

Electronic journals in the University libraries of Punjab: the present situation and future perspective

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Abstract

E-journals offer many opportunities to today's users that were not available to their predecessors. Because of the multidimensional features of e-journals, they are becoming the choice of academic as well as public library users. The paper examines the results from a questionnaire-based survey of users of university libraries of Punjab including undergraduate, postgraduate, research scholar and faculty. The purpose of this paper is to find out the level of awareness and use of e-journals by the university users. The study reveals that currently the trend of users' is shifting towards electronic format but the pace is very slow. Some suggestions are also given to enhance the use of electronic journals.

Keywords: Academic libraries, Electronic journals, University libraries, Online journals, user study.

A journal may be looked upon as an information shell in a subject. For more than three centuries, print journals have occupied a central role in information creation and dissemination. Besides being a formal channel of scholarly communication, print journals hold crucial significance in higher education. Significant growth in information and communication technology (ICT) sector that introducing changes and progressively replacing the print publication to electronic publications worldwide and as a result, e-journals are becoming increasingly prevalent in the information landscape of libraries.

The ultimate goal of electronic journals is to provide fast and easy access to the information contained in the objective publications with simple, powerful search and retrieval

capabilities. Electronic journals are often referred to interchangeably as “electronic publishing”, “electronic serials”, “online journals” and “electronic periodicals”. According to Harrods’s Librarians Glossary, an e-journal is “a journal which is available in electronic format; a physical printed version may also be available”⁴. 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.

Objectives of the Study: The main objectives of the study are:-

- To study the present use of e-journals in higher education with special reference to Guru Nanak Dev University, Panjab University, Punjab Agricultural University and Punjabi University.
- To find out frequency of using e-journals.
- To find out the preferred place for accessing the e-journals.
- To assess the user satisfaction about e-journals access in these libraries.
- To study the problems and difficulties of users in accessing e-journals.
- To suggest ways and means for maximum utilization of e-journals.

Scope of the study: The proposed study intends to assess the satisfaction of the users including students and the faculty in terms of availability of e-journals as provided by their respective university libraries. The study will include the following four university libraries in Punjab and Chandigarh:

1. Guru Nanak Dev University (GNDU), Amritsar.
2. Panjab University (PU), Chandigarh.
3. Punjab Agricultural University (PAU), Ludhiana.
4. Punjabi University (Pbi Uni.), Patiala.

The study will analyze the use of e-journals by the respective users of the above mentioned four university libraries.

Research Methodology: The survey method of research was adopted for the study. The data was collected with the help of questionnaires, distributed in all the four selected universities in Punjab. The survey was based on random sampling of 125 users (approximately) from each university, i.e., a total of 500 users were surveyed. The data was analyzed through descriptive statistical methods by using computerized data processing techniques. Subsequently, the data was interpreted and relevant conclusions put forth.

Response to the Questionnaire

| Universities | Total questionnaires circulated | Response received | Percentage |
|--------------|---------------------------------|-------------------|------------|
| PUC | 125 | 122 | 97.6% |
| PAU | 125 | 118 | 94.4% |
| PUP | 125 | 120 | 96% |
| GNDU | 125 | 120 | 96% |
| TOTAL | 500 | 480 | 96% |

Table shows that the data was collected by circulating the questionnaire to a total of 500 users (i.e., 125 users each from all the four universities under study). Out of 500 questionnaires distributed, 480 questionnaires were received back which make an overall of 96% response from all the four universities.

Analysis of data: The data were collected through the questionnaires have been organized and tabulated by using simple statistical methods.

Table 1: Sources of Information about Electronic Journals

| SOURCE | UNIVERSITIES | | | | TOTAL |
|--------------------|--------------|---------|---------|---------|---------|
| | PUC | PAU | PUP | GNDU | |
| University/Library | 55 | 31 | 26 | 60 | 172 |
| Website | (45.08) | (26.27) | (21.67) | (50) | (35.83) |
| Library | 18 | 28 | 15 | 19 | 80 |
| Professionals | (14.75) | (23.72) | (12.5) | (15.83) | (16.67) |
| Advertisements | 28 | 15 | 54 | 39 | 136 |
| | (22.95) | (12.71) | (45) | (32.5) | (28.33) |
| Friends/Colleagues | 49 | 46 | 33 | 20 | 148 |
| | (40.16) | (38.98) | (27.5) | (16.67) | (30.83) |
| Teacher/Research | 28 | 31 | 19 | 25 | 103 |
| Guides | (22.95) | (26.27) | (15.83) | (20.83) | (21.45) |
| Internet surfing | 22 | 35 | 33 | 46 | 136 |
| | (18.03) | (29.66) | (27.5) | (38.33) | (28.33) |

(Multiple answers allowed)

(Percentages are given within parenthesis)

It is noted that there are different sources through which the user comes to know the availability of any e-journal in his/her subject. These include library website, library professionals, teachers, advertisements or through web surfing. Table 1 indicates the response of the users regarding the source through which they got information about the availability of e-journals. About 35.83% of respondents stated that University/library websites is the major source from where they got the information about e-journals, whereas 30.83% of respondents got information from their friends and colleagues. Internet surfing and advertisements are the source of information for 28.33% of respondents. 21.45% of respondents stated that their teachers and Research guides informed them about the e-journals and 16.67% of respondents reveal that the library professionals informed them about the e-journals in their fields.

Table 2: Training Provided to Use E-Journals

| University | Importance of Training | | Provision of Training | |
|------------|------------------------|---------------|-----------------------|----------------|
| | Yes | No | Yes | No |
| PUC | 92 (75.40) | 30 (24.6) | 65 (53.28) | 57 (46.72) |
| PAU | 91 (77.11) | 27 (22.89) | 39 (33.05) | 79 (66.95) |
| PUP | 94 (78.33) | 26 (21.67) | 68 (56.67) | 52 (43.33) |
| GNDU | 95 (79.17) | 25 (20.83) | 58 (48.33) | 62 (51.67) |
| TOTAL | 372 (77.5) | 108 (22.5) | 230 (47.91) | 250 (52.09) |

(Percentages are given within parenthesis)

Table 2 depicts the answer to question of whether training is important in using e-journals. 95 users (79.17%) from GNDU expressed that training plays a very important role in using e-journals followed by 94(78.33%) users from PUP, 92 (75.40%) users from PUC and 91 (77.11%) respondents from PAU. 21.67% users from PUP stated that there is 'no' need of any formal training for using e- journals, followed by 24.6%, 22.89% and 20.83% respondents from PUC, PAU, and GNDU respectively. In overall analysis, it is very clear from the figures that 77.5% users feel the importance of training, whereas 22.5%

respondents do not feel the requirement for same. The above table also enumerates whether any hands on training is being provided by universities for using e-journals. Majority of (56.67%) respondents from PUP expressed that they are getting training, followed by 53.28%, 48.33% and 33.05% of respondents from PUC, GNDU and PAU respectively. 66.95% of respondents from PAU expressed that they are not getting any training, followed by 51.67%, 46.72%, and 43.33% of respondents from GNDU, PUC, and PUP respectively stated the same. Overall analysis reveals that 47.91% of users are getting training for the usage of e-journals, whereas 52.09% of users expressed that they are not getting any formal training for that purpose. Infact, whenever a user seeks any help, it is being provided in all the university libraries under study.

Table 3: Place for Accessing the E-Journals

| Place | UNIVERSITIES | | | | Total |
|---|---------------|---------------|---------------|---------------|----------------|
| | PUC | PAU | PUP | GNDU | |
| Computer Centre | 23 (18.86) | 28 (23.73) | 21 (17.5) | 12 (10) | 84 (17.5) |
| Library | 61 (50) | 53 (44.92) | 40 (33.33) | 42 (35) | 196 (40.83) |
| Home | 3 (2.47) | 2 (1.69) | 9 (7.5) | 7 (5.83) | 21 (4.38) |
| Hostel | 15 (12.29) | 20 (16.94) | 37 (30.83) | 17 (14.17) | 89 (18.54) |
| Departments | 41 (33.60) | 25 (21.19) | 45 (37.5) | 47 (39.17) | 158 (32.91) |
| Other locations (cyber café) | 2 (1.63) | 4 (3.39) | 2 (1.67) | 7 (5.83) | 15 (3.12) |

(Multiple answers allowed)

(Percentages are given within parenthesis)

Users were asked as to where they access e-journals. Table 3 summarizes that in the universities of PUC and PAU, 61 (50%) and 53 (44.92%) users respectively access e-journals in libraries, on the other hand in PUP and GNDU, 45 (37.5%) and 47 (39.17%) users respectively access e-journals from their departments, while only 41 (33.60%) and 25 (21.19%) users from PUC and PAU respectively access e-journals in their respective departments. After the library and their concerned departments, the most sought after place to access e-journals is from their hostels. Statistics show 23(18.86%) users in PUC,

28(23.73%) in PAU, 21(17.5%) in PUP and 12(10%) in GNDU access e-journals from computer centre and 15(12.29%), 20(16.94%), 37(30.83%), 17(14.17%) users from PUC, PAU, PUP and GNDU respectively access e-journals from their hostels. Only a small percentage of users, i.e., 3 (2.47%), 2 (1.69%), 9 (7.5%) and 7 (5.83%) from PUC, PAU, PUP and GNDU respectively access e-journals from their homes also.

Table 4: Purpose of Using the E-Journals

| Purpose | UNIVERSITIES | | | | Total |
|------------------------|---------------|---------------|---------------|---------------|----------------|
| | PUC | PAU | PUP | GNDU | |
| Writing papers | 31 (25.41) | 20 (16.94) | 25 (20.83) | 24 (20) | 100 (20.83) |
| Projects | 32 (26.23) | 35 (29.67) | 31 (25.83) | 23 (19.17) | 121 (25.21) |
| Research Work | 57 (46.73) | 67 (56.78) | 47 (39.17) | 43 (35.83) | 214 (44.58) |
| Preparing Notes | 15 (12.29) | 8 (6.78) | 26 (21.67) | 24 (20) | 73 (15.20) |
| Seminars | 20 (16.39) | 6 (5.08) | 25 (20.83) | 27 (22.5) | 78 (16.25) |
| Others(if any) | 9 (7.38) | 8 (6.78) | 6 (5) | 5 (4.17) | 28 (5.83) |

(Multiple answers allowed)

(Percentages are given within parenthesis)

Table 4 shows the purpose of using e-journals by the users. It is evident from the table that majority of respondents from all four universities i.e., 57(46.73%) respondents from PUC, 67(56.78%) respondents from PAU, 47(39.17%) respondents from PUP and 43(35.83%) respondents from GNDU, use e-journals for their research work. 26.23% of users from PUC, 29.67% of users from PAU, 25.83% of users from PUP and 19.17% of users from GNDU use e-journals for their project works. In GNDU, e-journals are also being used for preparing the seminars (22.5%), followed by writing papers (20%) and preparing notes (20%). In PAU, only 5.08% of users prefer to use e-journals for their seminar work and 16.94% of users use e-journals for writing papers. 25.83% of users from PUP access e-journals for their project work and 20.83% of users access e-journals for the purpose of writing papers and seminars. 26.23% of users from PUC use e-journals for their project work

and 25.41% of users' access e-journals for writing papers, followed by the purpose of preparing for seminars (16.39%).

Table 5: Frequency of Using E-Journals

| Frequency | UNIVERSITIES | | | | Total |
|----------------------------|---------------|---------------|---------------|---------------|----------------|
| | PUC | PAU | PUP | GNDU | |
| Daily | 33 (27.05) | 21 (17.8) | 24 (20) | 26 (21.67) | 104 (21.67) |
| Once in a week | 18 (14.76) | 28 (23.73) | 29 (24.17) | 23 (19.17) | 98 (20.41) |
| 2-3 times in a week | 50 (40.98) | 43 (36.44) | 50 (41.67) | 54 (45) | 197 (41.04) |
| Occasionally | 21 (17.21) | 26 (22.03) | 17 (14.16) | 17 (14.16) | 81 (16.88) |

(Percentages are given within parenthesis)

Table 5 indicates the frequency of using e-journals by the respondents. It is clear from the table that 40.98% user from PUC, 36.44% users from PAU, 41.67% users from PUP and 45% users from GNDU access e-journals 2-3 times in a week. 33(27.05%), 21(17.8%), 24(20%) and 26(21.67%) users from PUC, PAU, PUP, GNDU respectively, use e-journals daily. Whereas 21(17.21%) respondents from PUC, 26(22.03%) respondents from PAU, 17(14.16%) respondents from PUP and 17(14.16%) respondents from GNDU access e-journals occasionally. 24.17% users from PUP consult e-journals once in a week, followed by 23.72% users from PAU, 19.17% users from GNDU and 14.76% users from PUC. The overall analysis reveals that majority of respondents, i.e., 41.04% access e-journals 2-3times in a week, followed by 21.67% respondents who use e-journals daily, 20.41% respondents' who access e-journals once in a week, followed by 16.88% respondents who access e-journals occasionally.

Table 6: Advantages of Electronic Journals

| Advantages | Irrelevant | Neutral | Very Important |
|--------------------------------|-----------------|-----------------|-----------------|
| Available from Desktop | 67 (13.96%) | 173 (36.04%) | 240 (50%) |
| Speed of Publication | 67 (13.96%) | 125 (26.04%) | 288 (60%) |
| Easy search | 67 (13.96%) | 77 (16.04%) | 336 (70%) |
| Hyperlinks | 48 (10%) | 106 (22.08%) | 326 (67.92%) |
| Graphic Capabilities | 77 (16.04%) | 163 (33.96%) | 240 (50%) |
| On screen reading | 115 (23.96%) | 202 (42.08%) | 163 (33.96%) |
| Access from different Location | 60 (12.5%) | 108 (22.5%) | 312 (65%) |
| 24/7 availability | 48 (10%) | 96 (20%) | 336 (70%) |
| Full Text | 67 (14.96%) | 144 (30%) | 269 (56.04%) |
| Down loading facility | 84 (17.5%) | 108 (22.5%) | 288 (60%) |
| Archival Facility | 60 (12.5%) | 162 (33.75%) | 258 (53.75%) |
| Easy Accessibility | 60 (12.5%) | 78 (16.25%) | 342 (71.25%) |

(Percentages are given within parenthesis)

In table 6, key advantages of accessing electronic journals were indicated by the users. Three options Irrelevant, Neutral and Very Important were given to users. The above table shows that 71.25% users find easy accessibility of e-journals as the most important advantage of e-journals. Easy search and 24/7 availability of e-journals are rated very important by 70% of users. Hyperlinks were rated as very important by 68.92% of users. E-journals can be 'accessed from different locations', was rated very important by 65% users. Out of 480, 173 respondents were neutral about the feature, 'availability from desktop'. 33.75% users and 30% users were neutral about the 'archival facility' and 'fulltext availability', features respectively. 26.04% users have rated 'speed of publication' feature as neutral. 23.96% users found 'on screen reading' of e-journals an irrelevant feature. 'Downloading' feature of e-journals was rated irrelevant by 17.5% users. 'Graphic capabilities' of e-journals were found to be irrelevant by 16.04% users.

Table 7: Usage of Electronic Journal Articles in a Week

| Number of articles | UNIVERSITIES | | | | Total |
|---------------------|---------------|---------------|---------------|---------------|----------------|
| | PUC | PAU | PUP | GNDU | |
| 01-02 | 40 (32.79) | 43 (36.44) | 33 (27.5) | 19 (15.83) | 135 (28.12) |
| 03-05 | 46 (37.70) | 41 (34.75) | 34 (28.33) | 39 (32.5) | 160 (33.33) |
| 06-10 | 20 (16.39) | 20 (16.94) | 32 (26.67) | 43 (35.83) | 115 (23.96) |
| More than 10 | 16 (13.12) | 14 (11.87) | 21 (17.5) | 19 (15.84) | 70 (14.59) |

(Percentages are given within parenthesis)

Table 7 depicts that 46 (37.70%) users from PUC, 41 (34.75%) users from PAU, followed by 39 (32.5%) respondents from GNDU, 34 (28.33%) respondents from PUP read 3-5 articles from the e-journals in a week. 43 (36.44%) respondents from PAU, 40 (32.79%) respondents from PUC, 33 (27.5%) respondents from PUP and 19 (15.83%) respondents from GNDU read only 1-2 electronic articles in a week. 43 (35.83%) respondents from GNDU, followed by 32 (26.67%) respondents from PUP, 20 (16.94%) respondents from PAU, 20 (16.39%) respondents from PUC, read 6-10 electronic articles in a week. Whereas only 14 (11.87%) users from PAU, 16 (13.12%) users from PUC, 19 (15.84%) users from GNDU and 21 (17.5%) users from PUP read more than 10 articles from the e-journals per week. The overall analysis reveals that 33.33% respondents read 3-5 articles, followed by 28.12% respondents who read 1-2 articles in a week, 23.96% respondents who read 6-10 articles, 14.59% respondents who consult more than 10 articles from e-journals in a week.

Table 8: Hindrances in Using E-Journals

| Problems | UNIVERSITIES | | | | Total |
|------------------------------|---------------|---------------|---------------|---------------|----------------|
| | PUC | PAU | PUP | GNDU | |
| Lack of infrastructure | 30 (24.6) | 37 (31.35) | 27 (22.5) | 32 (26.67) | 126 (26.25) |
| Not easy to use | 15 (12.29) | 30 (25.42) | 28 (23.33) | 23 (19.17) | 96 (20) |
| Unorganized | 16 (13.11) | 12 (10.16) | 14 (11.67) | 22 (18.33) | 64 (13.33) |
| Difficult to read | 36 (29.5) | 42 (35.59) | 34 (28.33) | 37 (30.83) | 149 (31.04) |
| Lack of training | 65 (53.28) | 51 (43.22) | 57 (47.5) | 62 (51.67) | 235 (48.96) |
| Preference to paper Journals | 30 (24.59) | 34 (28.81) | 26 (21.67) | 29 (24.17) | 119 (24.8) |

(Multiple answers allowed)

(Percentages are given within parenthesis)

Even though e-journals are very important source of information, there are some problems faced by the users. Lack of infrastructure, lack of training, difficult to read from screen, etc. are some of them. Table 8 reveals that 53.28% users from PUC, 43.22% respondents from PAU, 47.5% users from PUP and 51.67% respondents from GNDU found lack of training as the major problem of not using or less usage of e-journals. 35.59% respondents from PAU found e-journals difficult to read from screen, followed by 30.83% respondents from GNDU, 29.5% respondents from PUC and 28.33% users from PUP. Only 10.16% respondents from PAU and 11.67% respondents from PUP rated e-journals 'unorganized' as a hindrance for not using e-journals. 19.17% respondents from GNDU and 12.29% respondents from PUC found e-journals are not easy to use. 28.81% respondents from PAU gave preference to paper journals, followed by PUC, GNDU, and PUP which are 24.59%, 24.17% and 21.67% respectively. Lack of infrastructure for accessing e-journals was also found to be a barrier by 31.35% respondents from PAU, 26.67% respondents from GNDU, followed by respondents from PUC and PUP which are 24.6% and 22.5% respectively. The overall analysis reveal that 235 respondents out of 480 found lack of training as the main hindrance, 31.04% respondents found that e-journals are difficult to read from screen, 26.25% users found lack of infrastructure as the main barrier for not using e-

journals. 24.8% respondents gave preference to paper journals, followed by 20% respondents, who found e-journals not easy to use, 13.33% respondents found e-journals as unorganized.

Table 9: Satisfaction with E-Journals

| Universities | Satisfied with no. of e-journals available | | Need for subscription of more e-journals | |
|--------------|--|----------------|--|----------------|
| | Yes | No | Yes | No |
| PUC | 35 (28.69) | 87 (71.31) | 90 (73.77) | 32 (26.23) |
| PAU | 56 (47.46) | 62 (52.54) | 60 (50.85) | 58 (49.15) |
| PUP | 23 (19.17) | 97 (80.83) | 100 (83.33) | 20 (16.67) |
| GNDU | 37 (30.83) | 83 (69.17) | 84 (70) | 36 (30) |
| TOTAL | 151 (31.46) | 329 (68.54) | 334 (69.58) | 146 (30.42) |

(Percentages are given within parenthesis)

Users were asked whether they are satisfied with the number of e-journals available in the libraries. Table 9 shows that 80.83% respondents from PUP, followed by 71.31% respondents from PUC, 69.17% respondents from GNDU and 52.54% respondents from PAU are not satisfied with the total number of e-journals available. Whereas 47.46%, 30.83%, 28.69% and 19.17% respondents from PAU, GNDU, PUC and PUP respectively are satisfied with the number of e-journals available in the libraries. 83.33% respondents from PUP do feel a need for the subscription of more electronic journals, followed by 73.77%, 70%, 50.85% respondents from PUC, GNDU and PAU respectively. On the other hand 49.15% respondents from PAU, 30% respondents from GNDU, 26.33% respondents from PUC and 16.67% respondents from PUP, do not feel any need for the subscription of more electronic journals.

Table 10: Satisfaction Level of Infrastructural Facilities for Accessing E-Journals

| Satisfaction level | UNIVERSITIES | | | | Total |
|----------------------------|--------------|---------------|---------------|---------------|----------------|
| | PUC | PAU | PUP | GNDU | |
| Fully satisfied | 41 (33.6) | 32 (27.11) | 50 (41.67) | 54 (45) | 177 (36.88) |
| Partially satisfied | 51 (41.8) | 48 (40.68) | 45 (37.5) | 35 (29.17) | 179 (37.29) |
| Dissatisfied | 30 (24.6) | 38 (32.21) | 25 (20.83) | 31 (25.83) | 124 (25.83) |

(Percentages are given within parenthesis)

Table 10 presents the assessment of users regarding the availability of library infrastructure available to access the e-journals. The data analysis reveals that majority of users from GNDU are fully satisfied with the infrastructure, accounting for 54(45%), followed by PUP, PUC and PAU, i.e. 50(41.67%), 41(33.6%) and 32(27.11%) respectively. Whereas major portion of respondents from PUC are partially satisfied with the available infrastructure, which constitutes 41.8%, followed by PAU, PUP and GNDU i.e. 40.68%, 37.5% and 29.17% respectively. 32.21% users from PAU, 25.83% users from GNDU, 24.6% users from PUC and 20.83% users from PUP are dissatisfied with the facilities provided by libraries. Overall analysis reveals that 37.29% respondents are partially satisfied, 36.88% respondents are fully satisfied and rest 25.83% respondents are dissatisfied with regard to the infrastructure available in the libraries for accessing e-journals.

Table 11: Satisfaction Level of Internet Connectivity

| Level | UNIVERSITIES | | | | Total |
|----------------------------|---------------|--------------|---------------|---------------|----------------|
| | PUC | PAU | PUP | GNDU | |
| Fully Satisfied | 41 (33.61) | 42 (35.6) | 44 (36.67) | 35 (29.17) | 162 (33.75) |
| Partially Satisfied | 51 (41.80) | 40 (33.9) | 49 (40.83) | 45 (37.5) | 185 (38.55) |
| Dissatisfied | 30 (24.59) | 36 (30.5) | 27 (22.50) | 40 (33.33) | 133 (27.70) |

(Percentages are given within parenthesis)

Table 11 depicts the satisfaction level of the respondents about the Internet connectivity available to them. Majority of users (36.67%) from PUP are fully satisfied with the Internet connectivity, as it provides Internet connections in all deptts/centres/labs/units, etc. followed by PAU (35.6%), PUC (33.61%) and GNDU (29.17%), Major portion of respondents who are partially satisfied with Internet connectivity, constitutes 41.80% in PUC, followed by 40.83% in PUP, 37.5% in GNDU and 33.9% in PAU. 33.33% users from GNDU, 30.5% users from PAU, 24.59% users from PUC and 22.50% users from PUP are dissatisfied with the Internet connectivity. Overall analysis reveals that 38.55% respondents are partially satisfied, 33.75% respondents are fully satisfied and 27.70% users are dissatisfied with the Internet connectivity available to them for accessing e-resources.

Table 12: Preference of Usage

| Preference of Use | UNIVERSITIES | | | | Total |
|-------------------|---------------|---------------|--------------|---------------|----------------|
| | PUC | PAU | PUP | GNDU | |
| Print | 54 (44.26) | 45 (38.13) | 42 (35) | 31 (25.83) | 172 (35.83) |
| Electronic | 38 (31.15) | 30 (25.43) | 27 (22.5) | 22 (18.33) | 117 (24.38) |
| Both | 30 (24.59) | 43 (36.44) | 51 (42.5) | 67 (55.84) | 191 (39.79) |

(Percentages are given within parenthesis)

A preferential analysis was conducted to check users' preference to print or electronic journals. Table 12 indicates the preferences given to category of journals by users. In PUC, 44.26% respondents' preferred printed journals', followed by 31.15% respondents who preferred electronic journals usage, by 24.59% respondents who prefer to read both categories of journals. In PAU, 38.13% respondents prefer print journals, followed by 36.44% users prefer both type of journals and 25.43%, who prefer electronic journals. In PUP, 42.5% users preferred both type of journals, followed by 35% respondents who preferred print journals and 22.5% respondents who prefer electronic journals. In GNDU 55.84% users preferred both type of journals, 25.83% users' preferred print journals, followed by 18.33% of users who preferred electronic journals. The overall analysis reveals that highest preference is given to both types of journals print as well as electronic, by 39.79% users, followed by 35.83% respondents, who still prefer printed journals, and 24.38% users who prefer electronic journals only.

Table 13: Ways to Make E-Journals' Facility More Efficient

| Method | UNIVERSITIES | | | | TOTAL |
|-----------------------------------|---------------|---------------|---------------|---------------|----------------|
| | PUC | PAU | PUP | GNDU | |
| More training programmes | 75 (61.48) | 84 (71.19) | 63 (52.5) | 70 (58.33) | 292 (60.83) |
| Improve the speed of Internet | 66 (54.09) | 32 (27.11) | 23 (19.17) | 36 (30) | 157 (32.70) |
| Improve infrastructure | 45 (36.9) | 40 (33.9) | 28 (23.33) | 52 (43.33) | 165 (34.38) |
| Provide access to unlimited users | 22 (18.03) | 10 (8.48) | 15 (12.5) | 18 (15) | 65 (13.54) |
| Cooperation of the staff | 30 (20.6) | 24 (20.33) | 33 (27.5) | 36 (30) | 123 (25.62) |
| Promotion of e-journals | 41 (33.60) | 47 (39.83) | 45 (37.5) | 38 (31.67) | 171 (35.62) |

(Multiple answers allowed)

(Percentages are given within parenthesis)

Table 13 reveals as to how the facility of e-journals can be made more efficient. More than half of the respondents (60.83%) quoted that by providing more training programmes for the users, the e-journals usage can be improved. 34.38% respondents felt that by improving the infrastructure for accessing e-journals, the accessibility can be increased. 66 (54.09%) users from PUC, 36 (30%) users from GNDU, 32 (27.11%) users from PAU and 23 (19.17%) respondents from PUP suggested that usage of electronic journals can be improved by improving the speed of Internet. As users are not properly aware of e-journals, 39.83% of users from PAU, 33.60% of users from PUC and 31.67% of users from GNDU indicated that by adopting promotional strategies, e-journals' usage can be increased. Some electronic journals have the access to the limited number of users, according to 22 (18.03%) users from PUC, 18 (15%) users from GNDU, 15 (12.5%) users from PUP and 10 (8.48%) users from PAU revealed that by providing access to unlimited number of users, the usage can improve. 123 (25.62%) respondents from all the university libraries under study stressed that good co-operation from the staff can play a very important role in improving the e-journal usage.

Table 14: Print versus E-Journals: Future Perspective

| University | UNIVERSITIES | | | | Total |
|------------------------|---------------|---------------|---------------|---------------|----------------|
| | PUC | PAU | PUP | GNDU | |
| Fully agree | 49 (40.16) | 35 (29.66) | 42 (35) | 29 (24.17) | 155 (32.29) |
| Partially Agree | 43 (35.24) | 41 (34.74) | 47 (39.17) | 50 (41.67) | 181 (37.71) |
| Disagree | 30 (24.6) | 42 (35.6) | 31 (25.83) | 41 (34.16) | 144 (30) |

(Percentages are given within parenthesis)

Table 14 enumerates the assessment of users regarding strength of electronic journals in fully replacing the printed journals. The data analysis reveals that 49 (40.16%) users from PUC, 42(35%) users from PUP, 35 (29.66%) users from PAU and 29 (24.17%) users from GNDU fully agree with the statement that e-journals can replace the printed journals. 35.6% respondents from PAU followed by 34.16 % respondents from GNDU, 25.83% respondents from PUP and 24.6% respondents from PUC disagree with the statement that e-journals can fully replace the printed journals. Whereas 50 (41.67%) respondents from GNDU partially agree with this statement, followed by PUP, PUC and PAU, i.e., 47(39.17%), 43 (45.24%) and 41 (34.74%) respectively. Overall analysis reveals that 37.71% respondents partially agree, 32.29% respondents fully agree and 30% respondents disagree with this statement.

Findings:

- University/Library website and Friends or Colleagues are the sources of information about the availability of e-journals for 35.83% and 30.83% users respectively. 28.33% users stated that advertisements and Internet surfing are the source of information.
- 77.5% users of total population studied stated that training is very important for accessing e-journals, whereas 22.5% users opined that it is not necessary.
- Library is the centralized place for accessing e-journals for 40.83% users. 32.91% users stated that they access e-journals from their concerned departments.
- The result reveals that research scholars are the main users of e-journals followed by PG students and the faculty members in all the universities.

- Users seem to use the electronic journals to support their research needs mainly. 44.58% users use e-journals for their research work. E-journals are also being used for project works by 25.21% users, for writing papers by 20.83%, for seminars by 16.25% users, for preparing notes by 15.20% and for other works by 5.83% users.
- Only 16.88% users use e-journals occasionally, whereas 41.04% users access e-journals 2-3 times in a week. 21.67% users access e-journals daily and 20.41% users' access e-journals once in a week.
- 33.33% respondents read 3-5 electronic articles in a week, followed by 1-2 articles, 6-10 articles and 11-20 articles by 28.12%, 23.96% and 14.59% of respondents respectively.
- 48.96% respondents indicated that 'lack of training' is the major cause of less usage of e-journals, followed by 'difficult to read from screen' (31.04%), 'lack of infrastructure' (26.25%), 'preference to paper journals' (24.8%), 'not easy to use' (20%) and 'unorganized' (13.33%).
- 37.29% respondents of total population studied, indicated that they are partially satisfied with the facilities provided by their concerned university libraries for accessing e-journals, followed by 36.88% users who are fully satisfied and 25.83% respondents who are dissatisfied with the available facilities.

Suggestions:

- ✓ Authorities of all the universities must ensure better computer infrastructure facilities like improvement of Internet speed, enough number of workstations with Internet connectivity, laser printers, and so on.
- ✓ One of the important features of e-journals is accessibility at various locations. But in case of Indian universities this very purpose is forfeited as access to e-journal is provided within the university premises. Libraries must evolve some mechanism to provide access to e-journals beyond the four walls of the university campuses.
- ✓ Electronic journals require more promotional activities than is currently taking place in university libraries.
- ✓ Every library should have its own website or the organisational web page. In the case of an organisational web page, the library's site must be included at the index page. For a quick and easy access, library should provide e-journals lists, which could be accessed publisher wise, subject wise, or alphabetically.
- ✓ It is highly recommended that libraries should include e-journals in OPAC (Online Public Access Catalog) and the links should be provided to access those e-journals.
- ✓ Every library should also select relevant free e-journals which are available in the public domain and should maintain such a list on their websites.

- ✓ Online tutorials for use of e-journals should be provided on the library website.
- ✓ Regular user training/orientation programmes should be given for the maximum utilisation of electronic journals when they visit the library.
- ✓ Users' studies should be conducted to know about their electronic information needs as well as problems they are facing while searching information through e-journals.

Conclusion: Electronic journals have emerged as major stakeholders in the ecosystem of electronic publishing. These have provided excellent opportunities to access online information resources, which were previously beyond the reach of libraries due to geographical constraints. Currently there is a shift towards e-journals, though the pace is quite slow and user is hesitant in Indian academic libraries. The slow pace of usage is because of some hindrances faced while accessing them which include slow downloading, lack of maintenance, lack of training and lack of infrastructure, etc. But it is expected that e-journals will become more popular when each and every part of the country is connected with the world's Information Super Highway. Users expect their libraries to build and maintain a collection of e-journals while simultaneously maintaining and growing traditional print collections. To cope with the problems of tremendous explosion of information, financial constraints, availability of information in different forms, etc., the resource sharing networks have emerged as important alternatives.

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