Use and Usefulness of E-journals: A Case Study of Research Scholars

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Abstract

This paper is a result of a study has been conducted at the University of Madras among the research scholars on the use and utilization of e-journals. This investigation applied a standard survey method to analyse the use and utilization of e-journals. This study restricted only to the research scholars of the University. Relevant literature on the e-journals use study has been reviewed. The study examine the category of same population, their computer, Internet access and use, and e-journals uses and usefulness have been analysed and summarized the findings. Based on the results some suggestions have been made to the University to effective use of e-journals..

Keywords: Electronic Journals, User Study, User Behaviour

1. Introduction

In this article, I present and collocate the findings of a recent investigation that have been conducted under the Research Starter Fund at University of Madras, a Project that seeks to bring e-journals use and utilization of the research scholars of the University of Madras. The results of this study bring a comprehensive detailed picture of the use of e-journals by the research scholars. This investigation is probably one of the first of its kinds in the University after implementing the University Grants Commission's Infonet Programme.

2. Aims, Objectives and Scope

The main aim of this paper is to present the outcome of the research project undertaken to examine the use and utilization of the e-journals by the research scholars of the University of Madras. The increasing move from print collection to digital collections has generated much significant research on scholars' reading patterns and the take-up the use of e-journals. This project examines about the kinds of people use e-journals and their information seeking behaviour of the sample population. To understand how e-journals forms and functions may evolve, study examines the current role that e-journals play in scholarly work. This may provide some insight as to how e-journals will establish their niche within a broader set of scholarly resources and how they will complement and challenge traditional paper journals. This investigation applied a standard survey method to analyse the use and utilization of e-journals. This study restricted only to the research scholars (i.e., those who are enrolled as research students for pursuing Ph.D. degree from the University of Madras) and excluded the faculty members, post-graduate students and M.Phil degree students.

3. Review of Related Studies

Many studies tell us that using of e-journals articles has increased during the last decade and has been boosted by the application of Information and Communication Technologies (ICTs) in scholarly communication. More use of e-journals by the scientists than social scientists, however, enthusiasm for e-journals and patterns of use vary

even among field of science. Chemists and physicists use them frequetly, while earth scientists and mathematicians see few advantages in using e-journals (Mahe, Andrys and Chartron, 2000). Tenopir and King (2000) also found these variations that physicists and astronomers to be among the most enthusiastic users of e-journals articles, because of the digital archives and e-journals available and designed specifically to facilitate their natural work patterns.

Dillon and Hahn (2002) report the use of e-journals with study conducted at the University of Maryland. More faculty member used e-journals daily or weekly than they did print journals. This corresponds to the decrease in physical visits to the library by graduate students and faculty, especially in health sciences, sciences and engineering (Hiller, 2002). Business school faculty reported the highest use, while Palmer and Sandler (2003) found economics faculty to be the most enthusiastic users of e-journals. Speier et al (1999) and Hahn et al (1999) found that among business faculty, finance and management information systems faculty were more aware of e-journals than those in other fields. Faculty members for history, education, and the arts have been slower to adopt e-journals (Tomney and Burton, 1998). Among the corporate users, investment and banking companies or departments spend a higher percent of their budgets on electronic products than do other types of business such as pharmaceutical firms, legal services, food services, or telecommunications (Carrick, 2002).

Rudner, Miller-Whitehead and Gellamn (2002) found graduate students, particularly Ph.D. students are to be heavy users of e-journals, most likely in their role as researchers. As found in the SuperJournal Project, graduate students may be 'binge' users consulting e-journals extensively for a short period when they are writing a thesis or dissertation. There are some exceptions - under graduates were the most frequent users in an experimental study conducted by American Chemical Society (Entlich et al, 1996).

Different workplaces or types of institutions have varying use patterns as well. Davis (2002) examined e-journals users logs in libraries of the Northeast Research Library Consortium and found that each institutions has a unique pattern of use - medical institutions users had higher use of a smaller number of journals, while users at large universities and smaller colleges downloaded articles from a greater variety of journals title.

Differences in e-journals use may be attributed to age, status or rank. Speire et al (1999) and Hahn et al (1999) found that young ARL University Business faculty members reported that they use e-journals more often and were aware than were older faculty. Another study reported that more than half of the faculty members under the age of 40 reported using e-journals as compared with only 14% of those over 40, although more than 80% of the total respondents indicated that would consider using e-journals in the future (Tommy and Burton, 1998). Antoir (2001) found that older people preferred print articles; Monopoli et al (2002) found that user between age 21 and 34 used e-journals most frequently. Tenner and Yang (1999) found that assistant professors are most likely to have used e-journals (44.7%), followed by professors (34.5%) and followed by associate professors (34.2%).

Researchers in other studies found no relationship between age and searching skills, although the researchers observed that younger users are more likely to browse on the computers, while older users prefer print journals for browsing (Brockman et al,

2001). Tenopir and King (2000) also found no relationship between age and reading patterns among astronmers. Monopoli et al (2002) studied amongst the staff of the University of Patras, Greece, found that male staff has frequent use of electronic journals than female staff.

Dilhon and Hahn (2002) found 70% of the faculty wants core journals in both print and electronic form, but the some member wanted non-core journals only in electronic form. Worlock (2002) found that articles recommended by colleagues were more often in print than in electronic format. Tenopir and King found contradictory results that e-mail and listerv make it easier to share recommended articles with colleagues. University faculty members opined that the ability to send articles to their colleagues instantly as being one of the major advantages of e-journals (Palmer and Sandler, 2003).

Use of electronic books is also clearly course driven - books with the highest usage are those required in a class, and most users come to an electronic book collection to use a single title (Summerfield and Mandel, 1999).

Most college students now are computer literate and they use the web frequently. This does not necessarily correlate with effective use, however, an study found that professors performed newspapers and journal articles significantly better than graduates (Cockrell and Jayne, 2002).

The perceptions that e-journals are of lower quality than print is another problem that may be diminishing as a high percentage of peer-reviewed journals are digitized (Speier et al, 1999).

Reported that they did not perceive e-journals to be of as high quality as paper counterparts. While more than 70% of the faculty members in a British University believe the quality of articles in electronic journals is the same as in print journals, this same group of respondents cited the top disadvantage of electronic journals as being the impression that electronic publication is not 'real' publication (Tomney and Burton, 1998).

Tenopir (2003) found that more undergraduate students used the web and web search engines frequently, students are mostly unaware of the distinction between materials on the web and peer-reviewed journals. A nationwide survey of students and academics in the Netherlands found that 60% of respondents in the humanities, 78% of respondents in the social sciences, and 82% of respondents in the sciences used the Internet for study or work and nearly all believed they had Internet skills (Voorbij, 1999). Waldman (2003) found that 97% of psychology students access the Internet at least weekly, about 44% of the time for educational information.

Lack of awareness was one of the contributing factors for non-use of e-journals (Nelson, 2001; Tomnay and Burton, 1998). Science, engineering and health sciences faculty at the University of Washington favoured canceling print journals in favour of electronic only, while humanities and social sciences faculty opposed this idea and responded that maintaining the quality of the print collection is their higher priority (Hiller, 2002).

4. Means and Methods

A whole range of different methods with different approaches and objectives have been employed to the use of e-journals. Questionnaire surveys and interviews are the common favourite methodologies amongst the researchers. Transactional log analysis studies are not so common, but they are more popular

to study the e-journals as well as digital libraries. A survey method would be adopted to carry out this research project. In the process of surveying, a predefined questionnaire has been used to collect the necessary data. The questionnaire having questions like personal information, computer education, computer use, Internet and World Wide Web aware and use, search engines, browser, skills search techniques, awareness of the e-journals, level of use, purpose of sue, problems of using e-journals, etc. The University Departments are spread into four campuses and located in different places with group of Departments. Social sciences and humanities in Chepauk, languages in Marina, life sciences and physical and chemical sciences in Guindy and basic medical sciences in Taramani. Questionnaires have been distributed with equal proportion based on the number of departments available in that campus.

5. Data Analysis

The data collected through questionnaire have been analysed using statistical tool and presented. The total questionnaire admired this study is two hundred and distributed to the research scholars of all the campuses. Only 72 % of research scholars responded. Among the respondents, male representation was 69% and female represent 31% under this survey. The respondents are grouped into two broad categories for sake of convenient into data analysis, viz., arts and science. Science (53%) arts (47%) and disciplines research scholars having same proportion in the sample population. This indicated that questionnaire have been distributed with equal proportion based on the disciplines.

Among the researchers, young researchers are more (45%) than the second year (22%), third year (11%) and fourth year (17%). Research scholars can be grouped into full-time and part-time students. Full-time students are again divided into stipendiary and non-stipendiary candidates. Part-time candidates are also included in the sample. Full-time non-stipendiary candidates are higher (59%) than the stipendiary candidates. Very small number (13) of part-time candidates responded. This may be due to the non-availability of researchers in the departments during the survey period.

Almost all the respondents are below 35years old except 5% of respondents are above 35 years old. This is because sample population belonging to only the research scholars. The basic qualification for pursuing Ph.D. degree also taken into consideration with view of, is there any factor affecting the pattern of use? Respondents with Post-graduation are higher (60%) than with M. Phil as qualification for pursuing Ph.D. degree programme.

While study the e-journals use, access to e-journals requires computer knowledge some extend. Whether the respondents had acquired any formal computer education or not have been asked to correlate with e-journal use. The level of education was divided into four categories such as level of degree, post-graduate diploma, diploma and certificate course. Amongst certificate course level is more (36%) followed by diploma holder (20%), 7 and 9 percentages of respondents acquired degree and P.G. diploma levels respectively. The remaining 28% of respondents are having any level of formal computer education. Almost all the research scholars are using computer for one or other purposes, very less number of respondents are not using computer.

Nearly half of the respondents are viewed that the computer is being used for purpose of communicate with others. More than half (55%) of the respondents are using computer for their project work. Now-a-

day, digital and electronic resources are playing vital role in satisfying the users' requirements. Researchers and students are depending mainly on electronic sources. But the survey shows that less than half of the respondents (45%) opined that computer is using for preparing assignments. Two-third of the respondents (70%) are using computer for their research purpose. Apart from their academic and / or research purposes the respondents were asked whether computing is being for entertainment purposes, very less segment of the sample population (24%) is using computer for entertainment. Among the respondents, only 36% are having either personal computer or laptop.

Surprisingly 2% of the research scholars respond that they are not aware of Internet and World Wide Web (WWW). Remaining respondents are aware and using Internet with varied years of experience. As far as years of experiences is concerned, more than five years of Internet using experience is more (27%) than the other categories. This was followed by very young users, i.e., less than two years (21%) and between 2-5 years experiences spread equally in three groups. Almost all the respondents are active users of Internet, either they are using daily (33%) alternate days (22%) or once in a week (22%). A small percent (7) of the respondents are occasional users.

The possible places of using Internet are University's Internet Centre (34%), cyber cafes (26%) and home (5%). More than half (52%) of the respondents learnt Internet through self-learning method. The second position occupy by the through friends (23%), sixteen percent of the respondents are taken formal training course for Internet access and only 3% of the respondents are through media/ newspapers.

The respondents mainly preferred Internet Explorer for browsing web pages. More than 90% of the respondents are preferred this browser and only 4% of the respondents are using other than Internet Explorer. Google search engine is most preferred search engine among the respondents. More than three fourth of the respondents are using the search engine either often or sometimes. Yahoo and MSN are not in a significant place among research scholars. Only negligible amount of respondents are preferred Alltheweb, Altavista, Askjeeves, Excite, Hotbot, Lycosand and Infoseek. Alltehweb advanced, Altavista advanced, Google advanced, Hotbot advanced are taken into consideration for identify the usage of advanced search engines. Nearly 70% of respondents are using Google advanced search either often, rare or sometimes. One fourth of the respondents are not using advanced search, no significant numbers using other search engines.

The preferred type of resources among the respondents were been questioned, nearly 20% respondents are using databases often. Full-text publications often search by 42% of respondents. In relation to library websites, half of the respondents are often or sometimes visits to the library websites. More than half of the respondents are not having interest to see health related websites, others are visits rarely (6%), sometimes (19%) or often (17%). Similar range of respondents engaged with job searching and newspaper reading areas. However, recreational websites gets high position among the researchers (73%).

The possible difficulties in Internet access have been identified viz., language barriers, broken links, instability of network, slow expansion, finding relevant, and information overload. The

respondents opined in this survey that language is low degree of problem in searching the Internet. At the same time 16% of respondents are opined that the language barrier is in moderate level. Broken link is also available in moderate level while searching the web. Regarding instability of network, high degree of responses occurs on that. Slow expansion is another problem among the respondents of the Internet users. High percentage of respondents opined that it occurs in moderate level.

Among the respondents, 30% respondents are strongly agreed that Internet resources are up-to-date information. Very negligible number of respondents disagrees or strongly disagrees this and majority of the respondents are opined that that Internet has lot of information. Good accessibility was scored high (60%) from the opinion about the accessibility of the Internet resources. Similarly optioned on accuracy of the resources available in the Internet, but very limited number of the respondents said that sources are excellent.

The opinion about availability, consistency, flexibility and usefulness, respondents gave rated high to good scale in all the attributes. Below 10% respondents are says these attributes are excellent on availability, similar results one could see for other attributes. Internet and Internet resources have positive impact on studying and teaching strongly agreed by the majority of the respondents. One third of the respondents felt that some have had positive impact.

The search methods and level of satisfaction on 'content' and 'keyword' search have been asked to determine the search skills of the respondents. Among the respondents, majority of the respondents are not a habit of searching items with content / topic in which they required. But significant respondents (38%) among them using content / topic search often. Majority of the respondents use keyword searching often. Similarly, majority of the respondents are opined that they are using sometimes. In the topical search, the respondents are received moderate level of satisfaction. Only 20% viewed that they have received high level of satisfaction. High level of satisfaction received from the respondents on keyword search.

Various search techniques such as Boolean Operators (AND, OR, NOT), nesting, truncation, phrase searching, controls, case sensitive and wildcard have been asked to find out whether users are using these search techniques while search the web. Majority of the respondents (60%) are never using Boolean operators; the remaining respondents are using Boolean operators rarely, sometimes, or often. Nesting also never used by the two third of the respondents. Only one third of respondents are using the nesting techniques on the other levels. In the text retrieval system, truncation is one of the techniques used to improve the recall in the search. The result shows that the majority of the respondents (70%) are not using truncation method. Similar results arrived for phrase searching also. The researchers of the Madras University do not have practice of using 'controls' while search the Internet resources. The result of use of case sensitive methods in searching is shows that 67% of them are not suing case sensitive. The use of wildcard method also asked among the respondents. Almost all the respondents are opined that they never use this while searching.

The utilization of resources such as bibliographic databases, full-text databases, images, audio-video information, e-books and e-journals by the

researchers of the University have been ascertained. Among the respondents, 66 % of the respondents opined that they never browse the bibliographic databases, others browsing sometimes, often or rarely. Similar set of results are arrived in the case of full-text database also. Images, audio-video type of information also in the list of very often used sources of information by the one fourth of the respondents.

E-books are not in their mind among 40% of respondents, others are using often, sometimes or rarely. Unlike the e-books, 70% respondents are often use e-journals. Now-a-days open sources are dominant in the web resources. It is considered as one of media for scholarly communication. The awareness of the open sources among the researchers is determined, sharply 50% of the respondents are aware of open sources, the remaining are unaware.

More than half (60%) of respondents are aware of virtual libraries, other respondents are not aware of virtual libraries. Similar result is arrived for the awareness of electronic libraries (64%). Nearly 40% of respondents are not aware of consortium functioning in India. Among the three major functional consortia in India, UGC's Infonet is one of the aware and using consortia than All India Council for Technical Education's INDEST and CSIR's Consortia.

The use and utilization of e-journals have been assessed with following questions, (1) whether you are using e-journals?, (2) what mod you are using (consortia or open source)?, (3) is e-journals are useful? (4) is e-journals are substitute to the printed form?. Among the respondents, nearly 50% of the respondents are not using e-journals either from open sources or through consortia. One fourth of the respondents (26%) are using e-journals through consortium, remaining respondents are using open sources. Majority of the respondents (82%) felt that the e-journals are useful sources of information. Regarding the substitution of e-journals, two third of the respondents (61%) felt that e-journals are considered as a substitute to the print journals. The remaining of them opined reverse.

The e-journals characteristics such as accessibility, authenticity, availability and usefulness are asked and the results are: half of the respondents (51%) are 'agree' about the accessibility. Nearly 30% of respondents 'somewhat agree' on accessibility of e-journals. At the same time very few of them opined 'strongly agree'. Only 2% of the respondents have opinion of 'disagree' and 'strongly disagree'. While asking the authenticity of the e-journals, the result is reflecting the same as in the accessibility. Nearly half of the respondents (47%) of the respondents 'agree' about the authenticity of the e-journals. One third of the respondents are 'somewhat agree'. Similar result one could see from the results on availability of the e-journals. Majority of them (75%) either 'agree' or 'somewhat agree'. The opinion of the usefulness of the e-journals slightly differs from the other characteristics. Majority of the respondents (82%) are 'strongly agree' and 'agree' and 13% respondents 'somewhat agree'.

6. Inferences

The following inferences have been arrived and summarized as follows:

- **Sex:** Male respondents are more than female in the sample population.
- **Department**: More or less equal number of distributions of respondents in both Arts and Science disciplines.

- Fresh-hand researchers are more than senior researchers among the sample population.
- Full-time non-stipendiary candidates are more than stipendiary candidates; very less number of respondents belongs to part-time researchers.
- **Age:** Majority of respondents are youngster rather old persons.
- **Qualification:** Post-Graduation qualified research scholars are more than with M.Phil qualified respondents in the sample population.
- **Computer Education:** Two third of the respondents are having formal computer education.
- **Computer Use:** Almost all the researchers are using computer one or other purposes.
- **Purpose of using Computer:** The research scholars are using computer for preparing assignment, project, research and some extend to entertainment rather business purpose.
- One third of researchers under survey are having own computer system. Others dependent outside resources.
- **Internet and World Wide Web:** Almost all the respondents are aware of Internet and World Wide Web and one third of them having good experiences in using Internet and World Wide Web.
- All the respondents are active users of Internet and World Wide Web. They spent reasonable time in browsing the net.
- The research scholars are not only depending upon the University's Internet Centre's but also Cyber cafes. Only minimum number are using in their home.
- **Internet use Learning:** The researchers are learnt Internet browsing by themselves and through friends. This indicates that the syllabus does not have any course on Internet study area.
- **E-mail:** E-mail communication exists as one of the communication channels among the research scholars of the University of Madras.
- **Internet Browser:** Internet Explorer is popular Internet browser among the respondents. Mozilla Firefax occupies the second position. No other became popular to the research scholars.
- **Search Engines:** Google, Yahoo, MSN are the most popular search engines among the research scholars. Other search engines are rarely using by the respondents. No much use of the advanced search engines, except some respondents are using Google's advanced search engine.
- **Type of sites using**: The researchers mostly preferred full-text publications, Education and Job sites. Recreational, Health, etc are visiting by the researchers sometimes. Newspapers/ Magazine, Travel and Tourism related websites are least preferred.
- **Internet Access Difficulties:**
  - **Language Barriers:** Language is not at all considered as barriers in Internet access
  - **Broken Links**: Broken / dead link problem affect the researchers in the moderate level.
  - **Instability of Network:** The instability of network also not affects the use of Internet.
  - **Slow Expansion of site:** Researchers opined that it is in moderate level.
  - **Relevant Information:** The research scholars are found relevant information while searching the Internet.
  - **Information overload:** The same opinion of the above could find this case also.
  - **Internet Resources:** The researchers are strongly felt that the Internet resources are up-to-date and enormous information is

available. But somewhat agree on ideal way of communication.

- The University research scholars felt that the attributes such as accessibility, accuracy, availability, consistency, flexibility and usefulness are good rather excellent or poor.
- **Impact of Internet:** The Internet had positive impact on research and academic activities of the research scholars.
- **Search Skills:** Keyword search is preferred search methods adopted by the majority of the researchers rather content/ topical search. The moderate level of satisfaction they acquired through keyword search.
- **Search techniques**: Boolean operators, phrase searching are some of search techniques rarely being used by the researchers. The other techniques such as nesting, truncation, controls, wildcard, etc never being used by the almost all the research scholars.
- Advanced search by restricting type of resources, file format and period never being used by the University of Madras research scholars.
- **Type of Resources browsing:**
  - **Bibliographic databases:** It is not a preferred resource for browsing by the research scholars.
  - **E-books:** Almost all the researchers are not having the habit of using E-books.
  - **Audio-Video:** Rarely it being used by the researchers.
  - **Full-text databases:** Full-texts databases are preferred areas of interest of most of the scholars.
  - **E-journals:** The majority of the research scholars often use E-journals.
- **Open Sources**: The researches are aware of 'open sources' in the Internet and World Wide Web.
- **Virtual & Electronic Libraries:** They have knowledge about 'virtual library' and 'electronic library'.
- **Consortia:**
  - University of Madras is one of the member institutions in the UGC's InfoNet Programme. The researchers are aware of it. But the other major consortia such as AICTE's INDEST and CSIR's Consortia are not aware of by the researchers.
  - The researchers of the University do not often use UGC's InfoNet. Science discipline research scholars fully aware about the programme and using, whereas Arts discipline researchers are not aware and used.
- **E-journals:**
  - E-journals are using by the research scholars of the Uni9versity. Among the researchers, Science discipline researchers are using open sources as well as consortia.
  - Generally the E-journals are useful sources of scholarly communication
  - Both the opinions are found that E-journals are considered as substitution to the print journals and not.
- **E-journals characteristics:**
  - Accessibility of the E-journals is easy than printed journals.
  - Though authenticity is one of the criticisms when the 'open sources', E-journals are considered as one of the authentic sources of information.

- Lot of E-journals is available in an electronic form, which made available through open sources and consortium.

- Digital information has an attribute of manifestation. E-journals are considered as useful resources.

7. Conclusion

The following suggestions are made from the study:

- Though two third of the researchers are having formal computer education, one third of respondents are not having formal education. A course work on basics of computer and information resources may be introduced as part of in the Ph.D. programme.
- The major source for Internet access is not only the University's Internet Centres but also Cyber/ Internet cafes. The University networking and Internet service to be strengthen by improving the bandwidth, increasing the server capacity.
- Internet, World Wide Web and Electronic resources are emerged as new mode of scholarly communication. The Internet access and use have to be included in the research methodology course syllabus to facilitate easy access and use these resources.
- Mail IDs to the researchers of the university should be given through University mail server facilitates to improve the communication activities of the researchers.
- The importance of content / topic search can be propagated by conducting training programme for the research scholars of the University.
- The University Library should initiate action to popularize the concept open sources, virtual, electronic, and digital libraries among the research scholars through orientation / user education programmes.
- Promote the accessibility and use of UGC's InfoNet facilities among the researchers of the University by providing the seamless access of the e-resources.

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