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# Use and impact of electronic resources by information science students at Jimma University, Jimma, Ethiopia

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## Abstract

**Purpose** – This paper aims to describe the use of electronic resources and services provided at the social science library of Jimma University, Jimma. The paper is focused to find out the use of those resources by the students of information science and how frequently they are using, from where the information is accessed. Also, they have been requested about their preferences between an electronic and print journal format.

**Design/methodology/approach** – The questionnaire method is used for collecting the data from the undergraduate students of information science (2015/2016 batch). The questionnaire was distributed to 182 students, and the response rate 81.32 per cent was encouraging.

**Findings** – It has been found that the usage of e-journals is increasing; this is due to awareness among the students of information science about the e-resources and services. Owing to an easy access available at various places in the university, they are accessing these resources at hostels and departments more as compared to the library. Their visits to library have decreased.

**Research limitations/implications** – The study has been limited to Jimma University undergraduate students of information science only

**Practical implications** – It suggests for future improvised solutions.

**Originality/value** – The present paper will help other institutions to understand the need for library electronic resources and motivate them to update their resources in the larger interest of the students. The paper also indicates how a suitably designed survey can show the awareness and use of types of information services, in this case, e-journals. There is a dearth of such studies in India and abroad. The methodology and findings can be applied to other libraries to reveal similar trends, as well as comparisons.

**Keywords** Electronic media, E-resources, Electronic journals, Information services, Jimma university, Library users

**Paper type** Case study

## Introduction

Electronic resources have placed themselves at the top priority in academic and research organizations, especially in developing countries. E-resources are not only the necessity of the time, but also have become the face value of any academic institution. The concept of the library is changing very fast due to the impact of e-resources, as the libraries not only have printed material but also digital resources. The technology has forced the library to digitize information. Electronic resources have the advantage of being more current, and sometimes more comprehensive than comparable print equivalents (Pelzer and Wiese, 2006). Veenstra (1987) discussed that major journal publishers such as Elsevier, Springer and Wiley are now making hundreds of individual titles available online back to their very first issues. The titles are often grouped into broad subject categories that include engineering, medicine, biochemistry, agriculture, management and even veterinary science disciplines. Even 15 years ago, it was clear that print journal volumes have much greater potential for clearance of needed shelf space (Veenstra,

1987). Journals use statistics that were once gathered and reported for print journals are being used to lend support for purchase of more e-journals with a corresponding cancellation of print titles (Carrigan and Burford, 2003). The dawn of e-resources has drastically changed the way of accessing the conserved information in databases and provided marvelous speeds for retrieving it. During the past few decades, growth and demand of information has been multiplied many times. With the revolution of e-resources, the activities and operation, which were performed manually, are now being automated, thus enhancing the role and responsibility of librarians.

In an information environment that is dominated by electronic access, users who have the world of knowledge at their fingertips are physically disappearing from librarians' view. Users have become virtual and anonymous. Therefore, obtaining an understanding of the usage of electronic journals and the information-seeking behavior of users is of great importance for both libraries and publishers. Librarians need to know about different aspects of use (including the quantity, patterns and the quality of use) to be able to justify their expanding budgets, improve their services and increase the value they add to their mother organizations (Nicholas *et al.*, 2008). Libraries have used various methods of promoting electronic journals to their users and methods used include

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direct access from the online public access catalog (Chaney *et al.*, 1999).

### About Jimma university

Jimma University (JU) is a public university located in Jimma, Ethiopia. The university campus is located in the city of Jimma, situated around 352 km southwest of Addis Ababa. The establishment of Jimma University dates back to 1952 when Jimma College of Agriculture was founded. The university gets its current name in December 1999, following the amalgamation of Jimma College of Agriculture (founded in 1952) and Jimma Institute of Health Sciences (founded in 1983). Currently, the university has three campuses: the college of Agriculture Veterinary medicine campus which is located next to downtown Jimma, the main campus located in the suburban of the town and Ketofordisa campus. JU library system is an academic library intended to provide updated information resources to the teaching-learning, research and community services. Students, instructors and researchers of colleges/institutions of the university were the main users of the university library system, even though it stands to serve the whole communities of the university.

JU library system includes: Main Library/Social Sciences Library (established in 2004), Agriculture and Veterinary Medicine College Library (1952), Health Sciences Library (1985), Natural Sciences Library (2003), Technology Library (2004), Graduate Studies Library (2004), Law Library (2005) and Female Students Library (2012). Among the above library systems, the largest library system is social science library system. The social science library system provides services for more than 30,000 students. It has different types of collections from print to e-resources. Currently available e-resources are discussed below, which are mostly used by students, faculty and researchers.

### E-Resources – databases, journals and article searching

Mediated links to databases to which the library subscribes and also have access to free resources which are available on the Web. Full-text journals online and other types of e-resources are available through PERI, HINARI and NLM in collaboration with INASP, WHO and NIM. To find journals or journals' articles on a particular topic, appropriate databases can be searched to which the library subscribes or has access to free online. Also, it has a digital library, institutional repository, open access resources access and e-Granary digital library. Other CD ROM databases are also accessible through University Library Reference Department in collaboration with Library computer Network service Department. Other resources can be accessed through the library's online catalog. JU library has ABCD site (portal) with The Essential Electronic Agricultural Library (TEEAL), a digital collection of research journals for agriculture and related sciences. As of now, no library in Ethiopia has e-discovery tools and link-resolver facility. JU library has planned to convert from the existing ABCD software, which is used for most of the services from the library, as an e-discovery tool. (may take time to implement).

Some details about INASP – INASP ([www.inasp.info/en/](http://www.inasp.info/en/)) is an international development charity working with a global network of partners in Africa, Latin America and Asia to improve access, production and use of research information and knowledge, so that countries are equipped to solve their development challenges. In line with the vision of research and knowledge at the heart of development, they work to support individuals and institutions to produce, share and use research and knowledge, which can transform lives. They have projects in 28 countries. By building capacity at individual, institutional, national and international levels, they have seen significant improvement in the research and knowledge sector in many of the countries with which they work. It is a value-driven organization with integrity; openness and transparency; commitment; participation; and valuing our staff. INASP promotes equity by actively addressing the needs of both men and women across all over and addressing issues of power within the research and knowledge system. It is situated at Oxford and also in London.

Also, it is to note that most of the Ethiopian universities are only depending upon the INASP subscriptions. They provide to Africa at concessional rate, being an underdeveloped country. Few libraries in Ethiopia have created institutional repositories like JU, Addis Ababa University and Mekelle University. Even the same conditions apply for digital library provision in Ethiopian university libraries. It is mostly due to lack of manpower, infrastructure and training in the specialized fields. However, the Ministry of Education is currently taking care of the importance of digital collections and the need for creating institutional repositories, which can help other researchers to check for the already done research, to eliminate the duplication and wasting of manpower and time. Even the e-discovery tools are not available, as one has to search individually for each of the resources available in the library either in print or in e-formats.

### Review of related literature

Various studies have been carried out on the use and impact of e-journals in India and abroad. The literature on the use of e-resources and e-journals was studied, and this facilitated the construction of the questionnaire. Dukic and Strišković (2015) examined by analysis of data from 900 students at one Croatian university for the use and perception of e-resources. They found that students use Wikipedia, university websites and university library websites as e-resources. Factor analysis revealed the tendency to use, advantages of using, incentives and reasons for using and prerequisites for using e-resources, which represent the underlying constructs by which students' perceptions of e-resources are classified. The findings further indicated that students only slightly prefer electronic over printed resources, although they highly value the benefits of the use of electronic formats, and they believe that they are well equipped and possess competencies for the effective use of the same. This study extends findings from previous research by placing emphasis on examining the differences, especially at the latent level, between certain groups of students.

Gojeh and Jimma (2015) in their article aimed to find out the effect of JU library system usage and contributions to quality education. It used a cross-sectional research method

with both qualitative and quantitative data collection approaches. The result showed that the available library materials, both hard and soft copies, were underutilized by the instructors and students. The services provided by the library system were found not meeting the needs of majority of the respondents, being a factor that impact negatively on quality education in JU. Thus, the study strongly recommended the use of library to its full potential to deliver quality education. It also strongly recommended that the library system improves its services, upgrading the library system's facilities and transform the library to the twenty-first century library and provides all services to its patrons. Dongardive (2015) in his article examined the use of electronic information sources (EIS) by teaching faculties. The survey was administered among the academic community with the observation and informal interviews at the College of Dry Land Agriculture and Natural Resources of Mekelle University in 2014. Structured questionnaire was given to 176 teaching faculties to find out the frequency, purpose of use, frequently used EIS, methods of learning to use EIS, benefits of EIS, constraints faced and the satisfaction level of use of EIS. It was suggested to strengthen the existing EIS sources and services and to maximize the use of EIS.

Chauhan and Preeti (2014) assessed the social science faculty working in Indian universities; those have been using e-resources. Tried to find out the problems they are facing in accessing them, and what are the efforts made by INFLIBNET (Information Library Network) to spread awareness about such an ambitious initiative of UGC among social science faculty members. It also highlighted some important issues with respect to use, acceptance and planning of this UGC Infonet consortium. Zabed Ahmed (2013) studied the pattern of electronic information resources' use and satisfaction with university-paid resources by the faculty members in eight public universities in Bangladesh. An online questionnaire was used to assess the contemporary use and satisfaction. The major constraints faced by them in accessing online resources were also identified. To analyze the influence of demographic characteristics on overall satisfaction with e-resources, Mann-Whitney and Kruskal-Wallis tests were carried out. The constraints faced by the faculty members were tested in relation to their opinions on overall satisfaction using chi-square tests. The results showed that they are not generally satisfied with the current level of university subscribed e-resources. They identified limited number of titles, limited access to back issues, difficulty in finding information, inability to access from home, limited access to computers and slow download speed as major constraints. These constraints do affect e-resources' use in the public universities. However, these constraints are mainly related to the poor IT infrastructure and limited access to e-resources, which may also lead to other constraints such as an unwillingness to use the resources regularly, and consequently low satisfaction with such resources. This study could be used to assess faculty needs for electronic resources which may also lead to a more dynamic interaction with such resources.

Sivathaasan and Velnamby (2013) used the correlation and regression model to test the operational hypotheses and results that revealed the usage of e-resources has a strong positive association with academic performance ( $r = 0.623, p < 0.01$ ).

Multiple regression analysis showed that the usage of e-resources has an impact on academic performance at the rate of 38.8 per cent ( $R^2 = 0.388$ ), which is statistically significant at the levels of 0.01 ( $p < 0.01$ ). In addition to Toteng *et al.* (2013), study has shown that the undergraduate law students did use most of the electronic databases that the library subscribed to. The databases that the students used most were OPAC, Juta Publications and EBSCOhost.

Lamothe (2012) reported the results of a quantitative analysis examining factors affecting electronic journal usage at the J.N. Desmarais Library of Laurentian University. This study covered an 11-year period from 2000 to 2010. The number of full-text articles downloaded was compared to the size of the e-journal collection, the number of students and the number of faculty members at the university, all of which exerted varying degrees of influence on the rate of use of e-journals. Pearson's product-moment correlation coefficients were calculated to determine the strength of any existing linear relationship. Although the size of the e-journal collection did impact its level of use, there seems to be a "critical mass", which, once reached, will slow or stop any further increase in usage. Among the student population, the number of doctoral students demonstrated the strongest linear relationship to the use of the e-journal collection, while the undergraduate population showed the least strong linear relationship. Faculty members were important users of the library's e-journal collection, but the linear relationship was not as strong as that observed for graduate students. In fact, faculty members demonstrated the least strong linear relationship of all segments of the Laurentian University community. It may be wise for the library to consult not only its faculty members, but also its graduate students when seeking advice on collection building and management.

Patrick (2012) explored the impact of fiber optic network and e-resources access for libraries in Malawi using interview method with ICT directors in colleges of the University of Malawi and Mzuzu University. They provided information on bandwidth levels and estimated costs for libraries using VSAT and fiber optics for internet connectivity. User statistics from INASP for the years 2006, 2011 and 2012 were the main sources of information. It has been found that libraries in Malawi have been affected by the fiber optic network. Bandwidth costs have been reduced from an average of US\$3,000/Mbps in 2006 to around US\$1,700/Mbps per month in 2012. The number of articles downloaded has increased from 6,075 in 2006 to 50,860 in 2011, representing a 737 per cent increase. Half-year statistics for 2012 reveal that the number of articles downloaded increased from 50,860 in 2011 to 81,633, representing a 60.5 per cent increase. There is an information gap on the impact of fiber optic internet connectivity and improved bandwidth on access to e-resources in libraries in Africa, and in Malawi to be specific. This research paper seeks to fill and bridge the gap.

Obasuyi and Usifoh (2012) did a comparative analysis of EIS utilized by pharmacy lecturers in South-South universities in Nigeria. The aim is to explore the emerging pattern of utilizing EIS and to identify critical factors influencing effective usage of EIS to assist the universities in planning and managing EIS for the benefit of faculty members. Survey research method was adopted in this study. The questionnaire

was the instrument used to collect data by simple random sampling of pharmacists in the various universities. All the different categories of pharmacy lecturers were randomly selected for this study. An emerging pattern of EIS utilization indicates that majority of pharmacy lecturers rate EIS very important and their level of usage was high, and they use EIS daily. They use diverse EIS, especially Web, to perform different tasks of teaching and research. Chi-square statistics indicate that there is no significant difference in most of the variables tested. However, academic qualification influenced the task performed by the lecturers, and task performed influenced the utilization of EIS.

Zhang *et al.* (2011) have investigated the user's information behavior at seven "211 Project" universities in Wuhan, a city in central China. These universities all have access to the resources of the National Science and Technology Library (NSTL). The questionnaire includes questions about respondents' basic identifying information (educational level, job, etc). and their information service requirements. Correlations among users' education level, users' jobs, users' retrieval methods, literature use, etc. were analyzed. The results show that most NSTL users are graduate students and young staff members. The purpose of the utilization of electronic resources for customers is scientific research, teaching and the need for self-development. The users' knowledge service types include learning the progress of science and technology, citation retrieval and analysis, statistical analysis, intelligent retrieval and knowledge aggregation. The findings suggested that electronic resource producers should offer more foreign literature, and providers should improve the quality of services.

E-journals awareness and use among research scholars of the Central Science Library, University of Delhi, was investigated by Ali and Nisha (2011). The findings of the study revealed that more than 60 per cent of users in the Central Science Library are using e-journals weekly for the purpose of research. Print journals are consulted by the majority of users as compared to e-journals. Squires *et al.* (2010) at the Health Sciences Library (HSL), University of North Carolina (UNC) at Chapel Hill tried to find out the percentage of articles valuable to UNC faculty, students and staff readily available and accessible online. The survey results disclosed that 78 per cent of the 400 articles selected are available online. The two most significant reasons that 88 of 400 are not available are: HSL does not have licensed access to the electronic journal and title or HSL coverage for the title begins later than the year in which the article was published. The findings suggested that the probability of online availability can most easily be increased by continuing to expand access to more journal titles and to greater coverage for journal titles already subscribed to. Tenopir *et al.* (2009) sought to examine how faculty members in science, technology, medicine and social sciences from 1977 to the present located, obtained, read and used scholarly articles, and how this had changed with the widespread availability of electronic journals and journal alternatives. The paper found that the average number of readings per year per science faculty member continued to increase, while the average time spent per reading was decreasing.

Moghaddam and Talawar (2008) investigated the use of scholarly e-journals at the Indian Institute of Science (IISc). The results of the survey reflect a growing interest in e-journals among users at IISc. The results showed a growing interest in e-journals among users at IISc. Electronic journals were mostly used for research needs, and PDF was the most preferred format. The fact that users have free access to e-journals at all times from their own computers seems to be the most appealing feature. Some studies have focused on electronic journal use at a particular institution – often with an interest in assessing acceptance of the digital format and the impact of canceling subscriptions to printed journals.

## Objectives

There has been a glaring lack of studies to know the use of electronic information resources by users in many institutions/libraries in the world. This study was carried out in the JU, Jimma, Ethiopia, and its main objectives were, thus, to find out the following:

- the use and awareness about library electronic resources by the users;
- the frequency of use of e-resources;
- the place from where users access electronic information;
- the impact of e-resources on usage and collection;
- to find out the barriers that would discourage users from using e-resources; and
- to suggest ways and means for the effective use of e-resources.

It is anticipated that the present study will help other institutes to understand the need of library electronic resources and motivate them to update their resources in the larger interest of the students, faculty and research scholars.

## Scope and methodology

Literature reviewed signifies that an overall evaluation of any program is very important and the same is the case with the use of e-resources, which caters to the scholarly information needs of students. Hence, in this study, an effort is being made to evaluate the utilization of e-resources, especially available under the social science library of JU. The present study is restricted to the undergraduate information science students of JU (2015/2016 batch). The survey method was selected, as this is the most appropriate design tool to obtain a large sample. It relies on a questionnaire instrument, which is the most common method used in social science research, including library and information science. Data collection was made by directly administering questionnaires (as in Appendix) to undergraduate students in the JU during the academic year 2015–2016 to know from them to which extent they are using their libraries' electronic library resources and services. The questionnaire was distributed and collected personally from the users at various places within the institute, including class room, libraries, hostels, departments, computer centers and other campus settings. The total population of the survey was 182, which includes all undergraduate information science (first, second and third year) students of JU. Totally, 182 questionnaires (65 + 65 + 52 students) were distributed, and 148 (81.32 per cent) students have completed and returned the questionnaires.

Overall, the response rate was encouraging. The analysis and interpretation of the data gathered through questionnaires distributed to target users is presented in the following sections.

## Results and discussions

It deals with analysis, results, interpretation and discussion of data collected from respondents. Data analysis is a practice in which raw data is organized so that useful information can be extracted from it. Electronic resources are invaluable research tools which complement print-based resources in any traditional library (Dadzie, 2005). A total of 182 questionnaires were distributed among the students of information science, and 148 dully filled questionnaires were received back, thus resulting into response rate of 81.32 per cent. Table I shows the total number of students' responded (gender-wise) and the response rate.

From Table I, it is found that 97 (65.5 per cent) male students have responded and 51 (34.5 per cent) of female students have responded.

From the questionnaire, it was requested about the awareness about the different types of e-resources. The data received (multiple answers) from 148 students (97 male and 51 female) is given below in Table II.

From the above Table II, it is found that students are aware of e-resources. They use maximum of e-thesis 128 (86.5 per cent), next being INASP DBs 126 (85.1 per cent), then e-books 115 (77.7 per cent), e-journals 110 (74.3 per cent), digital library 97 (65.5 per cent) e-databases 93 (62.8 per cent) and then institutional repository resources 90 (60.8 per cent), etc. and least used one is newspapers by the students.

Table I Number of students responded per classes (gender-wise)

| Gender | First year | Second year | Third year | Total      |
|--------|------------|-------------|------------|------------|
| Male   | 41         | 50          | 31         | 122        |
| Female | 24         | 15          | 21         | 60         |
| Total  | 65         | 65          | 52         | 182        |
| Gender | First year | Second year | Third year | Total (%)  |
| Male   | 30         | 41          | 26         | 97 (65.5)  |
| Female | 18         | 14          | 19         | 51 (34.5)  |
| Total  | 48         | 55          | 45         | 148 (81.3) |

Note: Total Number of students in the classes

Table II Use and awareness of different types of e-resources

| Serial no. | E-resources              | Male | Female | Total (%)  |
|------------|--------------------------|------|--------|------------|
| 1          | E-books                  | 70   | 45     | 115 (77.7) |
| 2          | E-journals               | 60   | 50     | 110 (74.3) |
| 3          | E-maps                   | 10   | 10     | 20 (13.5)  |
| 4          | E-thesis                 | 81   | 47     | 128 (86.5) |
| 5          | E-newspapers             | 2    | 3      | 5 (3.3)    |
| 6          | E-databases              | 50   | 43     | 93 (62.8)  |
| 7          | E-reports                | 4    | 2      | 6 (4.0)    |
| 8          | CD ROMs                  | 5    | 1      | 6 (4.0)    |
| 9          | Digital library          | 50   | 47     | 97 (65.5)  |
| 10         | Institutional repository | 50   | 40     | 90 (60.8)  |
| 11         | INASP DBs                | 80   | 46     | 126 (85.1) |

It was requested about the frequency of the use of e-resources. The data received from 148 students are given below in Table III.

The same is given as bar diagram below (Figure 1).

It is very clear that students are using e-resources daily for their learning and research. The question was requested about the place of accessing the e-resources. The response is given below in Table IV.

It was also requested about the use of e-resources in the questionnaire. The collected response is given below in Table V.

It is found that most of the students use e-resources for (preparation for) presenting a paper, 148 (100 per cent); second being for research, 140 (94.6 per cent), as it is more informative, 126 (85.1 per cent); keeping up to date in the subject, 90 (60.8 per cent), etc. The same is depicted as bar diagram below (Figure 2).

Response for the query related to barriers for accessing/using e-resources has been collected from the students. The response is given below in Table VI.

It is found from Table VI that the major barrier, 110 (74.3 per cent), being difficult to find relevant information, due to the information overload and second being lack of familiar with searching techniques 92 (62.2 per cent) by the students. Also, the library professionals are not assisting the students 75 (50.7 per cent), frequent power cuts 45 (30.4 per cent), system availability 39 (26.3 per cent), bandwidth, etc are all

Table III Frequency of use of e-resources

| Serial no. | Using e-resources | Male | Female | Total (%)  |
|------------|-------------------|------|--------|------------|
| 1          | Daily             | 80   | 47     | 127 (85.8) |
| 2          | 2-3 times a week  | 2    | 1      | 3 (2.0)    |
| 3          | Once in a week    | 2    | 1      | 3 (2.0)    |
| 4          | Monthly           | 1    | 1      | 2 (1.4)    |
| 5          | Occasionally      | 12   | 2      | 14 (9.4)   |

Figure 1 Frequency of use of e-resources

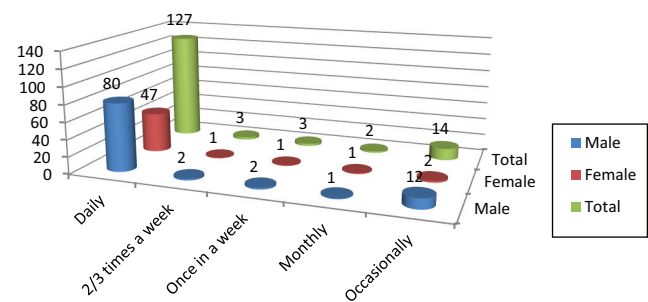


Table IV Place of access of e-resources

| Serial no. | Place of access | Male | Female | Total (%)  |
|------------|-----------------|------|--------|------------|
| 1          | Library         | 80   | 40     | 120 (81.1) |
| 2          | Class room      | 1    | 1      | 2 (1.4)    |
| 3          | Hostel          | 1    | 1      | 2 (1.4)    |
| 4          | Computer center | 10   | 5      | 15 (10.0)  |
| 5          | Home            | 5    | 4      | 9 (6.1)    |

Table V Use of e-resources

| Serial no. | Use of e-resources for/as     | Male | Female | Total (%)   |
|------------|-------------------------------|------|--------|-------------|
| 1          | Research                      | 90   | 50     | 140 (94.6)  |
| 2          | Writing articles              | 10   | 20     | 30 (20.2)   |
| 3          | Teaching (peer learning)      | 60   | 10     | 70 (47.2)   |
| 4          | Keeping up to date            | 50   | 40     | 90 (60.8)   |
| 5          | Present a paper (preparation) | 97   | 51     | 148 (100.0) |
| 6          | Time saving                   | 2    | 1      | 3 (2.0)     |
| 7          | Easy to use                   | 6    | 4      | 10 (6.8)    |
| 8          | More informative              | 78   | 48     | 126 (85.1)  |
| 9          | Job related                   | 34   | 20     | 54 (36.4)   |

Figure 2 Use of e-resources

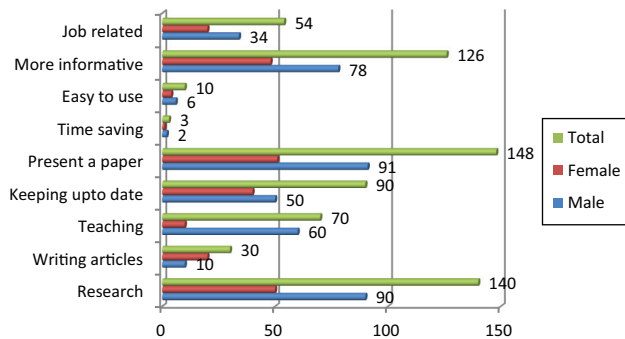


Table VI Barriers for accessing e-resources

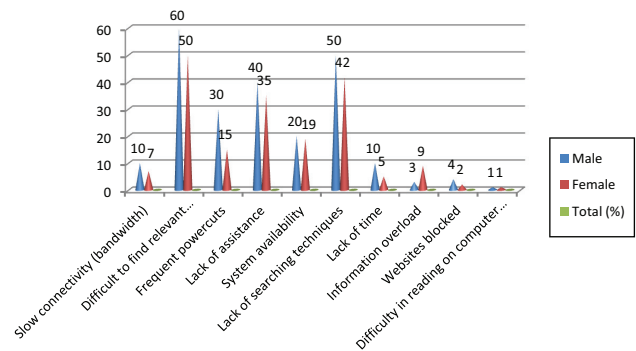
| Serial no. | Barriers for accessing e-resources       | Male | Female | Total (%)  |
|------------|--|------|--------|------------|
| 1          | Slow connectivity (bandwidth)            | 10   | 7      | 17 (11.5)  |
| 2          | Difficult to find relevant information   | 60   | 50     | 110 (74.3) |
| 3          | Frequent power cuts                      | 30   | 15     | 45 (30.4)  |
| 4          | Lack of assistance                       | 40   | 35     | 75 (50.7)  |
| 5          | System availability                      | 20   | 19     | 39 (26.3)  |
| 6          | Lack of searching techniques             | 50   | 42     | 92 (62.2)  |
| 7          | Lack of time                             | 10   | 5      | 15 (10.1)  |
| 8          | Information overload                     | 3    | 9      | 12 (8.1)   |
| 9          | Websites blocked                         | 4    | 2      | 6 (4.0)    |
| 10         | Difficulty in reading on computer screen | 1    | 1      | 2 (1.4)    |

the barriers for accessing the e-resources. The same is given below as bar diagram in Figure 3.

The benefits of using e-resources have been requested in the questionnaire. The students' response is given below as Table VII.

From Table VII, it is clear that students are benefitted due to the 24-hour availability of e-resources access (72.3 per cent) and also quick access to the back issues (65.5 per cent). The students informed that they are benefitted by searching (37.8 per cent) and without taking photocopy (37.1 per cent) of the resources needed. It is noted that there are different information sources such as electronic books, printed journals, electronic journals, digital library, institutional repository, websites and other resources, and they feel comfortable for accessing them without going to the library.

Figure 3 Barriers for accessing the e-resources



### Findings and discussions

From the above data of tables and graphs, it is found that the following findings can be concluded, which are as follows:

- More number of male students (65.5 per cent) are accessing the e-resources than female students (34.5 per cent).
- Most of the students use maximum thesis and dissertations (86.5 per cent), then the INASP databases, etc. It shows that they are searching mainly for doing research and further studies.
- It is found that students use the e-resources daily (85.8 per cent). It shows that they spend more time for getting the latest information for learning and research.
- Students are accessing the e-resources from the library mostly (81.1 per cent) and next from computer center (10 per cent). It shows library is the most preferred place (comfortable) for accessing the e-resources, and also, the library is well equipped with calm and good atmosphere.
- Students use the e-resources mostly for preparation of assignments/preparing papers for presentation (100 per cent), second for research (94.6 per cent) and for keeping up to date with the latest information, which shows that they are very keen in their studies and then for their research activity.
- They are benefited as the e-resources are available all the time and possibilities of accessing quickly even the back issues.
- Students informed that to find the relevant information is the main barrier (74.3 per cent), due to the lack of searching techniques (62.2 per cent) and information overload.

### Discussions

Based on data suggested by the respondents and on the findings from the above, the following suggestions are put forward to improve and maximize the optimum use of e-resources among the students.

- Libraries should have information literacy/training program for the searching techniques from different types of databases/e-resources for the students, whenever new students are admitted, which has been suggested by many students in the questionnaire.
- The library should have more number of terminals to use by the students.

Table VII Benefits of using e-resources

| Serial no. | Benefits of using e-resources                | Strongly agree (%) | Agree (%) | Disagree (%) |
|------------|--|--------------------|-----------|--------------|
| 1          | Accessible 24 hours a day                    | 107 (72.3)         | 30 (20.3) | 1 (0.7)      |
| 2          | No need to go the library                    | 50 (33.8)          | 60 (40.5) | 48 (32.4)    |
| 3          | Quick access to back issues                  | 97 (65.5)          | 37 (25.0) | 4 (2.7)      |
| 4          | Mostly hyperlinks to outside contents        | 50 (33.8)          | 40 (27.0) | 58 (39.2)    |
| 5          | Many e-resources at one place                | 42 (28.3)          | 38 (25.7) | 68 (45.9)    |
| 6          | No need for photocopy                        | 55 (37.1)          | 40 (27.0) | 53 (35.8)    |
| 7          | Prefer searching than browsing each resource | 56 (37.8)          | 52 (35.1) | 40 (27.0)    |

- There should be a power backup facility which enables to have continuous access to the e-resources.
- The internet bandwidth should be of very high speed, as now-a-days most of the students are interested to learn the open educational resources through YouTube or other technology.
- It has been suggested that library may buy the e-discovery tools for accessing all e-resources at one stroke, instead of searching individually.
- The need for more qualified staff with better exposure to modern technological devices to assist users when they face problems in accessing e-journals should be stressed.
- Wi-Fi facility may be extended with high bandwidth facility for accessing the e-resources.
- One reference librarian may be made available for consulting anytime in the library.
- Further research can be done by using more number of students and also faculty after having the power backup, information literacy training to all, with high-speed internet bandwidth. It may give still better results for the use of e-resources.

## Conclusion

The study results show that users who participated in this survey are aware of e-resources. Most of them used these e-resources in support of research and publishing articles in the form of research papers, assignments and for manuscripts. It is necessary that the library professionals should teach their users about various search strategies and organize orientation sessions regularly. The study also shows that slow downloading is the major obstacle while using e-resources. Increased availability of computer systems is required, and internet speeds should be enhanced to the desired level. Users prefer or give much more importance to e-resources as compared to their print counterparts. The usage of e-resources is a major source of communication and information in present world. Libraries around the world are fast transforming into digital libraries and virtual learning resource centers. It is important that JU may maintain the social science library (being the main library) web page with all necessary technology with e-resources for the effective use of information in higher education and research with few tools for using them. A large portion of user is aware about subject gateways, but they do not know all its techniques and applications. Further, a few students of the university still have no knowledge about the consortiums journals. It is a fact that library authorities have become aware of the changes that e-resources have brought to libraries, so they are trying to

provide and develop collection development policies that may guide electronic resource management in a better manner. It is important that library professionals should be proactive in working with the academic community to develop training programs aimed at enabling them to use e-resources effectively and efficiently, as the number of users coming to the library has increased.

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### Further reading

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## Appendix

(The aim of this survey is to gather data about the “Use and impact of electronic resources by Information science students at Jimma University, Jimma, Ethiopia”. I would be grateful to you, if you could kindly spend some time and fill the following survey. Multiple choices of answers are allowed, wherever possible. It will be kept strictly confidential.)

\*Please mark your answers within the box

1. Name : \_\_\_\_\_
2. Gender : Male  Female
3. Year of study : 1<sup>st</sup> year  2<sup>nd</sup> year  3<sup>rd</sup> year
4. Are you aware of the e-resources? If so, mark even multiple answers, wherever required.
 

|   |                                       |  |
|---|---------------------------------------|--|
| E-Books <input type="checkbox"/>                  | E-Journals <input type="checkbox"/>   | E-Maps <input type="checkbox"/>          |
| E-Thesis <input type="checkbox"/>                 | E-Newspapers <input type="checkbox"/> | E-Databases <input type="checkbox"/>     |
| E-Reports <input type="checkbox"/>                | CD-ROMs <input type="checkbox"/>      | Digital Library <input type="checkbox"/> |
| Institutional Repository <input type="checkbox"/> | INASP DBs <input type="checkbox"/>    |  |
5. How frequently you are using the e-resources?
 

|                                  |   |                                       |
|----------------------------------|---|---------------------------------------|
| Daily <input type="checkbox"/>   | 2-3 times a week <input type="checkbox"/> | Once in week <input type="checkbox"/> |
| Monthly <input type="checkbox"/> | Occasionally <input type="checkbox"/>     |                                       |
6. Where do you access the e-resources mostly?
 

|  |                                     |                                 |
|--|-------------------------------------|---------------------------------|
| Library <input type="checkbox"/>         | Class room <input type="checkbox"/> | Hostel <input type="checkbox"/> |
| Computer Centre <input type="checkbox"/> | Home <input type="checkbox"/>       |                                 |

7. For what purpose do you use (impact) the e-resources?

- |   |   |                                      |
|---|---|--------------------------------------|
| For Research <input type="checkbox"/>       | For writing articles <input type="checkbox"/> | Teaching <input type="checkbox"/>    |
| Keeping up to date <input type="checkbox"/> | Present a paper <input type="checkbox"/>      | Time saving <input type="checkbox"/> |
| Easy to use <input type="checkbox"/>        | More informative <input type="checkbox"/>     | Job related <input type="checkbox"/> |

8. What are the problems /barriers you find for accessing the e-resources?

- |  |   |
|--|---|
| Slow connectivity <input type="checkbox"/>   | Difficult to find relevant information <input type="checkbox"/>   |
| Frequent power cuts <input type="checkbox"/> | Lack of assistance <input type="checkbox"/>                       |
| System availability <input type="checkbox"/> | Lack of searching techniques <input type="checkbox"/>             |
| Lack of time <input type="checkbox"/>        | Information overload <input type="checkbox"/>                     |
| Websites blocked <input type="checkbox"/>    | Difficulty in reading on computer screen <input type="checkbox"/> |

9. What are the benefits of using e-resources? Please mark even multiple answers.

- |   |  |
|---|--|
| Accessible 24*7 <input type="checkbox"/>                              | No need to go to Library <input type="checkbox"/>              |
| Quick access to back issues <input type="checkbox"/>                  | Most of the links to outside contents <input type="checkbox"/> |
| Many e-resources at one place <input type="checkbox"/>                | No need for photocopying <input type="checkbox"/>              |
| Prefer searching than browsing each resource <input type="checkbox"/> |  |

10. Any suggestions / comments, please mention below:

*(Thanks for your kind co-operation)*

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