonger, 2004)

Growth of Print Journals

The pioneer peer reviewed journals were Philosophical Transactions of the Royal Society and Journal de Scavans, both first published in 1665 (Ellis, 1997; Monty, 1996) These and their contemporary journals were mainly published by societies and non-profit making organisations (Walker, 1998). These journals were set up to legitimise scientific claims and summarise the “already unmanageable excess of technical books” (Mahoney in Rathey, 1994). The Philosophical Transactions published research on a broad range of topics. In the 19th century, there was an explosion in the number of journals produced. It was caused by the increased specialisation and diversification of academic research and also inexpensive mass publication on cheap wood pulp based paper (Valauskas, 1997). This massive increase in output meant that the societies found it more and more difficult to keep up. Although there had been some commercial publishers around before, i.e. Elsevier Scientific Publishing was publishing engineering journals as far back as 1884 (Smith & Lorimer, 1999). Robert Maxwell pioneered the move toward mass commercial publication after World War II when he set up the Pergamon Press (Rambler, 1999) and this meant that by the 1960’s commercial publishers were a major part of the market (Walker, 1998).

A periodical devoted to disseminate original research and commentary on current developments in a specific discipline, sub discipline, or
field of study were published later. Journal of Academic librarianship is the emblem of these type of journals. Articles of these kind of journals are usually written by the person/persons who conduct the research. Longer than most magazine articles, they almost always include a bibliography or list of works cited at the end. In journals, an abstract usually precedes the text of the article, summarizing its content. Most scholarly journals are peer-reviewed.

**Electronic journal**

Electronic journal, popularly called e-journal is a digital version of a print journal. It is a journal-like electronic publication with no print counterpart (example: Libres, Information Research), made available via the Web, e-mail, or other means of Internet access. Some Web-based electronic journals are graphically modeled on the print version. The rising cost of print journal subscriptions has led many academic libraries to explore electronic alternatives.

**Defining e-journals**

Different experts have different impression or understanding of the term “electronic journals”. Electronic journals are often referred to interchangeably as “electronic publishing”, “electronic serials”, “online journals” and “electronic periodicals”

Encyclopedic Dictionary of Computer Science (1989) defines “The electronic journal, in its simplest form, is the all electronic counterpart of a conventional print on paper scholarly journal. The concept originated in experiments based on computer conferencing system the approach currently envisaged is based on a large main frame computer, which acts as a central store.”

David Pullinger and Brain Shakil (1990) has defined e-journals as “those whose text materials are directly entered by file transfer from a
computer or by other transfer in a machine-readable form, whose editorial processes are facilitated by computer and whose articles are available in electronic form to the reader."

Gail Macmillan (1991) has defined e-journal as “any serial produced, published and distributed nationally and internationally via electronic networks such as Bitnet and Internet.

Lancaster (1995) defined it as “A journal created for the electronic medium and available only in this medium.”

Darrel Ince (2001) defines “Electronic journal an academic journal which is only published on the World Wide Web. It carries out all its activities including peer review and publishing using net technologies such as conferencing, email, and the use of web sites. Such journals pride themselves on the rapid publication of articles and are often referred to as e-journals.”

According to Harrods’s Librarians Glossary (Ray, 2005), an e-journal is “a journal which is available in electronic format; a physical printed version may also be available.”

African Digital Library Glossary (2007) has defined e-journal as “an article or complete journal available fully electronically via a web-site on the Internet. It could be available free or as part of a paid for service. This trend is older and more established than the trend of providing e-book content via the Internet.”

E-journal, hence, is a term used to describe a journal that is published in digital form to be displayed on a computer screen. The concept of the e-journal does democratize journal publishing, since anyone with access to a computer equipped with a modem and
suitable software can produce and distribute an e-journal through a computer network. Electronic journals or e-journals may be further described broadly as journals, magazines, e-zine, web-zine, newsletter or type of electronic serial publications available over the Internet and can be accessed using different technologies such as WWW, gopher, ftp, telnet, e-mail, or listservs. These are available online or offline and contain research papers, review articles, scholarly communications, etc.

**Historical Development of e-journals**
The electronic journal's historical development has been traced to a UNESCO report in 1960 that advocated use of computer technology to help solve the problems of traditional journal publishing (Sasse & Winkler, 1993). *Mental workload* dealing with human-machine interactions in complex systems, has been identified as the first full fledged electronic journal. It was issued in 1980 at the New Jersey Institute of Technology and funded by the National Science Foundation. *Mental Workload* was referred, edited, and copyrighted the same as print journal. However, articles separately became available as soon as they were published. An author-title index, article abstracts and full text of an article were available online. According to Margo Sasse and B. Jean Winkler, its relatively quick failure can be attributed to software problems, the reluctance of scholars to submit manuscripts and the fact it was distributed only in the United States due to a disagreement with the British Post Office concerning transatlantic telecommunications. This experiment is called electronic information exchange system project after the computer conferencing system at New Jersey Institute of Technology on which it was published (Sasse & Winkler, 1993).

The Birmingham Loughborough Electronic Network Development (BLEND) project, a transatlantic counterpart to electronic information
exchange system, took place in the United Kingdom during the early 1980s. The project- a cooperative venture between the University of Loughborough and the University of Birmingham produced a journal entitled *Computer Human Factor*, which was designed to accept, referee, edit and archive papers electronically (Sasse & Winkler, 1993). The BLEND project resulted in two issues of this journal, each containing two refereed papers. However, it failed for essentially the same reasons that lead to demise of *Mental Workload* (Sasse & Winkler, 1993).

In 1982, based on electronic information exchange system project experience, Murray Turoff and Starr Roxanne Hiltz outlined four potential forms for electronic journal of the future:

1. An electronic newsletter
2. An unrefereed “Paper Fair” to which any member of an electronic conference system can submit a paper that can be read and commented upon by another members
3. An electronic form of the traditional print journal
4. A highly structured inquiry response system in which a member of an electronic network submits an inquiry, receives responses from other members, and compiles the responses into a brief for distribution to other members. (Turoff & Hiltz, 1982)

In the mid 1980s, *Electronic Social Psychology* (ESP), covering a broad variety of themes in social psychology started getting published online periodically. Subscribers to this fee based journal required a modem and membership in the source, a commercial computer network that maintained this journal on a mainframe computer. Subscribers also received the email services and other value added services. A printed version was distributed to subscribers twice a year for archival purposes (Morasch, 1986).
New Horizons in Adult Education, a refereed electronic journal, was first issued in fall 1987. Initiated and run by Syracuse University graduate students, it was distributed for free on a BITNET listserv (Hugo & Newell, 1991). This title was recently called “the first widely recognized scholarly electronic journal” (Entlich & et al, 1996).

Many well known electronic journals began publication in 1990. These electronic journals used email or listservs to distribute issues to subscribers. The Public-Access Computer systems Review, a free, non-peer-reviewed journal, was first published by the university of Houston libraries in January 1990, and the second issue appeared in June. The table of contents for the each of three yearly issues was sent to members of PACS-L, a BITNET computer conference established by the university of Houston libraries in 1989, as well as other subscribers. They would then issue appropriate commands to obtain specific articles by file transfer (Bailey Jr., 1991).

The first issue of the Journal of International Academy of Hospitality Research, a peer reviewed publication in hotel, restaurant and institutional management and tourism was released via listserv over BITNET and the Internet on 26 November 1990, with the second on 20 February 1991. This subscription based title was published by the Scholarly Communication Project of Virginia polytechnic institute and State University. Each issue consisted of a single article (Savage, 1991).

The Online Journal of Current Clinical Trials (OJCCT), sponsored jointly by the American Society for Advancement of Science (AAAS) and Online Computer Library Center (OCLC) was founded, among other reasons, in response to the need for the rapid dissemination of information in clinical medicine. OJCCT launched on July 1, 1992 was reportedly the first electronic journal in the area of science to be
peer reviewed. Unlike most of the earliest electronic journals, which were free, in 1993 a subscription to OJCCT cost $110 per year (Brahmi & Kaneshiro, 1993). This was the beginning of OCLC’s Electronic Journals Online programme, which included Online Journal of Knowledge Synthesis for Nursing, Applied Physics Letters Online and Immunology Today Online. (Noble, 1996)

The first meeting of the association of electronic scholarly journals took place in October 1990 at North Carolina State University (Amiran, Orr & Unsworth, 1991). VIPEJ-L, an online discussion group devoted to electronic journals, was founded in the mid 1990s at the Virginia polytechnic institute and State University (Langschied, 1994). The number of seminars and conferences related to electronic journals were organized.

A major trend beginning in the mid 1990s had been for commercial and university presses to offer simultaneous electronic versions of their established print journals. For example, during 1993, Johns Hopkins University Press, the Johns Hopkins University Library and the Johns Hopkins University computing center instigated Project Muse to market on the www electronic version of the press’s 42 scholarly journals, mostly in the humanities and social sciences. Subscribers are offered a print subscription, an electronic subscription or both. A prototype providing free access to four sample issues was mounted on the early 1994 (Cochenour, 1995).

New Multimedia magazines were beginning to appear in CD-Rom format by the mid 1990s. Newsweek Interactive, issued quarterly on CD-ROM, included among other items, the complete text of Newsweek for the last three months as well as 200 recent Washington Post articles (Landis, 1994). Launch, aimed at the computer literate 18 to 34 year olds and launched in May 1995, was described by the New

A momentous movement during the last half of the 1990s was the creation of Web-based electronic journals. The 1994 Directory of Electronic Journals, Newsletters and Academic Discussion Lists listed approximately 35 electronic publications “created for web reading/distribution”- a number that had increased to about 140 in the 1995 Directory (King & Kovacs, 1995).

By the mid 1990s, authorities were distinguishing between first generation and second generation electronic journals. In 1995 Ellen Duranceau and colleagues used the following generations to characterize the first generation:

1. Based on ASCII text files and used a simple file structure.
2. Published by individuals or groups of Scholars rather than commercial or university presses.
3. Disseminated through email- thus making check in easy.
4. Copyright restrictions waived by the publishers.
5. Because of “small file sizes, ASCII text format, and lack of access restrictions,” local library storage cost relatively little in file space and staff time.

In contrast to the first generation, second generation electronic journals are more likely to

1. be based on HTML or “specially formatted files” for distribution on the www rather than on ASCII text;
2. have more complex file structures (especially for multimedia);
3. require more storage space;
4. be fee based rather than free and thus concerned with copyright;
5. not use e-mail for delivery;
6. be difficult to check in due to links to other sources on the Internet;
7. be published by university presses or commercial publishers rather than individuals or group of scholars. (Duranceau & et al, 1996)

To find solutions to the preservation problems associated with storing paper volumes of the journals, William G. Bowen laid the foundation of JSTOR. The basic idea was to convert the back issues of paper journals into electronic format that not only saved space, but also improved access to the journal’s contents. JSTOR was officially launched on January 1, 1997, with the objectives to create a “reliable and comprehensive” archive of scholarly journal literature and fill the gaps in existing library journal collections (Guthrie & Lounge, 1997). Multimedia magazines started appearing in CD-ROM format by mid 1990's. First issued in 1994 was 'Medico Magazine', a monthly that included movie clips, children’s games, audio CD reviews and associated press dispatches (Nisonger, 2004). A significant trend during the last half of 1990’s was the creation of web based electronic journals, based on HTML, for distribution on WWW rather than on ASCII text. They had more complex file structures and required more storage space and are called the second-generation of electronic journals (Duranceau & et al, 1996). With the emergence of the Internet, image objects like photographs and charts as link files could also be included. Now-a-days, the e-journals are generally in the form of a PDF image and an exact look alike of the print with the text as a searchable file. Number of electronic journals has grown in a dramatic
way from less than 10 in 1989 to more than 8500 in April 2000 (Arora, 2001).

The 37th edition of Ulrich’s International periodical directory (1999) reported that out of a total of 1, 57,173 serials listed in the directory, 10,332 are available exclusively online or in addition to its paper counterparts and 3,451 on CD-ROM (Ulrich’s international periodicals directory, 1999). In the year 2004, Ulrich's listed over 34,500 online, active periodicals having both online and print versions. CD-ROM is far behind, with only 6500 titles having active CD-ROM versions. As expected, there is some overlap, hence the total number of digital periodicals in Ulrich’s (either CD-ROM or online and also active) is nearly 37,500 (Tenopir, 2007). According to Ulrich’s knowledge database, as on June 2007, there are 59,549 active online serials from which the largest number (1,656 titles) are published only on an irregular basis while 1,198 of these online-only serials are published on a monthly basis.(Ulrich’s international periodicals directory)

The statistical analysis of the year-wise numerical growth of the e-journals during recent era confirms that the number of e-journals has been rapidly increasing. In 2001, the number of e-journals published worldwide was 13278 which increased to 17394 in the year 2002. Further in year 2003 total 22916 e-journals were published; while the number was 25451 in 2004 and 32967 in the year 2005. The number of e-journals published was 41448 in 2006, total 50353 in 2007 and 62004 in the year 2008. In the year 2009, the number reached to 72337, that further increased in the successive years to 83507 e-journals in 2010 and 97563 e-journals in the year 2011.
**Fig 1.1: Growth of e-Journals**

**Source:** The ISSN International Centre (http://www.isssn.org/2-22640-Statistics.php) Retrieved on 03 March 2012

The data divulges that the number of e-journals increased to 76.3 per cent in the year 2002 in comparison to the year 2001. The number further increased respectively to 75.9 per cent and 90 per cent in the years 2003 and 2004 in contrast to their previous years. The trend of increase in number continued in the successive years and the increase of 77.2 per cent had been witnessed in the year 2005 that was followed by increase of 79.5 per cent in the year 2006 and further to 82.3 per cent in the year 2007. In the year 2008, there was an increase of 81.2 per cent than the year 2007; while an increase of 85.7 per cent has been noticed in the year 2009 in comparison to the year 2008. Further, there is witnessed an increase of 86.6 per cent in the year 2010 over the year 2009. The year 2011 again noticed an increase of 85.5 per cent in comparison to the year 2010. The data confirms that there is an overall increase of 634.77 per cent during the span of 10 years.
Types of e-journals

The electronic journals are categorized in many types according to the purpose. On the basis of distribution methods the following types of e-journals have be identified:

- **Internet applications e-journals**: These e-journals are available through Internet applications, which are also known as classic electronic journals. Originally they were distributed via the e-mail but now have been available on the web and only announcements regarding issues are distributed by e-mail.

- **Parallel e-journals**: These type of journals are published simultaneously in both forms, i.e. print and electronic. The online version may include the full text of journal, selected articles or only table of contents. The website provides previews and excerpts of issues. The electronic version is always available much more quickly than its print counterpart.

- **Database model**: Another type of e-journal is called database model. It is also known as the software model. Here articles reside in centralized database and the publishers and subscribers are given permission to access the database and use search software on the central computer to locate and download articles. The database model provides a piece of software that runs on an Internet connected computer which connects to the database of the journal’s central computer.

- **CD-ROM journals**: Commercial publishers have also made journal titles available through the CD-ROM. The full text of journals and other serial publications have been made available by the means of a CD-ROM.

On the basis of accessibility e-journals are divided into two categories:

- **Commercial E-journals**: These e-journals are not available freely. Readers and libraries have to pay for the subscription of these e-journals. Many big publishers publish commercial e-journals.
• **Open Access E-journals**: Open access journals are those which use a funding model that does not charge readers or their institutions for access. Open access provides users the right to "read, download, copy, distribute, print, search, or link to the full texts of these articles" as mandatory for a journal to be included in the directory.

**Statement of the Problem**

The information and communication technology (ICT) has opened a new gateway for the users to access information available via the Internet in the form of e-journals. In this digital age the focus of the user is on the content rather than on format. Thus it has become inevitable to study the extent of use, access and awareness of e-journals among both the researchers as well as faculty members of LIS. The subject of LIS is directly connected to the theme of Information Science. Hence it is important to find out the experiences of the users while using e-journals in the field of LIS. The users of the LIS (researchers and faculty members) possibly have their own preferences, likes, dislikes and denigrations regarding the e-journals. The study is also significant to consider all these issues. The suggestions and submissions of the members of LIS community are undoubtedly useful to reform and promote the e-journals to further extent. Therefore, the present study is relevant to fulfill that paramount cause also. The significance of the study is not confined only to examine the use and awareness of researchers and faculty of LIS on the issues and concerns related to e-journals, but covers the broader aspects of promoting the use of e-journals in teaching, research and publication work. The study is also relevant in preparing a consolidated data base for e-journals in the subject of LIS that will be beneficial for future potential users.
Objectives of the Study

The study an attempt to fulfill following objectives:

1. To ascertain awareness and acceptance of e-journals among teachers and researchers of Library and Information Science (LIS).
2. To explore the use of electronic journals by teachers and researchers in LIS.
3. To identify the users’ (LIS teachers and researcher) preference for format of e-journals.
4. To study problems and difficulties faced by users of LIS in accessing e-journals.
5. To assess the level of user’s satisfaction about e-journals in the LIS discipline.
6. To carry out a comparative analysis of various patterns of awareness, acceptance and use of e-journals among researchers as well as teachers in LIS.
7. To suggest ways and means for maximum utilization of e-journals.

Hypothesis of the Study

1. The researchers as well as teachers of LIS are aware of e-journals and there is acknowledgeable acceptance of e-journals among them.
2. There is frequent use of e-journals by the researchers and faculty members of LIS.
3. The easier and 'at the table' access to e-journals establishes them more preferable mode of journals in comparison to print journals.
4. The frequent use by both the researchers as well as faculty members of LIS refutes any need of formal training to access the e-journals.
5. The comparison of the various patterns of awareness, acceptance and use of e-journals between researchers and faculty members shows a number of similarities.
6. The comparative analysis of the responses of researchers as well as teachers regarding the selected patterns shows a number of dissimilarities.
7. The researchers as well the teachers of LIS, being formally associated to the Information science, do not face any problems while using the e-journals.
8. There is no significant difference in the satisfaction levels of both categories of respondents (researchers and teachers) of LIS.

Scope of the study
In the present study, the journals in the field of LIS available via Internet are included. The prime focus of the study, among others, is to examine the extent of use, access and acceptance of e-journals, among only the faculty members and researchers. As far as the respondents are concerned, the universe of the study is not confined to any selected universities. Various faculty members and researchers of the subject of LIS are selected indiscriminately and randomly to respond.

Research Methodology
Sources of Literature
Both primary as well as secondary sources of literature related and relevant to study have been taken into consideration. Primary sources include research reports, white papers and home pages of e-journals websites while the secondary sources include journal papers, books and other studies.
Methods and Techniques
The study has been conducted through empirical-analytical approach. Historical and descriptive methods have been applied to examine the nature, types, growth and development of journals, and especially e-journals. The prime theme of the study has been conducted by applying empirical method. The scheduled questionnaire technique has been taken into consideration.

Research Design
In the present study, the Ph.D. researchers and teachers of the subject of library and information science from various universities of India were selected randomly. A questionnaire was prepared for collection of data. The copies of the questionnaire were distributed among researchers and faculty members at Indian Association of Teachers of Library and Information Science (IALIS) 2010 and 2011; national conferences held at University of Pune, Pune and Gujarat University, Ahmedabad respectively. The data was also collected through email and using website. The Complete and valid questionnaires of 120 Ph.D. Researches and 60 Faculty members were selected, thoroughly analysed, tabulated and graphically represented in this study.

Statistical Methods
Statistical analysis of the data collected from respondents has been done accordingly. Various statistical techniques, relevant to the study have been applied to obtain accurate proportion, percentage, mean etc of the data. Along with applying theses techniques, SPSS-17 and Microsoft Excel software have been taken its consideration. It has been applied to carry out the accurate amount of the outcome of data. The variables of the comparative analysis of the responses of both the categories of respondents (researchers and teachers of LIS) are expressed while applying these software. For drawing inferences, Z
test and binomial test were used. These tests were used with .01 level of confidence.

**Citation Style**

Giving reference to support the statements given in the study is an important part of the study. For giving the reference and select bibliography in the present study the APA style manual has been followed.

**Chapterisation**

1. Introduction: It includes historical-analytical overview and background information about e-journals, along with statement of the problem, justification and nature of the study, and research methodology
2. The second chapter carries out a brief review of literature related and relevant to the study.
3. The third chapter deals with various patterns of awareness, acceptance and use of e-journals among researchers of LIS.
4. The fourth chapter carries out the study of various patterns of awareness, acceptance and use of e-journals among faculty of LIS.
5. The fifth chapter is a comprehensive study to conduct a comparative analysis of various patterns of awareness, acceptance and use of e-journals among both the researchers as well as faculty of the LIS.
6. Sixth chapter is a brief conclusion of the study that is an accumulation of major findings alongwith relevant suggestions.
7. After the formal chapterization, select bibliography and appendix has been attached at the end of the study.
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