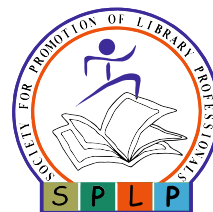


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# Journal of Information Management



# JIM – Journal of Information Management

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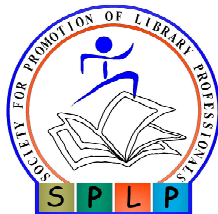
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## **Authorship Behavior in the Articles Appeared in Library Philosophy and Practice**

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### **ABSTRACT**

This article presents a study about the authorship behavior and the collaboration pattern for the articles that appeared in the journal Library Philosophy and Practice during 2011-2016. The Zipf's law of word occurrence and Lotka's law are tested for this research. Further, the collaboration index, degree of collaboration, average paper per author, average author per paper, national and international collaboration is investigated for the period of study.

**Keywords:** Authorship pattern, Collaboration pattern, Productivity per author (PPA), Degree of collaboration (DC), Collaboration index (CI), Lotka's law, Zipf's law, Average author per paper (AAPP)

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### **INTRODUCTION**

In recent, due to the quality in science and technologies most of the countries and research institutions are facing difficulties in getting the sufficient research budgets and the right human resources. As a solution to this complexity, collaborative/team research is being promoted over individual research in every field of research. In this way, in recent research word the collaboration has become an important part of work mechanism (Olmeda-Gomez et al., 1986). Nowadays, the research in various fields of science, technology, social science and humanities has got special attention through mutual participation of researchers in a coordinated manner in order to solve the problem collectively. Several studies are carried out to analyse the behavior of various collaboration parameters including DC, CC, CI, AAPP, Lotka's Law and Zipf's Law etc. The considerable impact of collaborative research with the suitable use of human and natural resources is noted through these studies.

Neelamma and Anandhali (2018) studied research collaboration and authorship patterns in the field of crystallography research articles. It covers 45320 articles during the period 1989-2013. Collaborative index, authorship pattern, degree of collaboration, collaborations pattern are studied. A correlation is found between the number of papers and authors. Multiple authored papers are more popular against single authored papers. The data is verified by the Kolomogorov-Simonov test. After data verification it is found that crystallography literature does not follow the law of Lotka's. Positive correlation is found in this study. Shivankalai (2016) carried out a study about collaboration in the field of quality management research and authorship pattern in the continent Africa from 1991-2016 and the average degree of collaboration of authors is 8.66. It was found that the literature in quality management is gradually increasing. Mandalia (2021) presented the authorship pattern and the degree of collaboration in 1941 public health

research papers authored by 12523 authors from year 2011 to 2020 from SCOPUS database. The research is focused on authorship pattern, chronological growth, and productivity check by citation received, bibliometric laws, Bradford's law, Degree of collaboration, CAI and RGR. The software used are MS-excel, bibliometrix, and biblioshiny. The average yearly research articles contributed is 194 and average collaboration index is 5.60. RGP (P) is 0.34. Prabhakaran D. was the most prolific author with 260 articles and received 4958 citations too. Balasubramani and Kohila (2018) examined the pattern of authorship of research output on big data and collaboration by the scientists who have contributed in the field of research output. The period of research was 1998-2017. Total 10641 research publications are approved in 20 years. 27900 authors have contributed for 3139 research journals in 10641 research publications. Authors are from 109 countries. Viswanath and Tamizhchelvan (2016) studied papers on spacecraft from period 2000-2014. The study covers 258861 publications. The average no. of publications per author and average number of authors per paper is 0.24 and 4.14 respectively. Most of the work is collaborative work as compared to single author contributions. Out of total publications, 14.78% publications are single authored and 85.22% publications are multi authored publications. Multi authored papers got more citations as compared to single authored papers.

Motivated through the above research, we have framed some objectives and goals to be achieved through the study of various collaborative parameters and tested the data of the journal Library Philosophy and Practice (LPP) published during 2011-2016.

## OBJECTIVES

The present study includes the following objectives:-

1. To determine authorship patterns for the articles in LPP journal during 2011-2016.
2. To calculate the measures of collaborations, CI, CC, and MCC.

3. To test Zipf's law of word occurrence and applicability of Lotka's law.
4. To examine the trends and type of collaborations like intra institute, inter institute, national and international collaborations.
5. To find the most prolific author, most prolific paper, most prolific country, most prolific institute, AAPP, and PPA for articles.

## METHODOLOGY

The following mathematical approach is employed to obtain the projected goals and objectives of this research article.

### Degree of Collaboration (DC)

Subramanyam (Subramanyam, 1983) has provided the following formula for degree of collaboration (DC).

$$DC = \frac{N_m}{N_m + N_s} \text{ OR } DC = 1 - \frac{f_i}{N}$$

$N_m$  = Total Multi Authored papers,  $N_s$  = Total single authored papers.

$f_i$  = No. of articles with  $i$  authors in  $k$  collection and  $N$  = Total articles in  $k$

### Collaboration Index (CI)

Lawani (Lawani, 1980) has given the following formula for collaboration index.

$$CI = \frac{\text{Total authors}}{\text{Total joint papers}} \text{ OR } CI = \frac{\sum_{j=1}^A j f_j}{N}$$

where,  $f_j$  = the no. of articles having  $j$  authors in  $k$  collections;

$N$  = total no. of articles in collection  $k = \sum j f_j$ ;  $A$  is no. of authors in  $k$ .

### Collaboration Coefficient (CC)

The formula for collaboration coefficient (CC) is given by Ajiferuke *et al.* (1988).

$$CC = 1 - \frac{\sum_{j=1}^A \left(\frac{1}{j}\right) f_i}{N}$$

where,  $f_i$  = Number of articles with  $j$  authors in the collection  $k$ ;

$N$  = Total articles in  $k = \sum j f_j$ ;  $A$  = total authors in the collection  $k$ .

### Modified Collaborative Coefficient (MCC)

The MCC calculation formula is given by Sarvanur and Srikanth in the year 2010.

$$\kappa = \frac{A}{A-1} \left\{ 1 - \frac{\sum_{j=1}^A \left(\frac{1}{j}\right) f_i}{N} \right\},$$

where, = no. of articles with  $j$  authors in  $k$  collection;

$N$  = no. of articles in  $k = \sum j f_j$ ;  $A$  = no. of authors in  $k$  collection.

The above equation is not defined for  $A = 1$  because collaboration is possible if there are a minimum two authors. Also,  $CC$  tends to  $MCC$  for  $\rightarrow \infty$  otherwise  $MCC$  is always greater than  $CC$  with the factor

$$\left(1 - \frac{1}{A}\right) \text{ (Sarvanur and Srikanth, 2010).}$$

### Zipf's law of word occurrence

It provides a relationship between frequency of occurrence of the event and its rank.

The mathematical expression for Zipf's law is:

$$f(k; s, N) = \frac{1/k^s}{\sum_{n=1}^N 1/n^s}$$

where,  $N$  = No. of elements,  $k$  is rank, and  $s$  is the exponent characterizing the distribution. In the frequency of different words in English,  $N$  represents the total number of words.

### Lotka's law (authorship productivity)

The Lotka's law is an important law of bibliometrics. This law mainly deals with the authors publishing

articles in a specific discipline and number of articles published in that area. Therefore, it provides the frequency of the publications by the researchers in a given field and defined by the formula:

$$L_T = \frac{K}{X^n}$$

where,  $L$  =No. of researchers with  $T$  (1, 2, 3, 4...) papers

$K$  = total authors with single paper,  $j$  = rate (usually  $j=2$ )

### Data Analysis and Data Interpretations

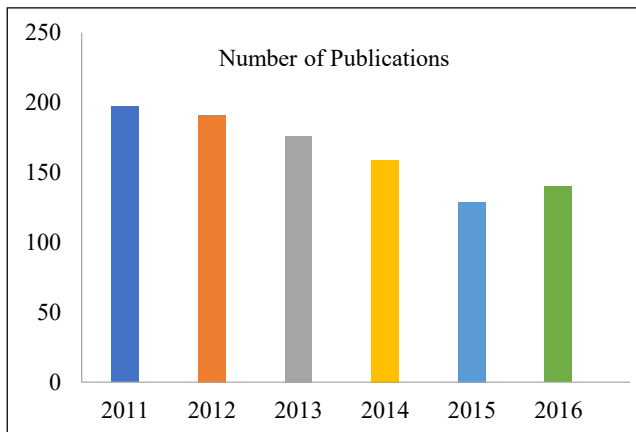
LPP is a well-established reputable journal in the area of library and information sciences. It was found that total 992 papers are contributed by 1879 authors in the journal in LPP during the period 2011-2016. The collected data is interpreted with the help of tables, figures and studied as per the objectives.

#### 1. Distribution of publications of LPP (Year wise)

The Table 1 presents data about year wise contribution of 992 articles by authors during these six years. About 197 (19.85%) articles are published in the year 2011, 191 (19.25%) in 2012, 176 (17.74%) in 2013, 159 (16.02%) in 2014, and 129 (13 %) in 2015 and (14.11%) in 2016. It is observed that the number of publications is continuously decreasing during the period 2011-2015 with a small increment in 2016. It is noted that the maximum number of 197 articles (19.85%) are produced in the year 2011 whereas 2015 has minimum of 129 (13%) research articles.

**Table 1: Distribution of publications of LPP (Year wise)**

Year	No. of Publication	Percentage
2011	197	19.85
2012	191	19.25
2013	176	17.74
2014	159	16.02
2015	129	13.00
2016	140	14.11
Total	992	



**Figure 1: Distribution of publications of LPP (Year wise)**

The Figure 1 shows the distribution of the number of articles of LPP from 2011 to 2016.

## 2. Distribution of authors (Year wise)

The Table 2 shows distribution of total 1879 authors contributed during the period of study. It is observed that during the year 2011 maximum of 346 authors

**Table 2: Distribution of authors of LPP (Year wise)**

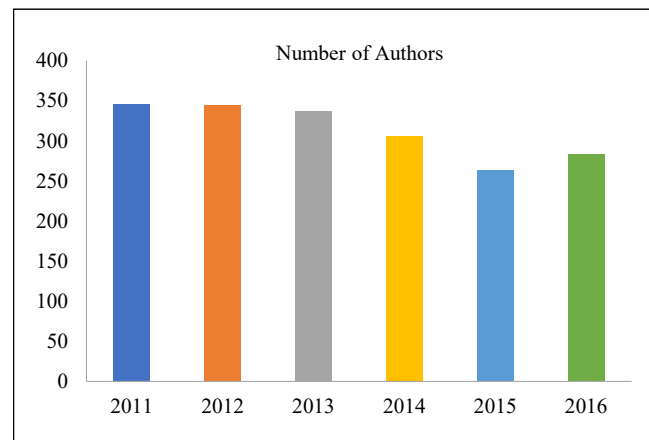
Year	No. of authors	Percentage
2011	346	18.41
2012	344	18.30
2013	337	17.93
2014	306	16.28
2015	263	13.99
2016	283	15.06
Total	1879	

(18.41%), and during the year 2015 minimum numbers of 263 (13.99%) authors have contributed to LPP. Further, in the year 2012 about 344 (18.30%) authors, in 2013 about 337 (17.93%) authors, and in 2014 about 263 (13.99%) authors are recorded. It is noted that there is a continuous decrease in the number of contributors during the years 2011 to 2015 and increased in 2016.

The Figure 2 shows distribution of the number of authors year wise of the journal LPP.

## 3. Authorship Productivity

The Table 3 presents the authorship pattern with distribution of number of authors over the years 2011-2016. Table also presents value of the indicators DC, CI, CC, and MCC. It is noted that during these six years 376 single authored, 378 double authored, 188



**Figure 2: Year wise number authors contributing for LPP**

**Table 3: Authorship pattern, DC, CC and CI of LPP**

	Single authors	Two authors	Three authors	Four authors	Five authors	Exceeding five authors	DC	CI	CC	MCC
2011	84	79	28	5	0	0	0.57	2.33	0.38	0.38
2012	80	77	28	4	2	0	0.58	2.37	0.33	0.33
2013	64	73	33	7	0	0	0.63	2.41	0.36	0.36
2014	61	52	33	8	2	0	0.60	2.57	0.37	0.36
2015	37	51	30	6	2	0	0.70	2.28	0.32	0.32
2016	50	46	36	7	1	0	0.64	2.02	0.31	0.31
Total	376	378	188	37	7	0				

triple authored, 37 four authored, and only 7 five authored articles are contributed appeared. The largest numbers of 378 articles are double authored.

### 3. DC, CI, CC and MCC of LPP

The maximum and minimum values of DC, CI, CC, and MCC are obtained in Table 3.

The Figure 3 shows the authorship pattern with the number of single and multiple authors in the six years period from 2011–2016.

### 4. AAPP and PPA

The values of AAPP and PPA are computed in Table 4. It is observed that the value of AAPP is greater than 1 and PPA is less than 1. The largest value of AAPP is 2.03 in year 2015 and minimum value of AAPP is 1.75 in the year 2014. The maximum value of PPA is 0.56 in 2011 and minimum is 0.49 in 2015 and 2016. So, we can say that when AAPP increases, PPA decreases. The Figure 5 shows the comparative bar graph of AAPP and PPA of LPP during six years.

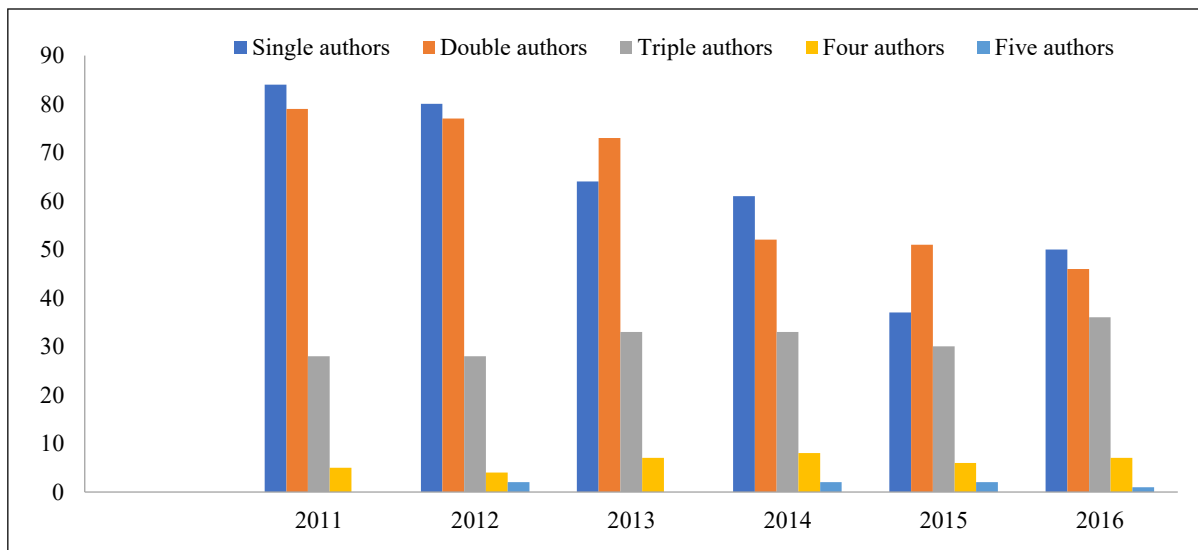


Figure 3: Authorship pattern in LPP

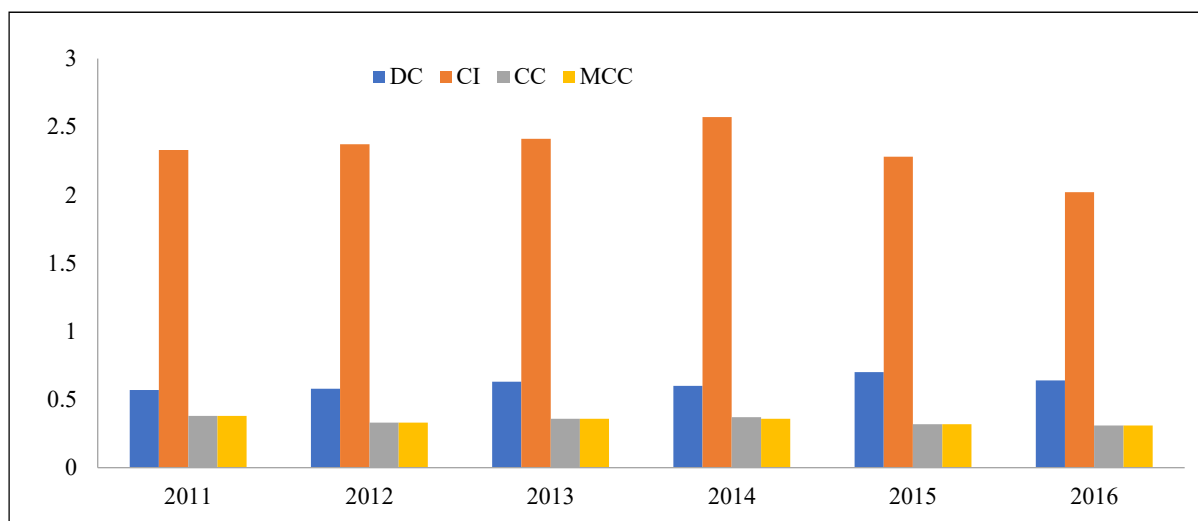
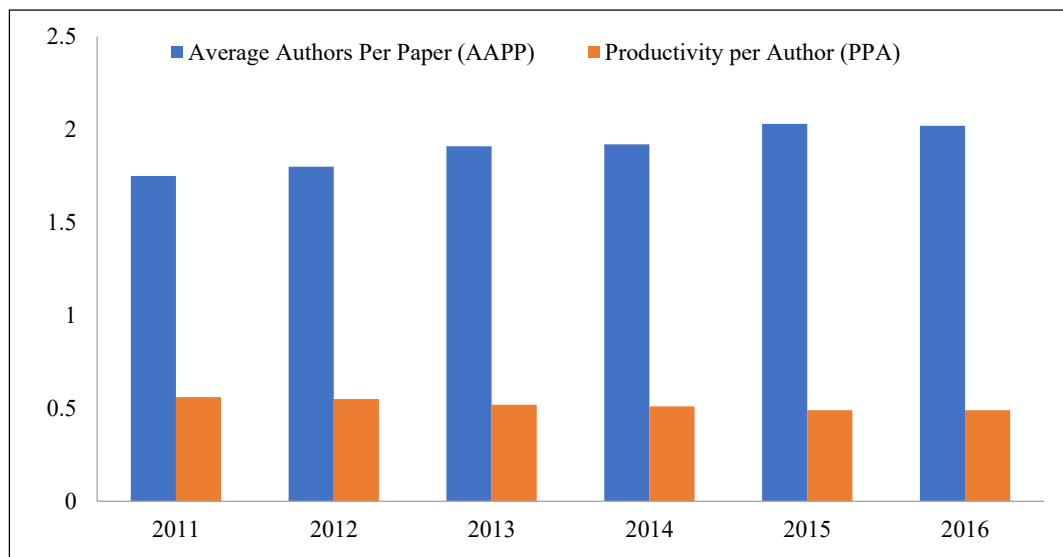


Figure 4: DC, CI, CC and MCC in LPP

**Table 4: AAPP and PPA of LPP**

Year	No. of articles	No. of authors	AAPP	PPA
2011	197	346	1.75	0.56
2012	191	344	1.80	0.55
2013	176	337	1.91	0.52
2014	159	306	1.92	0.51
2015	129	263	2.03	0.49
2016	140	283	2.02	0.49
Total	992	1879		

**Figure 5: AAPP and PPA of LPP**

## 5. Most prolific Authors

The Table 5 shows the list of top 10 most prolific authors with their ranking. Total 1709 authors have contributed to the journal LPP during 2011-2016. The most prolific author of LPP is Rubina Bhatti with 24 articles during the six years. The second most prolific author is Khalid Mahmood with 11 articles whereas the third prolific author is Farzana Shafique with 8 articles.

## 6. Lotka's Law

We have Lotka's law as

For  $x = 1$ ,  $y = 1161$ , which gives  $c = 1161$ . By using  $c = 1161$  and  $x = 2$ , we obtained  $n = 2.478$ . Now, by taking  $n = 2.478$ , values of  $y$  are calculated

**Table 5: Most prolific authors**

Name of Authors	Frequency	Rank
Rubina Bhatti	24	1
Khalid Mahmood	11	2
Farzana Shafique	8	3
Adam Gambo Saleh	7	4
Bipin Bihari Sethi	7	4
Shakeel Ahmad Khan	7	4
B. M. Gupta	6	5
Constant Okello-Obura	6	5
Rabindra K. Maharana	6	5
S. O. Popoola	6	5

corresponding to different values of  $x$ . In the Table 6, the Lotka's law is tested for  $n = 2.478$  and  $n = 3$ . This is found that journal follows the Lotka's law slightly for  $n = 3$ .

**Table 6: Lotka's Law**

No. of publication (x)	Number of authors (y)	Number of authors (y) (for n = 2.478)	Number of authors (y) (for n = 3)
1	1161	1161	1161
2	208	208.39	145.13
3	46	76.30	43.00
4	12	37.40	18.14
5	9	21.52	9.29
6	4	13.70	5.38

**Table 7: Average Keyword per paper of LPP**

Year	Number of articles	Total number of keywords	Average keyword per paper
2011	197	0	0
2012	191	172	0.9
2013	176	576	3.27
2014	159	634	3.98
2015	129	532	4.12
2016	140	522	3.72
Total	992	2436	

## 7. Average Keywords Per Paper (AKPP)

In the Table 7, the number of article in all six years, total number of keywords therein, and the average keywords per paper for the journal LPP is calculated. It is noted that in the year 2011, there are no keywords and hence, its AKPP is 0. Average of approximately 3 to 4 keywords per paper is found for the last three years. A maximum number of 634 keywords are noted in 2014 whereas minimum numbers of 172 keywords are noted for the year 2012.

## 8. Ranking of Keywords

The above Table 8 shows the most prolific keywords during 2011- 2016. The keywords are arranged according to the frequency of its occurrence. The keyword *Bibliometrics* got rank 1<sup>st</sup> with its frequency 23. The keyword *Academic Librarian Is* ranked 2<sup>nd</sup> with frequency 20.

**Table 8: Ranking of keywords of LPP**

Keywords	Frequency	Rank
Bibliometric	23	1
Academic Librarians	20	2
Information and Communication Technology	19	3
Authorship Pattern	17	4
Scientometrics	14	5
India	12	6
Nigeria	12	6
Library	11	7
Citation Analysis	10	8
Information Needs	10	8

## 9. Zipf's law of word occurrence

The Table 9 it is clear that the value of Log(C) varies for different keywords. The analysis shows that the Zipf's law does not follow well for all the keywords presented in the table. Therefore, Zipf's law is not valid for LPP.

## 10. Top 10 Institutes

The Table 10 presents name of top 10 institutes from where authors are affiliated. It is observed that the most prolific institutes during six year period from 2011-2016 is *University of Nigeria, Nsukka, Enugu State, Nigeria*.

## 11. Most Prolific Country

The Table 11 represents the list of most prolific countries. The analysis shows that Nigeria got rank 1<sup>st</sup> whereas India secured rank 2<sup>nd</sup>.



**Table 9: Zipf's law of word occurrence**

Keywords	Frequency	Rank	Log (f)	Log (R)	Log (C)
Bibliometric	23	1	1.361	0	1.361
Academic Librarians	20	2	1.301	0.301	1.602
Information and Communication Technology	19	3	1.278	0.477	1.755
Authorship Pattern	17	4	1.230	0.602	1.832
Scientometrics	14	5	1.146	0.698	1.844
India	12	6	1.079	0.778	1.857
Nigeria	12	6	1.079	0.778	1.857
Library	11	7	1.041	0.845	1.886
Citation Analysis	10	8	1	0.903	1.903
Information Needs	10	8	1	0.903	1.903

**Table 10: Top 10 Institutes**

Name of Institute	Frequency	Country
University of Nigeria, Nigeria	55	Nigeria
Nnamdi Azikiwe University, Nigeria	52	Nigeria
The Islamia University of Bahawalpur, Pakistan	33	Pakistan
University of Ibadan, Oyo State, Nigeria	28	Nigeria
University of Kashmir, Jammu and Kashmir, India	28	India
University of the Punjab, Lahore, Pakistan	25	Pakistan
San Jose State University, California USA	22	USA
Covenant University, Ota, Ogun State, Nigeria	21	Nigeria
Delta State University, Abraka, Nigeria	21	Nigeria
Islamic Azad University, Tehran, Iran	21	Iran

**Table 11: Most Prolific Country**

Country	Frequency	Rank
Nigeria	716	1
India	507	2
Pakistan	119	3
Iran	85	4
USA	78	5
Ghana	72	6
Malaysia	38	7
USA	22	8
Tanzania	17	9
Uganda	13	10

## 12. Types of collaborations in LPP

The Table 12 above shows collaboration status at intra-institute level, at inter-institute level and at international. It is observed that inter-institute collaboration is on preference. Out of 88 articles on collaborative research, 42 articles are representing inter-institute collaboration.

## CONCLUSION

In this article, the collaboration behavior of Library Philosophy and Practice journal is investigated for the period 2011-2016 in terms of various collaboration

**Table 12: Types of Collaboration in LPP**

Year	Intra-institute	Inter-institute	At inter-national level
2011	55	44	10
2012	49	48	6
2013	44	63	10
2014	50	37	6
2015	39	42	7
2016	31	37	11
Total	268	271	50

parameters including DC, CI, CC, MCC, AAPP, PPA, most prolific author, most prolific institute, most prolific keyword, Lotka's law and Zipf's law of word occurrence. Total 992 articles contributed by 1879 authors in LPP during this period. The year wise numbers of publications and authors are obtained. The authorship productivity is measured in terms of AAPP and PPA. The maximum value of AAPP is 2.03 during the year 2015 and the maximum value of PPA is 0.56 in 2015. The maximum values of DC, CC, CI, and MCC are found as 0.70 in 2015, 2.57 in 2014, 0.38 in 2011, and 0.38 in 2016 respectively.

The most prolific author is Rubina Bhatti with 24 articles during the six years of period of study. The most prolific institute is University of Nigeria, Nigeria with 55 citations, and the most prolific country is Nigeria with frequency 716. The word 'bibliometric' is found as the most prolific keyword for the six years data. Also, it is noted that the Lotka's law authorship productivity follows slightly for  $n=3$  whereas Zipf's law of word occurrence is not valid for the data. Further, it is observed that the inter-institutional collaboration is preferred by the authors over intra-institutional and international collaborations.

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## LIS Newsletters in India: An Analysis

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### ABSTRACT

Newsletters are a vital source of current news, events and the latest happenings in a given field. Even in the library field, LIS professionals relied on newsletters to keep up with the latest developments in their area. For years, LIS professionals have been using print and online newsletters to promote and market their library, activities, services, and products. The objective of a newsletter, whether internal or external, is to inform and keep in touch with users/clientele/patrons/members. It contains the latest news, updates, important information, highlights and curated insights that assist in branding and marketing the institution, library, its products and services, and library personnel. It is a cost-effective promotional tool for building trust and motivating members to take actions such as attending a conference or seminar, purchasing a product, etc. This article aims to explore how Indian library networks are successfully adopting and leveraging newsletters to provide timely and reliable trustworthy news before various social tools and technological tools have been introduced and how LIS professionals are utilizing them to update themselves. Newsletters from INFLIBNET, DELNET, and ADINET are studied and evaluated on various parameters, and the findings have been presented in this article.

**Keywords:** Newsletters, Library & information science, Library networks, INFLIBNET, ADINET, DELNET

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### INTRODUCTION

Historical texts are pieces of evidence that newsletters have been in use in *China*, *Rome* and *India* since ancient times. Since the majority of the populace in *India* was illiterate, the kings had a person read out loud in public from the royal edict the information king desired to be communicated, accompanied by the beating of drums. The world's earliest known

newsletter is a 3,000-year-old papyrus from *Thebes* offering a reward for a runaway slave<sup>1</sup> (Klinghoffer, 2018). In ancient *Rome*, handwritten newsletters were distributed by officials. *Acta Diurna*<sup>2</sup> The oldest physical newsletter was discovered, published as early as 131 BC (Young, 2021). Newsletters evolved over the years and were soon adopted by merchants and traders who began using them for pricing and goods and to put across not only fashion but also political views

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<sup>1</sup>Klinghoffer S. (2018). From papyrus to e-mail: The history of newsletter marketing. *LinkedIn*. <https://www.linkedin.com/pulse/from-papyrus-e-mail-history-newsletter-marketing-steve-klinghoffer> (accessed on 20 June 2022)

<sup>2</sup>Young, B. The origin of the newsletter. *Nudge*. <https://giveitanudge.com/the-origin-of-the-newsletter/> (accessed on 19 June 2022)

and news. Since the 16<sup>th</sup> century, numerous newsletters have been circulated summarizing accounts of battles, treaties, epidemics, etc. Early forms of periodicals giving out trade news at book fairs were called *Messrelationen*/*Messrelation* or trade fair reports like *Relatio Historica* or Historical Report published in 1583 book fair in *Frankfurt*<sup>3</sup> (Messrelation, 2021).

*The Boston Newsletter*<sup>4</sup> (The Boston News-Letter, 2022) began as a weekly publication in 1704, consisting of a single sheet printed on both sides with information from *England* relevant to Colonial Americans. The *Augsburg* based *Fuggers Newsletter*<sup>5</sup> (*The first newspapers Encyclopedia Britannica, n.d.*) was well known not only within financial organizations but also to outsiders. Newsletters were initially handwritten and later printed after *Guttenberg* introduced the printing press and were given free handouts. Sometimes a single page or *Corantos* was pasted on walls for all to read; later, it was sent by post to people or enclosed in newspapers to be delivered to houses. After that, people who expressed interest were prompted to sign up or subscribe to the newsletter. Soon commercial newsletters were in effect to publish & distribute news, which eventually evolved into newspapers. *Relation aller Fürnemmen und gedenckwürdigen Historien* or *The Relation* is an account of all distinguished and memorable stories is the first newspaper published by *Johann Carolus* in 1609 from *Strasbourg* in

*Germany*<sup>6</sup> (*Johann Carolus*, 2022). To promote his printing business, *Benjamin Franklin* began publishing *Poor Richard's Almanack*<sup>7</sup> in 1733 (Miller, 1961). In 1564, *George Willer*, an *Ausburg* bookseller, issued the first catalogue of books, also known as the *Messkatalog* or *Term Catalogue*<sup>8</sup>, a serial publication compiled to inform customers of the dates of book fairs and new books published (Term catalogue, 2021).

After computers and the Internet emerged, sending solicited/unsolicited newsletters via emails, listserv, or any broadcasting/chat services became easier. With the introduction of social media, sharing these newsletters either as text or links has become easy. Library and Information Science professionals are always quick to adopt any tool and technology that would help them to serve better their library users/clientele/patrons/members, and newsletters were no exception.

## DEFINITIONS OF NEWSLETTER

*Collins* online dictionary<sup>9</sup> (Newsletter definition and meaning: Collins English Dictionary n.d.) defines a newsletter as one or more printed sheets of paper containing information about an organization that is sent regularly to its members. *Merriam Webster* (Newsletter definition & meaning n.d.) an online dictionary<sup>10</sup> defines a newsletter as a small publication (such as a leaflet or newspaper) containing news of

<sup>3</sup>Wikimedia Foundation. Messrelationen. *Wikipedia*. 2021. <https://en.wikipedia.org/wiki/Messrelation> (accessed on 19 June 2022)

<sup>4</sup>Wikimedia Foundation. The Boston News-Letter. *Wikipedia*. 2022. [https://en.wikipedia.org/wiki/The\\_Boston\\_News-Letter](https://en.wikipedia.org/wiki/The_Boston_News-Letter) (accessed on 19 June 2022)

<sup>5</sup>Britannica Inc. The first newspapers. *Encyclopædia Britannica*. <https://www.britannica.com/topic/publishing/The-first-newspapers> (accessed on 19 June 2022)

<sup>6</sup>Wikimedia Foundation. Johann Carolus. *Wikipedia*. 2022. [https://en.wikipedia.org/wiki/Johann\\_Carolus](https://en.wikipedia.org/wiki/Johann_Carolus) (accessed on 19 June 2022)

<sup>7</sup>Miller, C. W. (1961). Franklin's "Poor Richard Almanacs": Their Printing and Publication. *Studies in Bibliography*, 1961, 14, 97–115. <http://www.jstor.org/stable/40371300> (accessed on 19 June 2022)

<sup>8</sup>Wikimedia Foundation. Term catalogue. *Wikipedia*. 2021. [https://en.wikipedia.org/wiki/Term\\_Catalogue](https://en.wikipedia.org/wiki/Term_Catalogue) (accessed on 19 June 2022)

<sup>9</sup>HarperCollins Publishers Ltd. Newsletter definition and meaning: Collins English dictionary. <https://www.collinsdictionary.com/dictionary/english/newsletter> (accessed on 19 June 2022)

<sup>10</sup>Merriam-Webster. Newsletter definition & meaning. Merriam-Webster. <https://www.merriam-webster.com/dictionary/newsletter> (accessed on 21 June 2022). <https://en.wikipedia.org/wiki/Newsletter> (accessed on 19 June 2022)

interest chiefly to a particular group. *Wikipedia*<sup>11</sup> (Newsletter, 2022) defines a newsletter as a printed or electronic report containing news concerning the activities of a business or an organization that is sent to its members, customers, employees, or other subscribers.

In other words, a newsletter is mostly a subscription-based serial that can be published as a print or online communication containing certain information and news about an organization or an area of interest. However, it may include advice, opinions, newsworthy items, and forecasts sent by push-pull marketing method periodically to its subscribed members; or sometimes sent as unsolicited mass mail to prospective users and position the sender as an expert in a specific field. Newsletters generally contain one main topic of interest to their recipients and can range in length from 1 to 50 pages.

### Example of LIS Newsletters

- One of the first newsletters to be published by LIS associations is *LIHG Newsletter*, or *Library & Information History Group Newsletter* which was published in 1962-63 by the UK's *Chartered Institute of Library and Information Professionals*<sup>12</sup> CILIP (n.d.). In January 2006, American Libraries magazine launched *AL Direct*, an e-newsletter<sup>13</sup> (Carlton, 2020). IFLA has published many newsletters like *IFLA Metadata Newsletter*<sup>14</sup> (Newsletter n.d.) *IFLA Libraries for Children and Young Adults Section Newsletter*<sup>15</sup> (IFLA Libraries for Children and young adults section newsletter, n.d.) and *IFLA Asia and Oceania Regional Quarterly Newsletter*<sup>16</sup> (IFLA Asia and Oceania Regional Quarterly Newsletter, n.d.) LIS associations in India were not far behind; the *Indian Association of Special Libraries and Information Centres* (IASLIC) launched the *IASLIC Newsletter* in 1966. Many other library associations, libraries and library networks soon adopted and began to provide newsletters to their members. *ILA Newsletter* at <https://www.ilaindia.co.in/newsletter/newsletters> published by the *Indian Library Association* started in 2014 as a biyearly became a monthly publication in 2015, and the *IASLIC Newsletter* at <http://www.iaslic1955.org.in/Default.aspx?PageId=128> ISSN 0018-845X started from 1966 and published by *Indian Association of Special Libraries and Information Centres*, in hybrid print/online since 2012 as a monthly.
- National Library of India in Kolkatta has a tab on its website at [https://www.nationallibrary.gov.in/files/contents/newsletter\\_january\\_to\\_december\\_201.pdf](https://www.nationallibrary.gov.in/files/contents/newsletter_january_to_december_201.pdf), and a blog at [https://nationallibrarykolkata.blogspot.com/p/blog-page\\_18.html](https://nationallibrarykolkata.blogspot.com/p/blog-page_18.html) has a link leading to the newsletter but no information displayed on the page. *NDLI Newsletter* at <https://ndlproject.iitkgp.ac.in/news/newsletters> from *National Digital Library of India*. Central Library IIT Mandi at <http://library.iitmandi.ac.in/pdf/newsletter/>

<sup>11</sup>Wikimedia Foundation. Newsletter. *Wikipedia*. 2022

<sup>12</sup>Newsletter-CILIP: The Library and Information Association. [https://www.cilip.org.uk/members/group\\_content\\_view.asp?group=201304&id=790370](https://www.cilip.org.uk/members/group_content_view.asp?group=201304&id=790370) (accessed on 19 June 2022)

<sup>13</sup>Carlton, A. American Libraries' al direct E-newsletter goes weekly starting July 8. *News and Press Center*, 2020. <https://www.ala.org/news/press-releases/2020/06/american-libraries-al-direct-e-newsletter-goes-weekly-starting-july-8> (accessed on 19 June 2022)

<sup>14</sup>Newsletter. IFLA. <https://www.ifla.org/g/cataloguing/newsletter/> (accessed on 19 June 2022)

<sup>15</sup>IFLA. Now Available. *IFLA Libraries for Children and Young Adults Section Newsletter*, 2022, Spring Issue. <https://www.ifla.org/news/newsletter-spring-issue-2022/>. (accessed on 19 June 2022)

<sup>16</sup>IFLA. IFLA Asia and Oceania Regional Quarterly Newsletter. <https://www.ifla.org/news/now-available-ifla-asia-and-oceania-regional-quarterly-news-may-2022-issue/> (accessed on 19 June 2022)

1.pdf and IIMB Library Newsletter at <https://library.iimb.ac.in/nlsep2019> *Library Newsletter* Vol 2 (1&2) from Library of Dr B. R. Ambedkar University Delhi at <https://aud.ac.in/services-1/library/library-newsletter> is in *English* and *Hindi languages*.

- *Bibliophile* at <https://cutn.ac.in/library-science/> an e-Newsletter published by the Department of LIS in Central University of Tamil Nadu from Sep 2019.
- Publishers *Taylor & Francis's Open Research Insights Newsletter* at <https://librarianresources.taylorandfrancis.com/newsletter/and> *Taylor & Francis Ignite Bulletin*, a quarterly bulletin, is published for Librarians in South Asia.
- All periodicals and serials are eligible to receive an ISSN, including Newsletters<sup>17</sup> (Guidelines for requesting an ISSN through the National Centre for ISSN, India n.d.). *LIS Links Newsletter* at <http://newsletter.lislinks.com/> has ISSN 2454-3462.

## LITERATURE REVIEW

There are not many articles on 'Newsletters'. *EBSCO* presented a white paper in which tips are shared in the form of a guide under the title 'how to connect with the community through newsletters'<sup>18</sup> (Library

Newsletters: Best Practices, n.d.). Kolli *et al.*<sup>19</sup> (2021). studied in *The Lens*, a weekly newsletter that helped improve knowledge of ophthalmology. It concluded that 83.1% of subscribers reported it helped them overcome barriers to engaging with academic literature and improve their knowledge of recently published studies. Kumar<sup>20</sup> (2008) in his article writes about how to develop an email library newsletter. Martin and Grefsheim (1984) write about how to publish a library newsletter. Van Zandt<sup>21</sup> (2004) writes about how to publish a unique library newsletter. Zill<sup>22</sup> (2014) presents six tips for writing an effective library newsletter.

## OBJECTIVES

- To know the historical background of the newsletters.
- To understand the publishing pattern of Newsletters of Library Networks, their content variety, structure, and newsletters presentations.
- To explore the best practices.

## METHODOLOGY

The empirical and qualitative research methods used for the study. The data and information is collected from the newsletters available online on the respective

<sup>17</sup>Guidelines for requesting an ISSN through the National Centre for ISSN, India. *National Science Library*. <http://nsl.niscair.res.in/issn.jsp> (accessed on 19 June 2022)

<sup>18</sup>Library Newsletters: Best Practices. <https://www.ebsco.com/sites/g/files/nabnos191/files/acquiadam-assets/Library-Newsletters-Best-Practices-White-Paper.pdf> (accessed on 19 June 2022)

<sup>19</sup>Kolli A, Nguyen *et al.* (2021). The Lens: Can a Weekly Newsletter Improve Medical Student Knowledge of the Ophthalmology Literature? *Journal of Surgical Education*, 78 (6), 1905-1914. <https://pubmed.ncbi.nlm.nih.gov/34045161> (accessed on 20 June 2022)

<sup>20</sup>Kumar V. (2008). How to Develop an E-mail Library Newsletter: A Cakewalk Approach. In *International CALIBER-2008*, 28-29 February -1 March 2008, Allahabad, U.P. pp. 154-158. <https://ir.inflibnet.ac.in/bitstream/1944/1248/1/14.pdf> (accessed on 20 June 2022)

<sup>21</sup>Van Zandt P. (2004). The Throne: Campus kudos for a unique library newsletter. *College & Research Libraries News*, 65 (1), 20-22. <https://crln.acrl.org/index.php/crlnews/article/view/20758/25410> (accessed on 19 June 2022)

<sup>22</sup>Zill R. (2014). Six Tips for Writing an Effective Library Newsletter. *Nebraska Libraries*, 2 (1), 05-06. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1006&context=neblib#page=6> (accessed on 19 June 2022)

portals of the newsletters. Fetched data have been tabulated and used for interpretation.

## SCOPE

There are around 13 Library Networks as listed on Wikipedia<sup>23</sup> (Library networks in India 2022). In this paper, we are covering only three newsletters in Table 1 to 7.

- *ADINET Newsletter*<sup>24</sup> (Ahmedabad Library Network, n.d.) is published by Ahmedabad Library Network, now called Advance Information Network
- *DELNET Newsletter*<sup>25</sup> (Developing Library Network, n.d.) is published by Delhi Libraries Network and is now called Developing Library Network.
- *INFLIBNET Newsletter*<sup>26</sup> (Information and Library Network, n.d.) is published by Information and Library Network Centre.

## DATA ANALYSIS AND FINDINGS

The Newsletters from INFLIBNET, DELNET, and ADINET were published in 1994 (Table 1). INFLIBNET newsletter is available online from 2006 to 2022 under publications at <https://www.inflibnet.ac.in/publication/newsletter.php>, whereas from its first volume and issue, it is available under *INFLIBNET's Institutional Repository* at <https://ir.inflibnet.ac.in/>.

Newsletters of INFLIBNET and ADINET are published quarterly, whereas DELNET newsletter frequency was initially 03 issues in a year but, in 1994, reduced to 02 issues in a year. DELNET newsletter has been available online since its first issue up to 2019, whereas the ADINET newsletter has been available online for 14 years (2008-21). The study was conducted as per the availability of these three online, i.e. 2008-19.

The data from 2008-19 shows that all these three newsletters compromised with their publishing frequencies (Table 2). INFLIBNET newsletter itself merged its issues fourteen times i.e., in 1996, 1997, 2001, 2003, 2004, 2005, 2006, 2007, 2009, 2010, 2011, 2012 and 2017. DELNET newsletter published all their issues till 2002, except once in 1994. It has published merged issues since 2003, around 18 times since the publication of its debut issue until 2019. ADINET newsletter is the only newsletter among these three that is less compromised in publishing their issues, i.e., 04 times (2010, 2016 and 2017). As for publishing all the issues of the newsletter, the ADINET is performing well compared to the other two.

The title page's colour and design are features of any newsletter that attract its users and increase its aesthetic value (Table 3). If we look at the data, INFLIBNET and ADINET are not using a specific colour palette but are publishing in a combination of different colours. At the same time, DELNET has maintained its standard in colour choice of its 'Title page'. It was published in black and white from 1994-2010 and in black and blue colour combination from 2011, giving uniqueness and identification to its users.

INFLINBET uses various formats for its title/cover page in various issues. At the same time, DELNET and

**Table 1: Starting Year Print and Online**

Item	INFLIBNET	DELNET	ADINET
Starting Year	1994	1994	1994
Online Available	1994-2022	1994-2019	2008-2021

<sup>23</sup>Library networks in India. *Wikipedia*. 2022. [https://en.wikipedia.org/wiki/Library\\_Networks\\_in\\_India/](https://en.wikipedia.org/wiki/Library_Networks_in_India/). (accessed on 21 June 2022)

<sup>24</sup>Ahmedabad Library Network (ADINET). <https://www.alibnet.org> (accessed on 19 June 2022)

<sup>25</sup>Developing Library Network (DELNET). <https://delnet.in/>(accessed on 19 June 2022)

<sup>26</sup>Information and Library Network (INFLIBNET). <https://inflibnet.ac.in/>(accessed on 19 June 2022)



**Table 2:** Frequency

Item	INFLIBNET	DELNET	ADINET
Frequency	Quarterly	03 Issue pa (per annum) in 1994 and, Since 1995, 02 Issues pa	Quarterly
Merged Issues	1996_Vol. 02_No.01-02	1994_Vol.01_No.02-03	2010_Vol.11_No.02-03
	1996_Vol. 02_No.03-04	2003_Vol.10_No.01-02 to	2016_Vol.23_No.01-02
	1997_Vol. 03_No.02-03	2019_Vol.25_No.01-02	2016_Vol.23_No.03-04
	2001_Vol. 07_No.03-04		2017_Vol.24_No.03-04
	2003_Vol. 09_No.02-03		
	2004_Vol. 10_No.02-03		
	2005_Vol. 11_No.02-04		
	2006_Vol.13_No.03-04		
	2007_Vol.14_No.02-03		
	2009_Vol.16_No.02-03		
	2010_Vol.17_No.02-03		
	2011_Vol.18_No.03-04		
	2012_Vol.19_No.02-03		
	2017_Vol.24_No.03-04		
Total Merged	14	18	04

**Table 3:** Design and Content

Item	INFLIBNET	DELNET	ADINET
Colour of Title Page	In different colours	Black & White Blue and Black since 2011	In different colours
Design of the Title/cover page	Various Design formats	Uniform Design	Uniform Design
Contents/Index Page	Various Contents formats	No Content Page	Standard Content Page

ADINET are publishing their newsletters with a uniform design which is a good practice.

INFLIBNET is not consistent and has adopted various formats in presenting the contents. Sometimes, content is published on the back page of the newsletter and sometimes on the first page of the cover page. They started adding content from 1998. DELNET is publishing content in its newsletter without a content heading. ADINET uses a uniform content presentation system where contents are made available in all the issues on the first page of its newsletter.

The editorial board/editors of the newsletter are one of the most important factors (Table 4). It is observed that INFLIBNET is the only newsletter using a range

of 01 to 10 editors in various issues. In 2006, there were ten editors in its 13<sup>th</sup> volume & 1<sup>st</sup> issue; from 2007-14, only one editor was used in its various issues. DELNET newsletter published in 1994-95 has 05-06 editors, but from 1996 only 01 editors have been used to bring out its issues. ADINET newsletter is a bit cautious with its editorial board, where 02-03 editors have been used since 2008 and from 2017, they are using only 02 editors and set a uniform set of the editorial board system.

Publishing articles in newsletters is a typical practice for informing readers of fresh ideas, new concepts and practices in a given field (Table 5). It is found that all three newsletters do not stick to the prescribed number of articles to be published in a particular volume or

**Table 4: Editors**

Item	INFLIBNET	DELNET	ADINET
No. of Editors	1995_Vol.1_No.1, 2, 3 04 Editors	1994_Vol.01_No.1-03 06 Editors	2008_Vol.15_No.1-03 01 Editor
	1996_Vol.2_No.1-2 05 Editors	1995_Vol.02_No.105 Editors	2008_Vol.16_No.01 02 Editors to 2010_Vol.18_No.01 02 Editor
	1996_Vol.2 No.3-4 04 Editors	1995_Vol.0_No.206 Editors	2010_Vol.18_No.02 03 Editors to 2017_Vol.24_No.01 03 Editors
	1997_Vol.3 to 2000_Vol.6_No.2 05 Editors	1996_Vol.03 01 Editor to 2019_Vol.25 01 Editor	2017_Vol.24_No.02 02 Editors to 2021_Vol.28_No.04 02 Editors
	2000_Vol.6_No. 2,3 04 Editors		
	2001_Vol.7_No. 1,2 05 Editors		
	2006_Vol.13_No.1 10 Editors		
	2006_Vol.13_No.207 Editors		
	2006_Vol.13_No.3 07 Editors		
	2007_Vol.14_No.02-03 03 Editors		
	2007_Vol.14_No.0402 Editors to 2011_Vol.18_No.04 02 Editors		
	2007_Vol.19_No.01 01 Editor to 2014_Vol.21_No.01 01 Editor		
	2014_Vol.21_No.02 03 Editors to 2018_Vol.25_No.01 03 Editors		
	2018_Vol.25_No.02 04 Editors to 2019_Vol.26_No.02 04 Editors		
	2019_Vol.26_No.03 05 Editors to 2020_Vol.27_No.03 05 Editors		
	2020_Vol.27_No.04 04 Editors to 2021_Vol.28_No.03 05 Editors		

issue. INFLIBNET newsletters range from 01 to 05 articles in each volume. They are also not published in some of the issues, too. 2018, 2019, 2020 and 2021. DELNET is publishing articles in two segments, i.e. *Lecture* and *Feature*, ranging from 01 each to 10. ADINET has been giving space to the articles since 2011, publishing 01 to 05 articles.

The number of pages in newsletters varies greatly (Table 6). Proper planning is needed in bringing out a

newsletter on an equal number of pages. INFLIBNET newsletter is published on various page counts ranging from 10 to 40. DELNET newsletter is also publishing various page counts ranging from 08 to 52. ADINET newsletter is published in various page counts ranging from 04 to 12.

The availability of content in multiple languages has always been good for its reach and improved readership (Table 7). INFLIBNET and ADINET publish content

**Table 5: Articles**

Item	INFLIBNET	DELNET	ADINET
Articles	1995_Vol.1_No.1 to 2001_Vol.7_No.2 no article published	1994-(02F is Feature+02L is Lecture)	Articles 2011-02
	Articles 2006-03		
	Articles 2007-02	1995-(03F+02L)	Articles 2012-04
	Articles 2008-05	1996-(02F+03L)	Articles 2013-05
	From 2009_Vol.16_No. 01 to 2020_Vol. 27_No. 01 01 article in each issue	1997-(02F+01L) 1998-(03F+02L) 1999-(02F+03L) 2000-(06L) 2001-(04L) 2002-(01L) 2003-(01F) 2004-(03L) 2005-(02L) 2006-(01F+02L) 2007-(01L) 2008-(01F+01L) 2009-(03L) 2010-(01F+01L) 2011-(01F+01L) 2012-(02L) 2013-(01F+02L) 2014-(01L) 2015-(03L) 2016-(05L) 2017-(01F+01L) 2018-(03F+01L) 2019-(01L)	Articles 2014-02 2015-01 2016-01 2017-01 Articles 2018-01 2019-02 2020-04 2021-02
	2018_Vol. 25_No. 04 2019_Vol. 26_No. 03 2020_Vol. 27_No. 02 to 2021_Vol. 28_No. 03 No article in these issues		

**Table 6: Number of Pages**

Item	INFLIBNET	DELNET	ADINET
Pages	10 to 40 pages	08 to 52 pages	04 to 12 pages

**Table 7: Languages**

Item	INFLIBNET	DELNET	ADINET
Contents in languages	English and Hindi	English	English and Gujarati

in two languages but are not bilingual newsletters. The same is true with ADINET; some content is available in the Gujarati language with English. The DELNET is publishing its newsletter in the English language only.

## BEST PRACTICES

Study various LIS-related newsletters and identify best practices to adopt.

- Follow a format, a uniform structure of information presented content-wise and in its aesthetic design, colour, and the number of pages, as well as contents arrangement, should be in a manner that helps a reader access it.
- The editorial board should be in a uniform manner.
- Determine goals of Institution/Library/Librarian.
- Determine the age and interest of end-users/patrons.
- Gather intelligence/information systematically, report it accurately and precisely under various heads of interest to users/patrons, and pepper it with images/charts/pie diagrams to catch eyeballs.
- Market it using various portals and social media tools.
- Build and establish brand value.
- Statistics analysis regarding the number of users who signed up, number of hits on newsletter, feedback, etc.
- Improve the content of the newsletter per feedback from users/patrons.

## SUGGESTIONS

To increase the reach of newsletters, editors should

- LIS professionals can check already published newsletters or find freely available newsletter templates like online providers like Canva<sup>27</sup> (n.d.).
- Create an Atom feed for the newsletter and integrate it into the RSS reader.<sup>28</sup> (Axbom, 2020).
- LIS professionals can leverage freely available tools on the Internet, especially social tools, by linking to the newsletter they publish on their website and blogs, sharing a link on Facebook page/group, Twitter, etc., and embedding the link of their website in their newsletters. Example: *West Bengal Public Library Network (WBPLNET)* (n.d.) has a presence on social media on Facebook<sup>29</sup>.

## CONCLUSION

Newsletters are the mirror of the progress report of any institution. A newsletter's success is determined by information and several factors. These factors are the eye-catching title of the article, its quality, clear, concise, and succinct content, its presentation, which is supported by tables, graphs, charts, images, and photographs, as well as its layout, timeliness, regular periodicity, etc.

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## Library Services Through Mobile Apps- Development and use by Indian Libraries

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### ABSTRACT

This paper aims to report on the adoption and use of mobile apps, including in-house and available in the app store by the Indian libraries for carrying out library services. An online survey was conducted to collect data from 229 LIS professionals from divergent types of libraries across the country. The study found that only 27 libraries developed their dedicated library mobile apps for catering services to the patron. The primary services offered were e-resources facility (92.60%), reference query (88.88%) and SMS alert (77.77%). The study also found the effective integration of social media apps by the libraries for sharing information regarding library services (74.67%) and upcoming events (68.12%), highlighting the library collection (62%), reference advisory (55.45%) and streaming videos lively (26.20%). The most used social media apps were WhatsApp (69.43%), Facebook (66.37%) and YouTube (65.93%). However, the unavailability of apps in offline mode and storage problems were the major hurdles cited by the professionals in using apps. The study results suggest opportunities for libraries to develop their library app to satisfy users' information needs.

**Keywords:** Mobile Apps, M-technology, M-library, Library mobile app, Social media, Indian libraries

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### INTRODUCTION

The need for mobile information services is constantly increasing with the boom of intelligent portable mobile devices (Zhao *et al.*, 2016). With the rise in the use of portable mobile devices and the demand for quick information among pupils, libraries have started integrating mobile technology into the library (Vassilakaki, 2014). Libraries started to mobilise library services by starting a mobile library website (separate sites or mobile sites as applications) or mobile library app (ChanLin and Hung, 2016). Many foreign countries like America, Finland, Japan and South Korea started to build mobile library projects in the early 2000s (Jin and Zhang, 2009). Exemplifying, the Chaoxing m-library

app introduced by Beijing Chaoxing Inc. integrates OPAC, a cloud-sharing service system, a digital library portal, interaction platforms and information exchange etc. (Hu and Zhang, 2016).

In the Indian context, student's use of mobile apps for learning purposes has recorded a swell with a shred of evidence that the free app offered by the National Digital Library of India has been downloaded by ten lacks+ patrons across the country (National Digital Library of India, 2021). Sharma and Madhusudhan (2017) reported that the majority of the LIS students in Uttar Pradesh (83.66%) used mobile devices to access the library websites as well as to access the repository (41.83%). The students opined that apps



helped them access learning resources quickly and saved them time. So it is patent that introducing and integrating M-technology into the library has become the need of the hour with the rise in demand for mobile information among the pupils in the country.

The main impetus for the present study is investigating how Indian libraries and LIS professionals integrate the fastest-growing mobile technology to support library operations and services. A previous study reported limited research on integrating mobile apps in libraries in the Indian sub-continent (Bikumalla *et al.*, 2017). Thus, it is felt that this is high time to conduct such a study to find out the use of mobile apps, one of the most used technologies in the country of India to see how these mobile apps (including both existing and indigenous) are playing a role in the activities of the library as well as the delivery of LIS services by the LIS professionals. The following three major research questions drive the entire study.

1. What's the status of Indian libraries in developing a dedicated mobile app for their library? And what are the primary services offered through these apps?
2. What's the status of Indian libraries in adopting social media apps for library services?
3. What are the major problems librarians face in the effective use and integration of mobile apps for library services?

## REVIEW OF RELATED LITERATURE

The review mainly examines the built, adoption and use of apps by libraries across the planet and the significant services offered through these apps. Many libraries worldwide have proposed and made their mobile library app available for their patrons (Ballard and Blaine, 2013; Wei and Yang, 2017; Pu *et al.*, 2015; Hahn, 2017). Liu and Briggs (2015) reported that 100 university libraries across the globe offer at least one mobile service to their user community. The major

mobile facilities/services include databases, E-books, apps for the site, QR codes, websites, OPAC, Text messaging, and augmented reality. Canuel and Crichton (2002) investigated the mobile presence of the libraries of the Association of University and Colleges of Canada (AUCC) member institutions. Only fourteen per cent of the libraries have a mobile presence, similar to the study findings of Bomhold (2014). Mobile apps offer services like catalogue search, database search, full-text article finder and FAQ.

In contrast, the Chaoxing m-library app used in Chinese universities has equipped to integrate the OPAC system, cloud sharing service system, digital library portal and information exchange. A study by Hu and Zhang, (2016) among 723 Chinese universities states that it offers one million e-books and countless newspapers to the patrons as local and foreign literature that could be shared among Universities. In another study, Wei and Yang (2017) reported that 84.6% of the 985 universities across the globe had started WeChat Library, which offered services like OPAC retrieval, items borrowed, personal centre, resource discovery and announcements. The app was found to have many advantages: less cost, easier promotion, cross-platform service, robust interactivity and real-time consulting. Not only for educational purposes, but many libraries have also customised their mobile apps for recreational purposes like 'U-Win' initiation to attract students to online games at the Rector Gabriel Ferraté Library - Technical University of Catalonia (Codina Vila *et al.*, 2010). Power (2013) explained the most helpful apps for librarians in his study. Goodreads, Dropbox, Wikipenion, IMDB, EasyBib, and WorldCat Mobile were some of the best apps he suggested the librarians use.

Sharma and Madhusudhan (2017) reported that the majority of the LIS students in Uttar Pradesh (83.66%) used mobile devices to access the library websites as well as to access the repository (41.83%). This corresponds to the study findings of Caniano and Catalano (2014). They discovered that 50 per cent of

the participants used mobile apps to access the library, especially for searching the catalogue and database, when 250 students, faculty and staff at Hofstra University were surveyed. Adrakatti and Mulla (2017) presented how the Gogte Institute of Technology, Karnataka offers services to their end-users through their dedicated mobile app. The app's push notification features help the patrons get notified regarding the renewal, return and library fine. They said that mobile apps are essential for any library to access electronic resources. While moving to the mobile platforms, a library has to consider many things, including the cost of the technology adoption, the diversity of preferences and needs of the patrons (Barnhart and Pierce, 2012).

In summary, only a few studies describe the integration of mobile technology in libraries in India. That creates a massive void in the application of mobile apps in Indian libraries. The present study aims to provide valuable insights into how/to what extent Indian libraries can adapt the fastest-growing mobile technology to serve highly effective users.

## DATA AND METHOD

This study uses a descriptive survey with an online investigator-made questionnaire prepared in English using Google Forms (<https://docs.google.com/forms>) for collecting the data. The participants selected for this study were LIS professionals (Librarians) of all major types of libraries in the country, viz. Public, corporate, special, research, academic and so on. The questions asked in the questionnaire were to seek information regarding the participants' demographic information, development of in-house library apps, adoption of other available apps in the apps store, integration of social media apps and the major impediments in the use and adoption of apps. The questionnaire was sent to the personal email id of the respondents. In addition, for good responses from all parts of the country, the questionnaire was circulated on Facebook, WhatsApp and other social media platforms, as well as in library discussion forums like LIS Links, LIS-Forum and

Corporate Librans with a formal request to participate in the survey. A total of 229 respondents, 140 male and 89 female, completed the survey from 12<sup>th</sup> March 2022 to 15<sup>th</sup> August 2022. The collected data were analysed with the help of IBM SPSS 21 edition and Microsoft Excel 2010. Data were analysed using descriptive statistics, including frequency and percentage, presented in tables and graphs.

## RESULTS

First, the study sought demographic and cellphone usage information among the participants. Next, the development of in-house mobile apps and significant services offered were demonstrated. Later, the study analysed the adoption of significant apps available on the Apps store followed by the integration of social media apps and the major operations held through these apps. Finally, the major impediments faced by the professionals in integrating the apps were depicted. Major results are discussed below. (Data given in parentheses can be read as a percentage)

## GENERAL INFORMATION

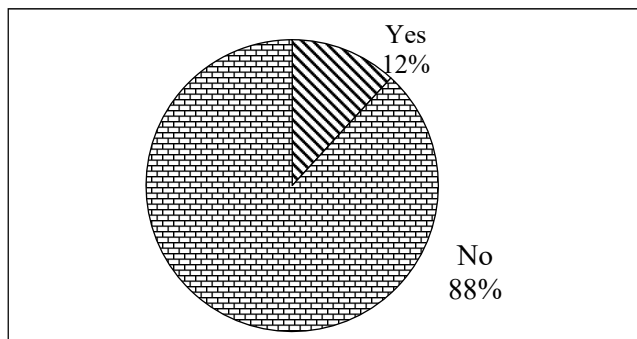
Table 1 shows the general information of the surveyed participants. The majority of the respondents were male (61.13%) compared to their female counterparts (38.87%) and had a master's degree in Library and Information Science (57.20%). Most respondents worked in colleges (51.09%) and universities (35.80%). Concerning the ownership of the cell phone, participants liked to own a smartphone and a basic phone (87.77%). Regarding the operating system, 96.60% used an Android OS, followed by iOS (2.62%) and Windows (0.87%).

### Libraries with an in-house App and Major Services Offered

Figure 1 and 2 shows the number of libraries in the country that built a dedicated mobile library app for serving the patrons and the major services offered

**Table 1: General Information**

Response	Male	Female	Total
Gender	140(61.13)	89(38.87)	229(100.00)
<b>Educational Qualifications</b>			
BLISc	3(2.10)	3(3.40)	6(2.62)
MLISc	76(54.30)	55(61.80)	131(57.20)
MPhil	20(14.30)	14(15.70)	34(14.84)
PhD	40(28.60)	16(18.00)	56(24.45)
Postdoc	1(.70)	1(1.10)	2(.87)
<b>Type of Institution</b>			
College	73(52.10)	44(49.40)	117(51.09)
Corporate	6(4.30)	1(1.10)	7(3.05)
Public Library	1(.70)	2(2.20)	3(1.31)
R&D	3(2.10)	2(2.20)	5(2.18)
School	8(5.70)	2(2.20)	10(4.36)
Public Sector	5(3.60)	-	5(2.18)
University	44(31.40)	38(42.70)	82(35.80)
<b>Type of Mobile Phone use</b>			
Smartphone	22(15.70)	6(6.70)	28(12.22)
Both Smartphone and Basic phone	118(84.30)	83(93.30)	201(87.77)
<b>Operating System</b>			
Android	136(97.10)	84(94.40)	220(96.06)
Blackberry	-	1(1.10)	1(0.43)
Ios	3(2.10)	3(3.37)	6(2.62)
Windows	1(.70)	1(1.10)	2(0.87)
Total	140(61.13)	89(38.86)	229(100.00)

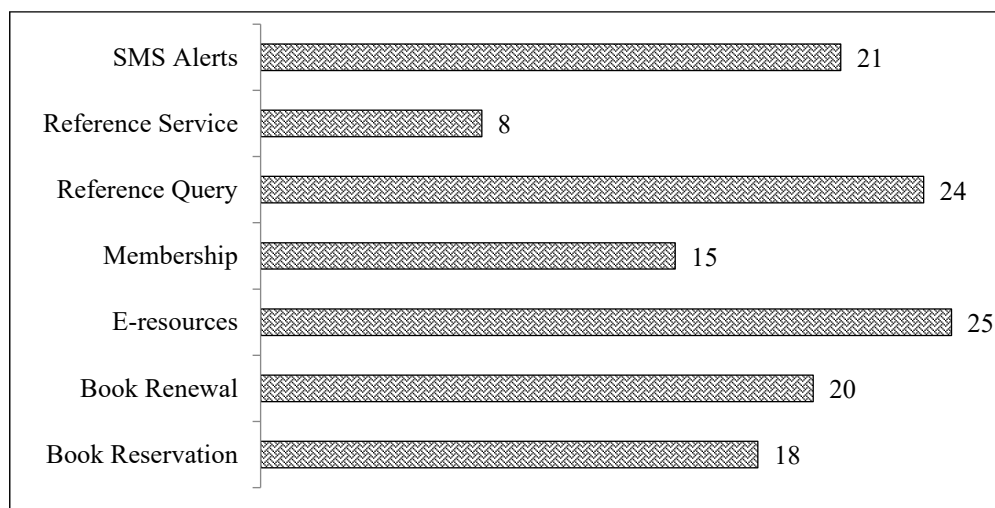
**Figure 1: Libraries with own Built/in-house App**

through these apps (RQ1). Only 27(12%) libraries in the country owned an app they built indigenously. The most common service offered in most apps was the e-resources facility. 25 (92.59%) libraries offered this

service through their app. Reference query service was offered in 24 (88.88%) mobile library apps, followed by SMS alerts in 21 (77.77%), book renewal in 20 (74.07%), and book reservation in 18 (66.66%) and membership registration in 15 (55.55%) library mobile apps. The least offered service, according to the data, was the Reference service. Only 8 out of the 27 libraries (29.62%) offered reference-related services to their patrons through their own-built library apps.

### Use of other apps for Supporting Library Operations

Apart from the in-house apps, an attempt was made to assess whether participants use any other apps

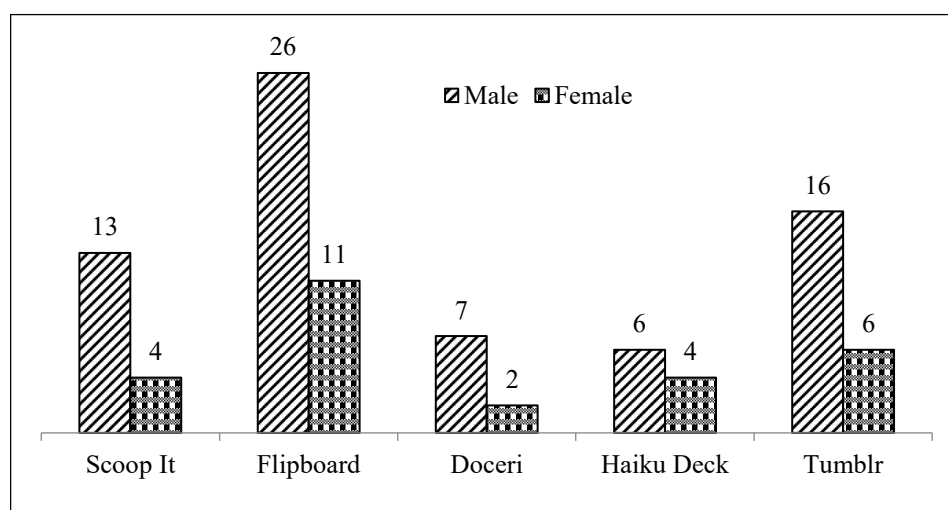
**Figure 2: Services offered in in-house App**

available in the Apps store for aiding the library functions and services. Major 5 apps were asked for this purpose. As per Figure 3, only 13 male and four female LIS professionals used Scoop It for content curation. The use of the Flipboard app for news and social media aggregation was found to be good compared to other apps. 26 male and 11 female respondents used this app. The use of the interactive whiteboard app 'Doceri' was found to be meagre among the respondents (9 participants). The next least used app was Haiku Deck. Only six male and four female participants integrated this app into their library. In total, 22 respondents used Tumblr apps which could have integrated with other social media apps for

developing personal learning networks (PLNs) for teaching, learning, and research by the librarians.

#### Use of Social Media Apps and Major Services/ Operations Performed

Social media is beginning to play an essential role in marketing library products across the globe and getting branded as well. Figures 4 & 5 show the major 11 social media apps and their adoption in libraries and the significant operations performed by using these apps (RQ2). WhatsApp, owned and operated by Facebook, was the best-loved social media app used by 69.43% of the libraries, followed by the parent companies' own Facebook and Google's YouTube with 66.37% and

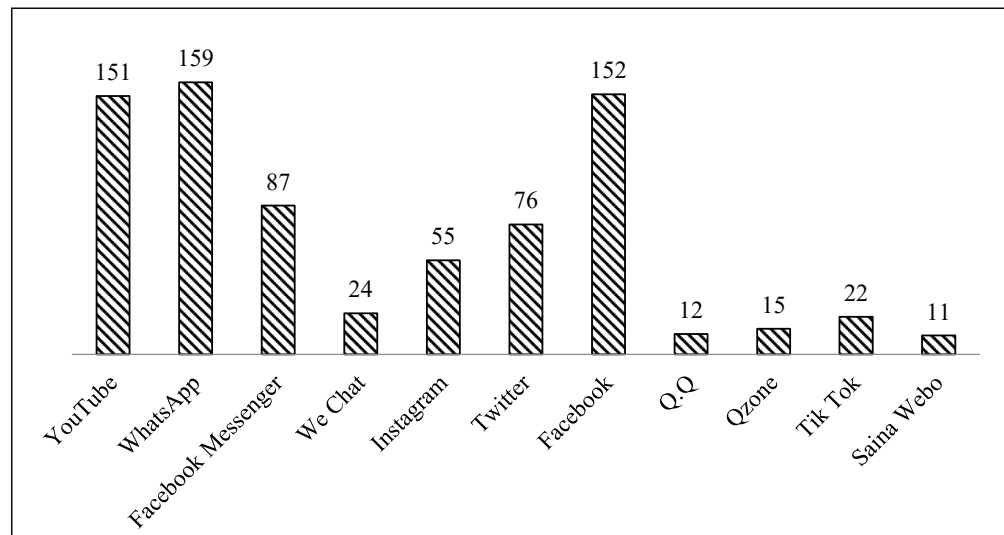
**Figure 3: Use of Apps for Supporting Library Operations**

65.93%, respectively. The Chinese social media apps like Sina Weibo (4.80%), QQ (5.24%) and Qzone (6.55%) were the least used ones. Regarding the operations, the majority of the libraries used social media apps for sharing information about library services with their patrons (74.67%), followed by sharing information about upcoming events (68.12%) and highlighting library collection (62%). 127 (55.45%) libraries used social media apps for reference advisory services. Only 60 libraries started streaming their events and activities, which stood as the least offered service, using social media apps.

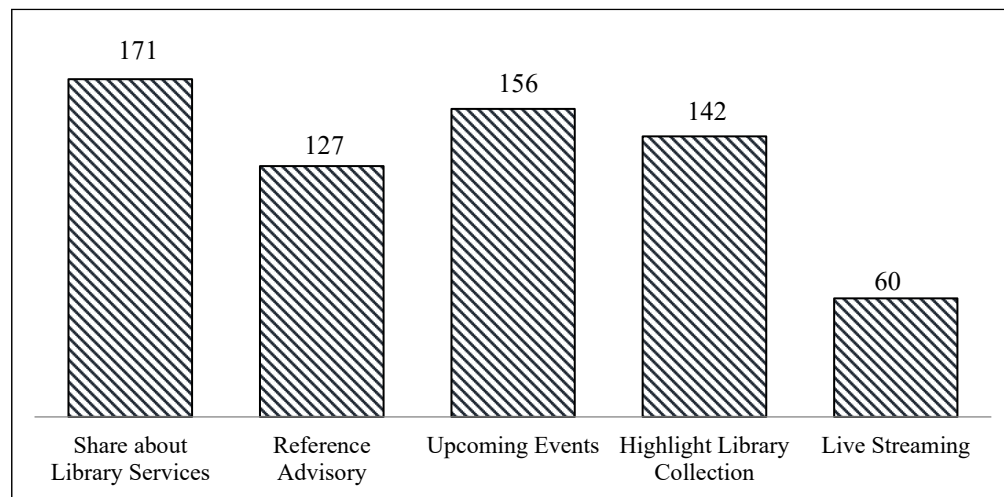
### Major Impediments in Using Apps

Concerning the third research question (RQ3), the most obvious hurdle for both male (60.40%) and female (74.20%) respondents was the unavailability of the apps in the offline mode; this was followed by storage problems (55.40% for male and 65.50% for female). Internet problems were a major hurdle to 62.90% of females and 41.70% of male respondents. 48.90% of male and 57.30% of the female participants cited licence problems in using apps, followed by 41.70% of males, and 46.10% of females opined content problems. Only 20.20% of females and 15.10% of males cited

**Figure 4: Use of Social Media Apps**



**Figure 5: Use of Social Media for Library Operations**



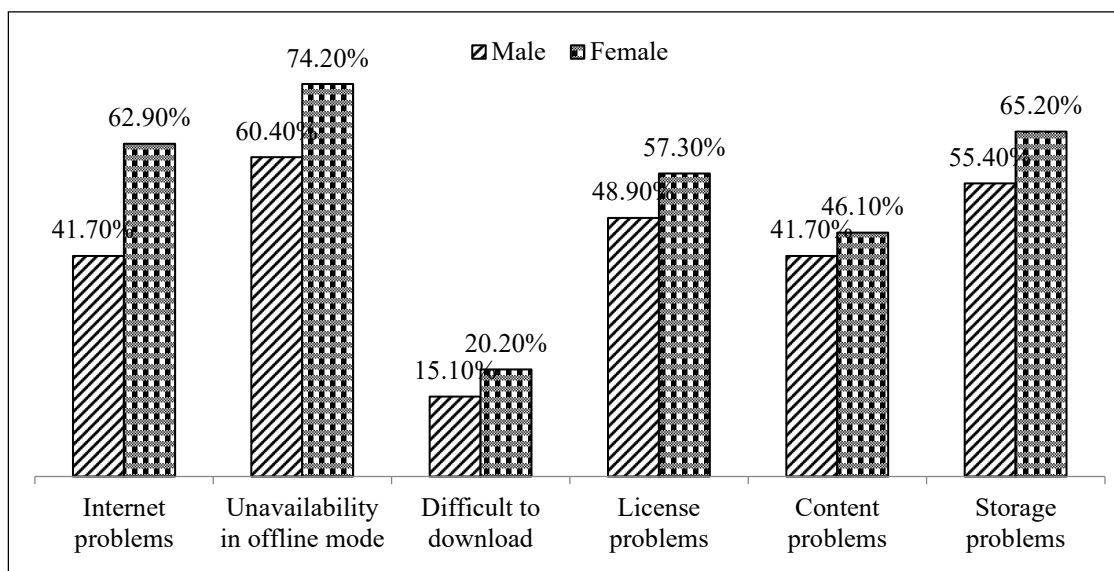


Figure 6: Major Impediments in Using Apps

difficulty in downloading as an impediment, as per the data in Figure 6. It is to be noted from the analysis that female respondents have a higher degree of problems compared to males in using the apps.

## FINDINGS AND RECOMMENDATIONS

The current study was conducted to know the development and use of mobile apps in Indian libraries for providing mobile information services to their patrons. The result of the study showed that cent per cent of the respondents used mobile phones and apps. The majority of the respondents were smartphone users with Android OS. The overwhelming use of android phones among people, including librarians, has been reported in previous studies (Mansour 2016, p. 384; Rung *et al.*, 2014; Arain *et al.*, 2018). Further, the study delineated that 27(12%) libraries out of the total 229 libraries surveyed had developed their library app for serving their patrons. Such apps were developed to offer services like e-resources facility, reference query, SMS alerts, book renewal and book reservation. The positive side of SMS and Email alerts through mobile technology had been noted in a previous study that students favoured daily announcements from the library (Baggett and Williams, 2012). Apart from in-

house apps, our study found that libraries were not effectively using some other fruitful apps like Doceri, Scoop it, Haiku Deck etc., available on the major app stores.

The study also solicited information regarding the use and integration of social media apps in aiding library operations. WhatsApp, Facebook and YouTube were the widely used social media on which the majority of the libraries hooked for providing information regarding library services, upcoming events, reference advisories and highlight collections. Streaming services help libraries to reach plenty and market them globally. Even though our findings discovered that video streaming was not up to the mark in Indian libraries. So, libraries need to concentrate more on *live-streaming services*, which can be implemented according to the live-stream tips and execution steps given by American Library Association (American Library Association, 2019). In this way, libraries can reach out to the target community in the shortest time and most effectively (Fernandez, 2009). Respondents also reported challenges in using the apps due to unavailability in offline mode, internet problems and storage problems. The same problems have been reported in other studies also (Lau and Kolli, 2017; Mansour, 2016).

The following recommendations are proposed to improve the presence of Indian libraries through their mobile apps.

1. LIS professionals should be given proper training and support for mobile app development and maintenance.
2. Patrons/ users should be trained to use the library mobile app.
3. LIS professionals can make use of offline apps to tackle the problem of an internet outage.
4. LIS professionals can integrate already available apps in the apps store for library operations.
5. Formal user studies should be conducted before developing a mobile library app.

## CONCLUSION

Mobile learning or m-learning is considered the fastest penetration of ICT to the education domain (Pegrum *et al.*, 2013). These kinds of integration, especially mobile technology, has been reported to be mature and emerged victorious up to an extent in meeting the information needs of the students and users (Wei and Yang, 2017). Indian libraries are not omnipresent through their dedicated library app, which needs to be addressed so that libraries can become ubiquitous by offering services anywhere and at any time. Adding to this, the integration of mobile apps helps the users to reach and make use of the library in an easy way which helps all the stakeholders, including librarians, users and management, to fulfil their duties. It is also worth noting that mobile technologies are upgrading daily and an ongoing assessment in this area is vital to offer the best services to the patrons.

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## **Exploring the Web-based Library Services and Usage of e-resources at IIM Bodhgaya**

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### **ABSTRACT**

Given the importance of web-based library services for efficient resource use as well as understanding the time constraint, this paper focuses on the awareness about library web based facilities and services and use of these services among 50 students of IIM Bodh Gaya. It also highlights a preferred approach for checking the availability of library resources. Indian Institutes of Management (IIMs) were established by the Ministry of Human Resource Development (Now Ministry of Education) to impart quality management education. In the course of imparting quality management education by these institutions, the libraries of the IIMs are playing a vital role by providing the resources and information sources to the users. The Internet and web based technologies are well used in their libraries to provide the access to resources through the library web portals

**Keywords:** Web-based services, Awareness, e-resources, Databases, Usage

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### **INTRODUCTION**

The arrival of the internet and its consequence to development in electronic assets in the field of library and information science is often a point of discussion over the existence of print resources in the libraries. This has modified the functions of libraries and has affected the conventional way of library development and its functions. Library users are now feeling more satisfied with the new technology which meets their instant needs of information and resources. They are hardly bothered from where the information comes, whether it is digital material, e-books, or any other e-medium. Information service and collection development has been largely impacted by the digital environment and librarians are now putting their utmost

effort to give new dimensions in library services and its functioning. The Information Communication Technology has brought a dynamic change in access to information worldwide and has provided a global platform to the resources, knowledge and libraries. Creation of a library of global knowledge can be attributed to the ICT. Librarians are adopting the typical characteristics of new age mode to access the library resources in this era of globalisation which provide the globally accessible information resources, digital and e-resources, virtual library, web-based resources and libraries at the door of users. The compulsion of going to the library physically and library opening times are not a restriction now. Now the content is made available to the users' desktop by the new age technology.

## REVIEW OF LITERATURE

Noh and Ro (2021) mentioned that e-resources provide the pleasure of reading free of time and space constraints. E-resources subscriptions include e-libraries provided by regular library services. This is the time for libraries to prepare for the leap in electronic libraries through quantitative and qualitative improvements. Application reviews by users to choose an application to use e-resources play an important role in making purchase and download.

Chen (2019) concluded that the accessibility of electronic resources is an influential factor in humanities scholars during their research productivity. Most participants agreed that the university library should spend more money on electronic resources, even if it means a reduction in the acquisition of printed materials. A rapid increase in scholarly electronic resources and the convenience of using them may have forced the humanities scholars to change their searching and reading behaviours. However, this study also identified problems in the availability of some electronic resources.

Kachaluba *et al.* (2014) found that humanities scholars were engaged in new information technologies and appreciated the advantages of having scholarly resources in an electronic format.

Wilders (2017) indicated that not enough humanities e-books are available because electronic publishing in the humanities field is still on a small scale. Compared with books, journal articles were more likely to be available in an electronic format. Therefore, the probability of the humanities scholars accessing an e-journal article was higher than that of an e-book. However, the findings suggested that the participants' use behaviour was not influenced by whether a document was available in electronic format.

Jha and Babel (2022) stated that in the course of imparting quality management education by these institutions, the libraries of the IIMs are playing a vital

role by providing resources and information sources to the users. The Internet and web-based technologies are well used in their libraries to provide access to resources through the library web portals. They further stated that the users need some library outreach programme to make the users know about the availability of other web-based library services like: links or hyperlinks to electronic resources through the library web page, list of new arrivals alert services, electronic indexes and other aided services to find the resources.

Bhardwaj and Walia (2012) in a study of the Web-based information services available for the users at St. Stephen's college of the University of Delhi found that 'Trillion' for chat-based reference services, for instant messenger aggregator 'Meebo' and library H3lp are used in addition to the website maintained and managed by the library to provide access to the e-resources to the students.

Kumar and Kumbar (2012) observed that the optimum utilization of electronic resources can be made viable only by making the users informed in using available advanced search options in the search menu of the electronic information resources. Users should know the latest techniques for taking benefits to access up to date information. They also stated that the faculty at by and large benefited from e-resources by accessing up to date information.

Garg *et al.* (2017) found that e-resources are used by students and faculty members for research work and other academic activities. These resources help them to save their time and provide the platform to access the required important information. In addition to that the e-resources help them to update their general aptitude and improve their academic performance.

## STATEMENT OF THE PROBLEM

A paradigm shift in nature and mode of library resources now has a great impact in collection building of a library to make the required resources available

and provide the access to resources to the users at less cost and the least time with the help of modern technology which has brought a change in researchers' expectations, their readiness to accept the round o'clock available services. Answer to the users' expectations is the availability of e-resources to meet their needs. Various efforts have been made by the researchers to assess the impact of e-resources on research and academic activities. As far as business schools are concerned, some researchers have ventured to study the uses of e-resources by users and impact of services provided by different IIMs libraries but for IIM Bodh Gaya is to be made.

## OBJECTIVES

- To know the adequacy of library resources and awareness about the e-resources among the users
- Find out the library services towards e-resources
- To study the impact of e-resources and services in their academic and research efficiency
- Suggest the course of action for effective use of e-resources

## SCOPE OF THE STUDY

This research is confined to the users from different areas of Management studying at IIM Bodh Gaya.

## METHODOLOGY AND ANALYSIS

A structured survey form circulated among 50 users for surveying. 90% participants responded to the questionnaire. Tables and figures are used to present the responses received from the users, and simple method of calculation is used to analyse and interpret the data so received, in following sections:

### Adequacy of e-resources

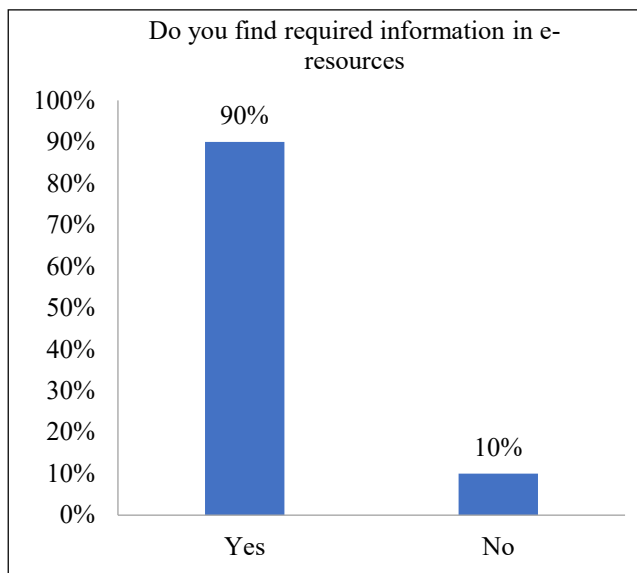
Electronic resources are considered as all important research tools and regarded as compliment to print resources in traditional libraries. In scholarly

communication, online journals have now been established as a prime source. Features like integration of multimedia contents, hyper linking, timely publication, easy delivery; convenient search facility, etc. have linked the interest of library and academic communities. The ease of frequent updating of information enables the e-resources to provide access to real time information. IIM Bodh Gaya Library is facilitating some 7000 journals in electronic form and various online databases to quench the information thirst of its users. But, this is also to understand that in this era of information explosion and multidimensional approach to research work, all the contents and information may not be procured and provided by any individual library. So, to know whether the users at IIM Bodh Gaya are able to get adequate resources of information for their research work or not, some general questions were asked pertaining to their information requirement and adequacy of resources for their research work. Respondents' responses to the questions are presented in figure.

Finding required information from the resources provided by the library is an essential step to using the library resources effectively. Albert (2014) analyse that a consistent behaviour of communicating the library's value within the larger institution which will then change attitudes about the library and its services (p 634), therefore a question whether the users are able to find the required resources was asked from the users from available e-resources in the IIM Bodh Gaya Library. The Figure 1 shows that 90% respondents were able to find the required information while 10% respondents were not able to do that. This may be summed up as the Library resources is adequate to quench the required academic resources to the users.

### Web-based Library Services Provided by the Library

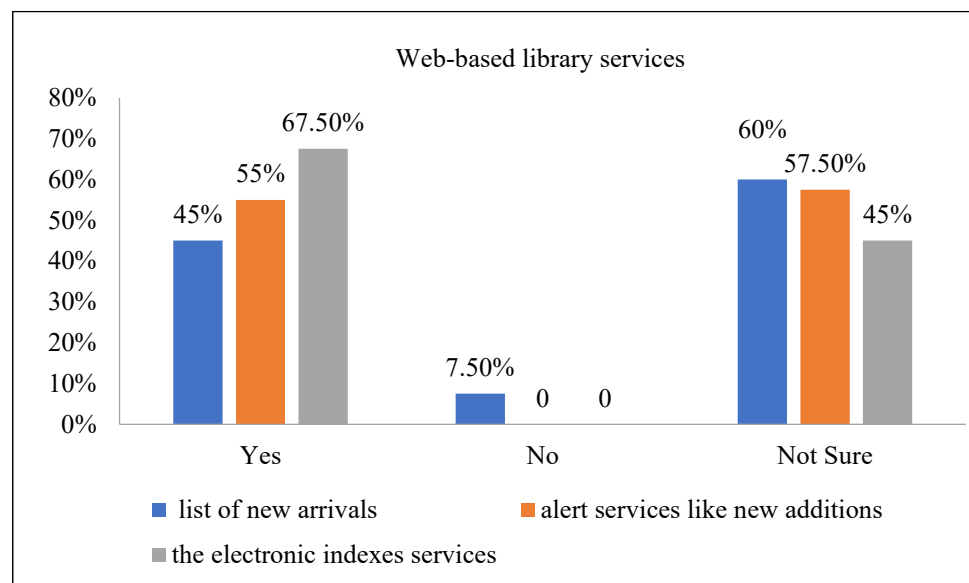
Services which help the users to know about the resources available in the library are provided by the librarians to the users. On the question of services of new arrivals, alert services, and electronic indexes



**Figure 1: Finding required information in e-resources**

services were asked from the users. 45%, 55% and 67.50% users responded on the question of the service of new arrivals, alert services, and the electronic indexes services respectively provided by the library, while 7.50% respondents responded that list of new arrivals service is not available, whereas 60%, 57.50% and 45% respondents responded that they were not sure about the services of new arrivals, alert services and electronic indexes services respectively (Figure 2).

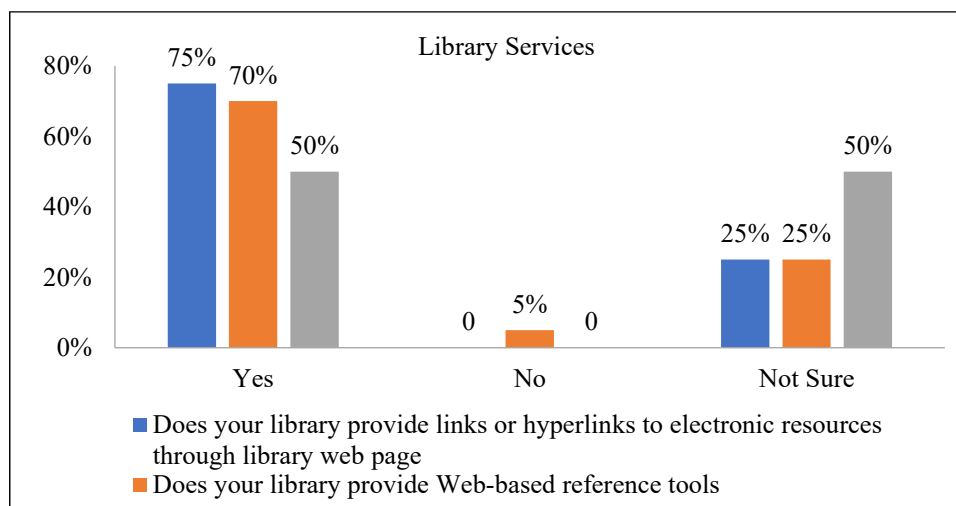
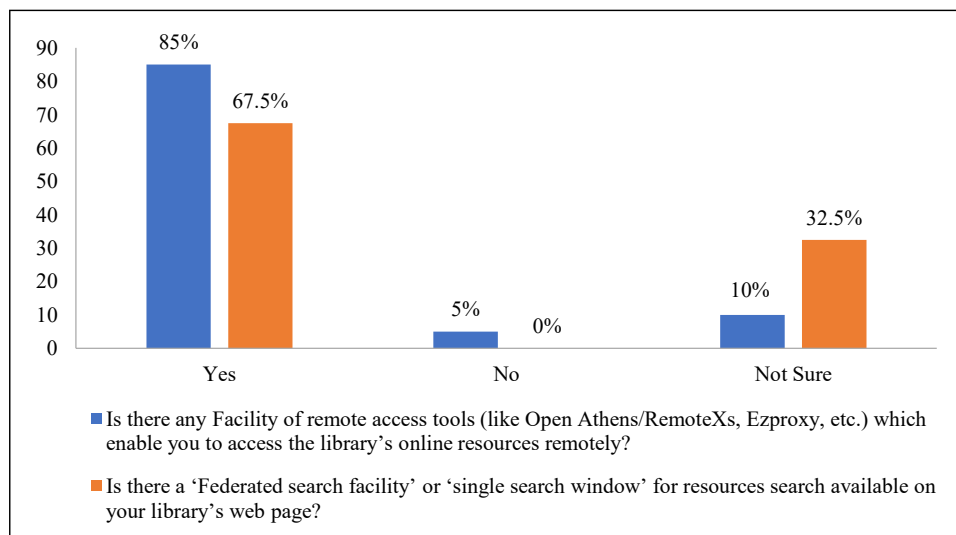
**Figure 2: Web-based Library services**



Another set of questions pertaining to the library services were further asked from the users where 75%, 70% and 50% respondents responded in yes on the question of services of links or hyperlinks to electronic resources through library web page, Web-based reference tools and online current awareness bulletin respectively. On the other hand, 5% respondents said that there is no service of Web-based reference tools while 25% respondents were not sure about the services of links or hyperlinks to electronic resources and Web-based reference tools each and 50% respondents were not sure about the service of online current awareness bulletin (Figure 3).

### Remote Access and Federated Search Facility

The concept of library from the conventional form of services is now changing to provide the up to date services to the users at their doorstep (Figure 4). To facilitate such services the remote access tools is considered as an important aspect. A question on remote access tools was asked from the users where it is found that majority of respondents is aware about this tool and they also responded that the Federated search facility or Single search window services for searching the resources are provided by the library, but this is also appearing here that a larger chunk of the

**Figure 3: Web-based Library services****Figure 4: Remote access and Federated Search facility**

users are not sure about the single search window service being provided by the library.

### Problems in Accessing e-resources through Remote Access Tools

On the question of problems in accessing the e-resources through remote access tools 40% respondents responded 'yes' while 60% said no. This is evident from the figure given below that the steps should be taken to solve the problems in accessing e-resources through remote access tools (Figure 5).

### Downloads of Full Text Articles

A question on full text articles downloads was asked

to the respondents. As per response the figure below shows that 20% respondents download the full text articles up to 10, 35% respondent download up to 20 full text articles, 15% download up to 30 articles per month, 25% respondents download up to 40 full text articles per month while 5% respondent download more than 40 full text articles in a month (Figure 6).

### Impact of e-resources on Academic Efficiency

While being asked the impact of e-resources on academic efficiency 15% users stated that this provide current up to- date information, 20% stated that it expedites the research process, 25% believe that the e-resources provide the access to a wider range of

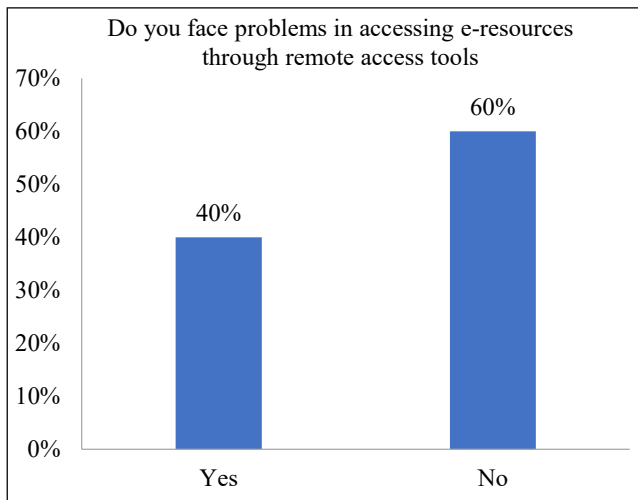


Figure 5: Problems in accessing e-resources

information, the percentage of users who believe that it provides faster access to information and easier access to information is 20% each (Figure 7).

## RECOMMENDATIONS AND CONCLUSIONS

- Based on the findings of the study few recommendations are suggested. Library should focus on holding more orientation sessions to let the users know about the resources available in Library as it is found that most of the users are not sure about the library services provided to know the e-resources.
- More resources on different subject areas are needed to be added to the resources.

Figure 6: Frequency of downloading full text articles per month

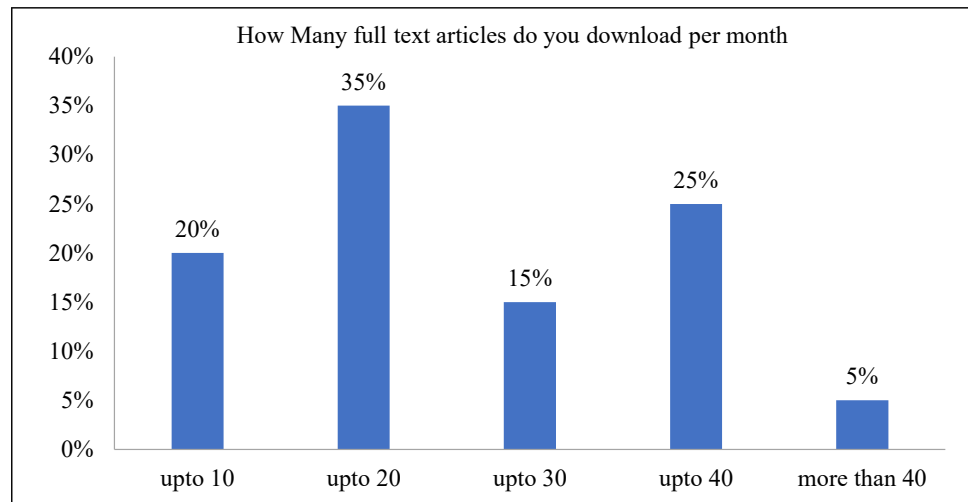
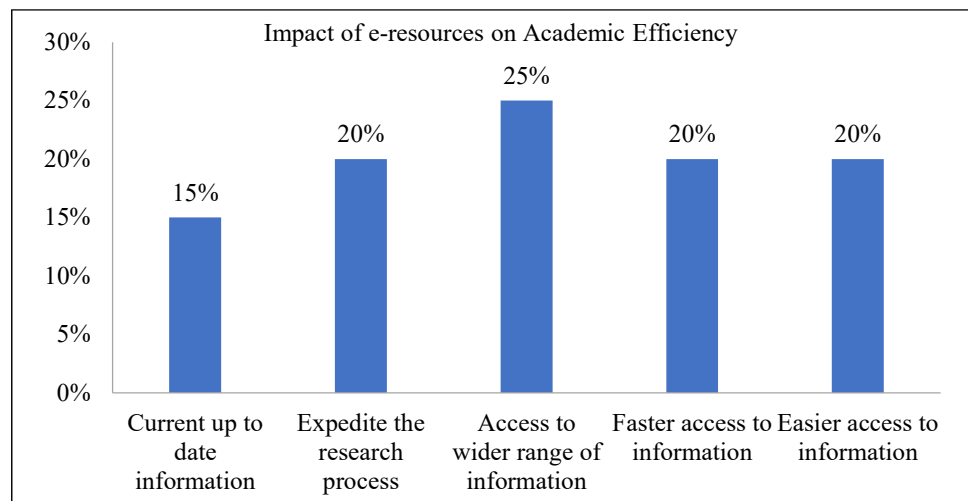


Figure 7: Impact of e-resources on academic efficiency



- Use of Library web pages should be increased by driving awareness to how to access the e-resources.
- It is essential to have better tools to solve the problems in accessing the e-resources using remote access tools. There may be problems like, authentication error, slow download speed faced while using remote access tool.

## CONCLUSION

- This paper reports on a survey of users at IIM Bodh Gaya. The users of the library e-resources are postgraduates, users and faculty. The main purpose of using IT resources and services by the users were updating knowledge as well as research work, access to a wider range of information.
- The entire scale of problems confronted by the users come down to the fact that there are some major unawareness issues pertaining to the available library services which can be sorted out by organizing user orientation programs in the beginning of the session and library professionals should have a continuous professional development.

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## Job Performance of Academic Librarians: Marginalization of Organizational Politics in Ahmadu Bello University Library in Nigeria

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### ABSTRACT

The study investigated the extent to which organizational politics affected job performance of academic librarians in Ahmadu Bello University (ABU), Zaria. The study adopted survey research design. Population of the study consisted of 102 librarians from ABU library, Zaria. There was no sampling technique involved in this study because the researcher is interested in the total population, therefore total enumeration or census method was adopted for this study. This is because the researcher considered the population as not too large to manage and that the use of the total enumeration can eliminate any potential bias that may occur if a sample is selected and allowed for the generalization of the findings from the study. The researcher employed the questionnaire as the research instrument for collecting data in this study. 102 questionnaires were distributed to the respondents, out of which 98 (94,6%) were returned. The data collected was analyzed by using Statistical Package for Social Science (SPSS) version 22. The data collected was analyzed using descriptive statistics such as frequency distribution, percentages, mean and standard deviation. The findings revealed that the level of academic librarians' job performance ABU, Zaria library was high (Average Weighted Mean = 3.30), on a scale of 4. Job performance was measured by three indicators (declarative knowledge, motivation and procedural knowledge). The finding revealed organizational politics takes place among the librarians in ABU library in Zaria (Average Weighted Mean = 3.09). The study concluded that organizational politics contributed to librarians' job performance in ABU Zaria. The study recommended that the level of academic librarians' job performance in ABU Zaria should be sustained by library management.

**Keywords:** Job performance, Organizational politics, Librarians', University library

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### INTRODUCTION

The primary aim of all organizations is to fulfil certain goals and accomplish the mission and vision established by that organization. The fulfilment of these goals lies in the contributions of the human resources in the organization, who are the employees. Employees in an organization play a significant role in accomplishing the

goals and objectives through their level of job performance (Okolocha *et al.*, 2021). These authors further stated that no organization can succeed without the input of its employees. Hence, every institution needs an effective and efficient employee to accomplish organizational goals and objectives and this can be achieved through the performance of the employees on the job. It has become common

knowledge that the importance of employees in an organization cannot be over emphasised in that, they are the ones who drive the productivity of the organization. They are central to the performance of an organization and no organization will have the capacity to move forward without taking a recognising look at their input. Libraries are essential contributors to knowledge generation and serve a wide spectrum of knowledge seekers. Libraries support the curriculum and research initiative of their parent institutions. Libraries, also provide a number of services that are directed towards making the users satisfied.

Librarians provide a lot of services to the academic community which reflects the kind of job they carry out. They perform jobs that are technical in nature such as cataloguing and classification, acquisition and use services such as referencing and response to users queries. They also conduct educational services and selective dissemination of information to both students, teachers and general users of the library (Jerry and Ifeka, 2020). Librarians preserve intellectual content by maintaining information in different formats. Other services that the librarian provides range from granting access to materials for physically impaired users to training them on how to use the digital materials in the library through soft skills. Librarians try to meet the social and educational needs of users in their respective communities and drive community literacy campaigns through information literacy programs. Therefore, for any library to provide effective and efficient services, the level of job performance of the employees who are librarians must be high.

The performance of librarians can be viewed in terms of competencies and skills librarians should possess and demonstrate in discharging their duties. Librarian's competencies and skills will include practical skills, cognitive abilities and other general skills. The competencies and ability required are directed toward the job performed by the librarian. Therefore, the library as an organisation places emphasis on job performance in order to encourage effectiveness and

efficiency to fulfil obligations and tasks in the library. Many organizations including libraries anticipate meeting their stated objectives through effective performance on the job (Victoria, 2020). According to Nwokike (2018), the expectations of librarians' job performance are predicated on their work-related behaviours.

Many university libraries try to meet their stated objectives through effective performance on the job (Okolocha *et al.*, 2021). The extent to which the university library achieves its objectives depends on the job performance of librarians. Studies have shown that the performance of librarians on the job especially those in public university system has so far been poor. Ekene *et al.* (2016); Ikon and Itau (2016) empirically reported that librarians in public university libraries are yet to meet the expectations of their stakeholders which amounts to the fact that they are not performing well. Librarians in public libraries are supposed to be proactive by being effective and efficient in the discharge of their duties both technically and otherwise. However, observation by this researcher in public libraries in the North-West Nigeria shows that the level of job performance seems to be poor. The poor performance of the librarian is shown from the fact that users complain that librarians are not always at their duty post. Users feel that librarians do not respond adequately to their complaints. Consequently, they abstain from using the library. Scholars such as Uzomba *et al.* (2015) have established that the librarian's job performance could also depend on certain factors like organizational politics.

Organizational politics is a phenomenon that exists in every organization due to the cultural differences. According to Ikon and Itau (2016), organizations operate within the confines of organizational culture and organizational politics. Hence, it is viewed as the pursuit of individual interests without regard to the overall effect on the achievement of organizational goals. It consists of informal efforts to sell ideas, increase power and achieve other targeted objectives in an organization. Bell (2016) describe organizational politics as a matter

of manipulating people within the organization to achieve personal goals or designing internal power plays to take over resources. It is therefore, critical to state that when the political landscape of an organization is not healthy, it therefore affects the performance of the organization especially the job output of workers. It is a common knowledge that employees do not want to work in an environment where there are various negative political behaviours and power play. This is because the likelihood of employees leaving their job could be high if they perceive an increased level of organizational politics.

Organizational influence is viewed as elements such as actions, communications process, policies from the top level management that influence the entire organization. Organizational influence are the characteristics or attributes of an organization and the impact they have on employees of that organization. Organizational influence can take different dimensions such as an organization exerting control on employees through tangible or intangible means. Organizational influence help employees satisfaction is considered as all-around module of an organization human resource strategies.

## STATEMENT OF THE PROBLEM

The need for librarians and library services to the university community is so enormous that the university cannot function effectively without it. Librarians are seen as the most important and indispensable part of the library institution because of the services required of them to provide. Continuous researches in the universities may not be possible without effective functions of libraries and librarians. Ekere (2016); Okolacha *et al.* (2021) stated that the university libraries are supposed to serve all areas of knowledge taught in the university. Therefore, to achieve this end, the librarians have veritable roles to play, because they are responsible for acquiring, describing, classifying, administering, preserving and organizing library materials by introducing effective access control devices and interpret their content through personalized services.

However, despite this important role of the library, scholars such as Onyekweodiri (2016); Ikon and Itua (2018); Owubiko (2014) cited in Okorie (2019) noted that the job performance of librarians are low, observation observed from the researcher have also revealed that the libraries in ABU Zaria are also not performing to the expected level. Evidence of this is revealed from the fact that users complain that librarians are not at their duty post as they come at will and also leave whenever they wish. Users saw that librarians are not responding adequately to their complaint. Hence, most of the users (student and lecturers) stay away from the library. Based on these, the understanding of underlying factors that could lead to low job performance is imperative so as to address this problem. It is on this premise that the study aims to investigate the Job Performance of Academic Librarians: Marginalization of Organizational Politics in Ahmadu Bello University Library in Nigeria.

## OBJECTIVE OF THE STUDY

The main objective of this study is to investigate the Job Performance of Academic Librarians: Marginalization of Organizational Politics in Ahmadu Bello University Library in Nigeria. The specific objectives are to:

1. Determine the level of job performance of academic librarians in ABU library, Zaria;
2. Ascertain the organizational politics prevalent among academic librarians ABU library, Zaria
3. Determine the influence of organizational politics on job performance of academic librarians in universities in ABU library, Zaria

## RESEARCH QUESTIONS

To achieve the identified objectives, the following research questions are answered in the study:

1. What is the level of job performance of academic librarians in ABU library, Zaria?

2. What is the organizational politics prevalent among academic librarians in ABU library, Zaria?

### Hypothesis

The following null-hypothesis is tested at 0.05 level of probability ( $p < .05$ )

$H_{01}$ : Organizational politics has no significant influence on job performance of academic librarians in public universities in ABU library, Zaria.

### METHODOLOGY

The survey research design was used in this study. The population for this study is 102 academic librarians ABU library, Zaria. There was no sampling technique involved in this study because the researcher is interested in the total population, therefore total enumeration or census method was adopted for this study. This is because the researcher considered the population as not too large to manage and that the use of the total enumeration can eliminate any potential bias that may occur if a sample is selected and allowed for the generalization of the findings from the study. The researcher employed the questionnaire as the research instrument for collecting data in this study. The data collected was analyzed by using Statistical Package for Social Science (SPSS) version 22. The data collected was analyzed using descriptive statistics such as frequency distribution, percentages, mean and standard deviation, especially for the research questions. The hypothesis were analyzed using inferential statistics like linear regression analysis. This analysis was used to test the influence of independent variables on the dependent variable.

### DATA ANALYSIS, RESULTS AND DISCUSSION OF FINDINGS

This chapter reports the findings on organizational politics and job performance of academic librarians in public universities in ABU Library, Zaria. This chapter begins with a presentation of the response rate. Next,

summarized and presented with the aid of frequency counts and percentages. Descriptive analyses were used to analyse the research questions in tabular forms while simple linear regression statistics were used to test the stated hypothesis by examining significant relationships attributed to librarians' job performance.

Out of the 102 copies of questionnaire handed out to the study participants, 92 copies of questionnaire were returned within the 7 days' period. This resulted in 98.6% response rate. Hence, the returned questionnaire copies were used to provide answers to the research questions and hypothesis raised in the study.

#### Research Question One: What is the level of job performance of academic librarians in public university libraries in ABU Library, Zaria?

The result on Table 1 showed that, the level of academic librarians' job performance in ABU Library, Zaria was high (Average Weighted Mean = 3.30), on a scale of 4. Job performance was measured by three indicators (declarative knowledge, motivation and procedural knowledge). Additional details from the analysis depict that declarative knowledge ( $x=3.35$ ), motivation ( $x=3.29$ ) and procedural knowledge ( $x=3.26$ ) indicates high levels. The implication of this analysis is that ABU Library, Zaria performed highly in all areas of job indicators, most especially in the area of declarative knowledge. The high level of job performance of the library employees could be based on the reason that ABU Library, Zaria recorded high scores in areas such as showing interest in the task (3.58), display good information organization skills (3.36), utilize automated library tools for work (3.36), display strong desire to serve the library's user community (3.48) and carry out tasks assigned in the library (3.40).

#### Research Question Two: Organizational politics prevalent among academic librarian in public universities libraries

The result on research question three is presented in Table 2. The result showed that organizational politics takes place among the academic librarians in ABU

**Table 1: Level of job performance of academic librarians in public university libraries**

Statements Please tick (✓) the option that best describes your level of job performance in the library.	Very high level (4)	High level (3)	Low level (2)	Very low level (1)	Mean	Std.
<b>Declarative knowledge</b>					<b>3.35</b>	<b>0.40</b>
I work better when i have an interest in the task	109(45.6%)	116(48.6%)	14(5.8%)		3.40	0.60
I understand my responsibilities in the library	106(44.7%)	119(50.2%)	09(3.9%)	03(1.2%)	3.39	0.62
You are good at organizing information in the library	96(40.2%)	132(55.6%)	10(4.2%)		3.36	0.56
Their control over the functionality of your unit in the library	88(36.8%)	119(49.9%)	31(12.9%)	01(0.4%)	3.32	0.62
I carry out my job task in the library	93(39.0%)	129(54.4%)	13(5.4%)	03(1.2%)	3.31	0.63
<b>Motivation</b>					<b>3.29</b>	<b>0.48</b>
I use automated library tools for a specific purpose	97(40.9%)	129(54.4%)	11(4.7%)		3.36	0.57
I try to use strategies that have worked in the past to solve library work challenges	94(39.5%)	118(49.5%)	25(10.6%)	01(0.4%)	3.28	0.67
I know how to use online public access catalogue	74(31.3%)	149(62.5%)	15(6.2%)		3.25	0.56
I work best when you know something about the library task	54(22.7%)	168(70.7%)	14(5.8%)	02(0.8%)	3.15	0.54
<b>Procedural knowledge</b>					<b>3.26</b>	<b>0.37</b>
I desire to serve the library's user community	125(52.6%)	103(43.2%)	10(4.2%)		3.48	0.58
I carry out tasks assigned in the library	113(47.5%)	108(45.5%)	16(6.6%)	01(0.4%)	3.40	0.63
I take pride in providing online reference services	100(42.1%)	120(50.5%)	15(6.2%)	03(1.2%)	3.34	0.65
Am happy with your work environment	85(35.9%)	119(50.2%)	27(11.2%)	06(2.7%)	3.19	0.74
Am motivated to attend library conferences	73(30.5%)	107(44.8%)	48(20.1%)	11(4.6%)	3.01	0.83
<b>Librarians' performance (Average Weighted Mean = 3.30)</b>						

Source: Researcher's Field Survey, 2022

Decision Rule: 1.0-1.49 = Very Low Level; 1.50-2.49 = Low Level; 2.50-3.49 = High Level; 3.50-4.0 = Very High Level. Criteria mean of 2.5 is calculated as follows:  $4+3+2+1=10/4=2.5$ .

Library, Zaria (Average Weighted Mean = 3.09). Further analysis shows that organizational influence ( $x = 3.30$ ), personal influence ( $x = 2.99$ ) and job context influence ( $x = 2.98$ ) are the prevalent organizational politics practiced among librarians in public universities libraries in ABU Library, Zaria. It is clear from the result organizational influence is more prevalent in the public university libraries investigated than personal influence and job context influence. The result indicates that organizational politics is more evident in areas such as employees' attempts on the job (3.43), organizational rule biased towards the entire library staff (3.38), management influence on rewards (3.35) and recognitions for achievement on the bases of affiliations

(3.30), delays in promotion (3.04), policy favouritism towards new staff (3.08) and lack of employees' involvement (3.06).

### Test of Hypotheses

Hypothesis were carefully analysed and tested using simple linear regression analyses & reported in Table 3.

### Hypothesis: Organizational politics has no significant influence on job performance of academic librarians in public universities in ABU Library, Zaria

Hypothesis was tested with simple linear regression analysis. The results of the regression analysis are presented in Table 3.

**Table 2: level of Organizational politics**

Organizational politics	Strongly agree (4)	Agree (3)	Disagree (2)	Strongly disagree (1)	Mean	Std.
<b>Organizational influence</b>					<b>3.30</b>	<b>0.48</b>
Staff keep from trying to make improvements	128(53.7%)	86(36.2%)	23(9.7%)	01(0.4%)	3.43	0.68
Organizational rule modifications do not favour the entire library staff	106(44.5%)	117(49.2%)	14(5.9%)	01(0.4%)	3.38	0.61
Reward in the library is influenced by the institution	107(44.8%)	109(45.9%)	21(8.9%)	01(0.4%)	3.35	0.66
Recognitions for achievement are done on the bases of affiliations	94(39.7%)	122(51.3%)	20(8.6%)	01(0.4%)	3.30	0.64
Promotions in the library are often delayed by the organization	65(27.2%)	119(50.1%)	48(20.1%)	06(2.6%)	3.04	0.73
<b>Personal influence</b>					<b>2.99</b>	<b>0.71</b>
Policy changes only favour few library staff	84(35.2%)	94(39.5%)	56(23.7%)	04(1.6%)	3.08	0.81
Some employees avoid getting involved when problem arise	78(32.6%)	106(44.4%)	46(19.5%)	08(3.5%)	3.06	0.81
Individual social status influences ones job role in the library	52(21.8%)	109(45.9%)	63(26.5%)	14(5.8%)	2.84	0.83
<b>Job context influence</b>					<b>2.98</b>	<b>0.71</b>
Rewards come only to those who work hard in the library	82(34.6%)	99(41.6%)	45(19.1%)	11(4.7%)	3.06	0.85
Staff do things their way because no one challenges them	85(35.6%)	78(32.8%)	66(27.6%)	10(4.0%)	3.00	0.89
Employees build themselves up by tearing others down	57(23.9%)	117(49.0%)	57(23.9%)	08(3.2%)	2.94	0.78
Employees usually don't speak up for fear of retaliation by others	61(25.5%)	112(47.0%)	53(22.3%)	12(5.2%)	2.93	0.83
(Average Weighted Mean = 3.09)						

Source: Researcher's Field Survey, 2022

Decision Rule: 1.0-1.49 = Strongly Disagree; 1.50-2.49 = Disagree; 2.50-3.49 = Agree; 3.50-4.40 = Strongly Agree. Criteria mean of 2.5 is calculated as follows:  $4+3+2+1=10/4=2.5$ .

**Table 3: Simple linear regression analysis of organizational politics and job performance of academic librarians in public universities**

Predictors	B	Beta ( $\beta$ )	T	P	R <sup>2</sup>	Adj. R <sup>2</sup>	F	ANOVA (Sig.)
(Constant)	2.226		21.071	.000	0.292	0.289	96.741	0.000
Organizational politics	.338	.541	9.836	.000				

Dependent Variable: librarians' job performance

Predictor: (Constant), Organizational politics

DF (F-Statistic) = 1, 234

DF (T-Statistic) = 233

Source: Field Survey Results, 2022

The result of hypothesis is presented in Table 3. The result shows that organizational politics has a significant influence on academic librarians' job performance in ABU Library, Zaria ( $t(253) = 9.836$ ,  $p < 0.05$ ). This shows that organizational politics is a key

determinant of librarians' job performance. Therefore, the null hypothesis was rejected. The  $\beta = .541$  indicates that a positive relationship between organizational politics and librarians' job performance. Organizational politics accounted for 29.2% ( $R^2 = 0.292$ ) of variation

in job performance of library personnel in the university libraries. This result suggests that academic librarians' job performance is strongly linked to organizational politics in ABU Library, Zaria. The regression model for forecasting librarians' job performance based on organizational politics (F-test (1, 234,  $p < .05$ ) of 96.741 is thus expressed as:

$$JP = 2.226 + .338 OP + e \dots\dots\dots \text{Model 2}$$

Where:

JP = Job performance

OP = Organizational politics

$e$  = Error term (All uncaptured variables that can influence JP but not included in the model)

## DISCUSSION OF FINDINGS

This study examined organizational politics and job performance of academic librarians in ABU Library, Zaria. This section reports the findings of this study and discussed the findings in line with the previous studies. The research questions and hypothesis drawn for the study were intended at determining the influence of organizational politics on job performance of librarians in public universities in ABU Library, Zaria.

### Research Question One

Research question one sought to find out the level of job performance of academic librarians in ABU Library, Zaria. The findings revealed that the level of job performance of librarians in ABU Library, Zaria was high on a scale of 4. This finding supports Yaya (2019) who stated that good job performance mirrors the ability to contribute through their works leading to the behavioral achievement that is in accordance with the goals of the company (university). In support of this finding, Japheth (2021) concluded that organizations or institutions need highly performing people to meet their goals, deliver the products and services they specialized in, and achieve their competitive advantage. This finding also corroborates Ishandar *et al.* (2019) who found out that employees' performance is determined by job

stress, motivation and communication factors. Also in agreement with this finding, Linda (2020) revealed that majority of the librarians perform their jobs to a high extent; the relationship between the autocratic leadership style and job performance of librarians is high, positive and significant; the relationship between the democratic leadership style and job performance of librarians was also high, positive and significant. However, this present finding disagreed with Ndenje-Sichalwe (2011) who revealed that, the level of librarian services were rated as low, librarians were not sufficiently prepared and the nonappearance of particular spending plans apportioned to library.

### Research Question Two

Research question two investigated the organizational politics prevalent among academic librarian in ABU Library, Zaria. The findings revealed that organizational influence, personal influence and job context influence were the prevalent organizational politics practiced among librarians in public universities libraries in ABU Library, Zaria. This finding agrees with the study of Hochwarter (2018); Miller *et al.* (2019) which reported that organizational political skill influences job performance. Scholars like Ferris *et al.* (2016) found that unfair activities could occur in a climate of organizational politics and how employees took negative attitudes on voluntary efforts. Also in support with the finding of this study was Rushipe (2019) who investigated the causes and the effects of politics within organisation. Strategies found effective in reducing organizational politics include but are not limited to: involving employees in decision making, fostering teamwork, building trust and social support, hiring politically under-skilled employees, and basing personnel and program decisions on objective criteria. Similarly, the finding of this study corroborates Okeoghene (2018) who revealed that unclear organizational policies (42%), lack of supervisor support (41%), denial of promotion and entitlements (39%) and lack of career opportunities (34%) were some of the challenges affecting librarians' commitment in university libraries.

The finding also corroborates Hassan *et al.* (2017); Rodrigues (2016) who examined the relationship between employees' perceptions of organizational politics and supervisor-rated task performance and deviance, and mediation effects by authenticity at work and affective commitment. The results indicated that workers tend to react to workplace politics with deviant behaviour and worse task performance. This situation was also attested to by Ishaq (2018), who argued that favouritism, pay and promotion and scarcity of resources antecedents of organizational politics create a politics tendency in employees and that will result in employee turnover intention. The study was done in private colleges in the Multan city of Pakistan. Similarly, the finding of this study disagrees with that of the University of Lagos Gull and Zaidi (2012) which indicated a higher political perception among employees and resulted in a lower job satisfaction level among the employees. This finding also confirms the report of Jacobson and Viswesvaran (2017); Mutambara *et al.* (2014) who took a slightly different angle of organisational politics, using exploratory factor analysis. The authors found that, organisational motivators, organisational de-motivators, and labour turnover were common factors of organisational politics.

### Hypothesis

Hypothesis examined the organizational politics and job performance of academic librarians in ABU Library, Zaria. The result showed that, organizational politics has a significant influence on librarians' job performance in ABU Library, Zaria. In support of this study, the findings of Olorunleke (2015) carried out on organizational politics and job performance with a sample size of 152 employees revealed that organizational politics is negatively related to job performance and also negatively related to achievement of harmony among the functional departments of an organization.

Similarly, a research effort by Hassan *et al.* (2017) on the predictive effect of perceived organizational politics on employees' job performance, and the role of

personality (extraversion, openness, agreeableness and conscientiousness) in moderating the relationship concluded that perceived organizational politics was negatively related to job performance. This finding is supportive of the current study that revealed that organizational politics has a significant influence on librarians' job performance of librarians. In line with this study, the findings of a research work by Kaya *et al.* (2016) that examined the perceptions about organizational politics held by members of different organizations and how these affect their perceptions of organizational justice and decisions relating to employee turnover, the finding showed that organizational politics had a significant effect on perceived organizational justice and intention to leave. The study of Abbas and Awan (2017) in Pakistan revealed that organizational politics have a significant impact on employee performance. This study also supports Sowmya and Panchanatham (2012) who showed that work place politics badly affects the performance of teaching faculty.

This finding also corroborates Samad and Amri (2011) who examined the relationship between organizational politics and job performance and discovered the influence of organizational politics on job performance. Consequently, the study examined which of the organizational politics aspect has significant impact on job performance. It was found that two components of organizational politics mainly going along to get ahead and pay and promotion policies had significant influence on job performance. The going along to get ahead aspect of organizational politics appeared to be the most significant and important influence on job performance. Aftab *et al.* (2013) also indicated the employees performance may come from positive or negative way when they perceived organizational politics.

### CONCLUSION

The research was directed to verify the level of job performance of academic librarians. The research



established that indicators of organizational politics influence job performance of librarians in ABU Library, Zaria. The study found that the level of job performance of academic librarians in ABU Library, Zaria was high on a scale of 4. The result showed that, organizational politics has a significant influence on librarians' job performance in ABU Library, Zaria. This leads to the conclusion that the library management should continue to adopt less organizational politics so as to keep on sustaining the job performance of librarians.

## RECOMMENDATIONS

The results of this study have implications for academic librarians, university management. LIS schools, National Universities Commission (NUC) as well as the government. The following recommendations were made to address these challenges based on the findings of the study:

1. Since the findings showed that the level of academic librarians' job performance in ABU Library, Zaria was high, hence, these areas should be sustained to sustain the job performance of the library personnel.
2. The result showed that organizational politics takes place among the academic librarians in ABU Library, Zaria. These results recommend that ABU Library, Zaria can improve organizational politics practiced in ABU Library, Zaria in the study area by practicing the positive aspect, this is by carrying every person along by not segregating.

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## Awareness and use of e-Resources by Researchers of Select Universities in Haryana

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### ABSTRACT

During this COVID-19 Pandemic, the entire world knows the value of electronic resources as all the work of reading, learning, administration is done with electronic mode. This study was conducted to have a comparative study of researchers among state universities of Haryana regarding use and awareness of e-resources as to type of electronic sources used, level of satisfaction, problems faced by them and suggestions to increase the use of electronic resources. Data was collected from the researchers of selected universities using a self-designed questionnaire. It was found that all researchers are aware about e-resources and the majority of respondents are using e-resources. 43.13% researchers prefer to access the e-resources from their respective departments. Researchers from Chaudhary Devi Lal University, Sirsa have shown more satisfaction with regard to e-theses/e-dissertations, e-standards/e-patents and library OPAC as compared to researchers of Maharshi Dayanand University, Rohtak as well as Kurukshetra University Kurukshetra. It is found that researchers from KUK are facing more problems like poor Internet connectivity and lack of library orientation as compared to respondents from CDLU and MDU. Majority of the researchers suggested that an e-mail alert service is needed to be started for library subscribed e-resources.

**Keywords:** Electronic resources, Awareness and use, Researchers, State Universities, Haryana

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### INTRODUCTION

E-resources arose as an outcome of advancement in the fields of computer applications, electronics, information and communication technologies. In this system, information is directly accessed from the host computer by the user, and therefore, e-resources are paperless resources, which are also known as skywriting, web resources and internet resources. One of the important forms of e-resources is e-journals, which are in great demand among researcher fraternity of universities as well as other research institutions. The acceptance of e-journals by academic and research communities seems to have encouraged the library

decision makers to seek newer means of adapting to and providing the users with access to these resources. The growing significance of consortia based subscription is a welcome development in this direction. The electronic resources also fulfill Ranganathan's fourth law of library science, which says "save the time of readers".

### REVIEW OF SELECT LITERATURE

The studies related to use of electronic resources by the faculty members, research scholars, UG students/ PG students, etc. conducted from 2016 to 2021 were conducted by various researchers and reviewed as follows:

Kaur and Kathuria (2016) conducted a study in Punjab Agriculture University, Ludhiana entitled "Awareness and use of e-resources: A case study of Mohinder Singh Randhawa Punjab Agricultural University Library, Ludhiana". For this purpose, a structured questionnaire was used for data collection. It was also found that 75% users preferred e-journals, followed by 48% who preferred e-books. Maximum respondents were satisfied with e-resources available in the library except a few resources, which did not satisfy them. On the basis of data analysis and findings, the research provided recommendations for optimum utilization and awareness of e-resources in the university library. The study recommended that it should be mandatory for every student to attend the user education programme/training provided by the library. Kumbar *et al.* (2017) conducted a survey on the use of Internet resources by the research scholars of science departments in Karnataka University, Dharwad. Questionnaire method was used to collect data, and a total of 100 questionnaires were distributed out of which, 90 questionnaires were received back. It was found that male respondents dominated over female respondents in using Internet. The majority of scholars accessed Internet from their respective departments and they used it to access e-journals. 54% respondents admitted that they were moderately satisfied, 13% of users were very satisfied with the Internet facilities whereas 12% respondents were dissatisfied with these facilities. The maximum users faced the problem of slow speed of the Internet. The study concluded that the university authority must conduct orientation programme and make it mandatory for all the research scholars to attend the same. The study further suggested that the concerned authorities need to improve the Internet facility and more computers should be allocated in the departments for Internet use because the study found that majority of scholars use Internet in respective departments with fast access speed. Anil (2018) studied the use of e-resources by the agriculture scholars of Chaudhary Charan Singh Haryana Agriculture University, Hisar, Haryana. Survey method was

adopted to ascertain the contemporary status of use of electronic resources and questionnaires were distributed randomly to 100 respondents, 93 respondents returned the filled-in questionnaires. It was found that 97% research scholars were aware of electronic resources whereas only 2% users indicated that they were not aware. 67% users intimated that they used the e-resources for their academic purpose and 62% researchers used electronic resources for the research purpose. While using the e-resources, the scholars faced many problems, i.e. 20% respondents faced the problem of lack of time, 37% users faced the problem of failure to access full text, and 29% faced the problem of slow downloading speed. Even after facing these problems, 50% respondents revealed that they were satisfied, 21% respondents were partially satisfied, and 20% respondents were highly satisfied. The study suggested that library should install more computer terminals and increase network accessibility. The study further concluded that maximum research scholars were involved to complete their academic and research work with the use of electronic resources. Sivakami and Rajendran (2019) conducted a survey on awareness, access and usage of e-resources among faculty members in Arts and Science colleges of Erode district, Tamil Nadu. Questionnaire method was used, 300 questionnaires were distributed, 280 valid questionnaires were collected of which 120 respondents (42.86%) were male, whereas 160 respondents (57.14%) were female. The collected data was analyzed with the help of SPSS and it showed that 20.83% of faculty members were actively using e-journals for their educational and research purpose, 15% were interested in using e-books for improving their subject knowledge. 53.57% of the faculty members wanted to access only e-resources. Out of male respondents, 86.59% were aware about the e-resources, whereas 84.48% of female respondents also knew about the availability of e-resources. 31.43% respondents admitted that they were using electronic resources for preparing their lecturer notes and research work. Anwar and Bajpai (2020) conducted a study

entitled “Use of electronic resources among users in Central Universities of Bihar: A study”. 400 questionnaires were distributed among the users of the all the three Central Universities of Bihar, of which 210 were received back. In the study majority of respondents (43.33%) reported the use of electronic resources rarely, followed by 23.80% of the respondents using monthly, and 17.14% respondents recorded the use of the e-resources twice a week. 11.42% of the respondents used e-resources once a week and a very small proportion of the respondents (4.28%) used them daily. 42.38% of the respondents found the lending service satisfactory, followed by electronic journals and indexing/abstracting service (10.47%). The use and satisfaction level of other services was not significant, like bibliographic services (8.09%), reference services (7.80%), and reprographic services (7.61%). The study pointed out that 41.90% of the users face the problem of inadequacy of journals and books in their respective fields. A very low proportion of the respondents (8.09%) reported that they were unaware about web resources, and about the same percentage found the staff incompetent and unqualified. Relevant information resources were difficult to be found as per 19.04% of the respondents. The study concluded that the universities and policy makers should take initiatives to start orientation programmes for the academia to impart training to them about how to access e-resources, and search strategies. Waghmode *et al.* (2021) conducted “An exploratory study on motives and use of electronic resources by graduate students in Navi Mumbai”. For the study, data was collected from 246 graduate students of various colleges in Navi Mumbai using a pre-structured questionnaire. It was found that 77.10% male and 80.30% female students were accessing e-resources using mobile phones with Internet access. 40.40% male and 41.60% female students, were accessing e-resources using Wi-Fi connections at home/residence. Majority of the users i.e. 84% belonged to the age group 17-18 who were using electronic resources. The study found that the main reason for using e-resources was ease to use.

## OBJECTIVES OF STUDY

1. To know the awareness and use of electronic resources by researchers of universities under study.
2. To know the type of electronic resources used by the researchers of universities under study.
3. To identify the problems faced by the researchers while using the electronic resources.
4. To know the satisfaction level regarding use of electronic resources by the researchers.
5. To sought suggestions from researchers under study to increase the use of electronic resources.

## SCOPE OF THE STUDY

There are 20 state universities in Haryana and out of these universities; three oldest and well established multi-disciplinary universities have been selected for the present study: Kurukshetra University, Kurukshetra (known as KUK), Maharshi Dayanand University, Rohtak (Known as MDU) and Chaudhary Devi Lal University, Sirsa (known as CDLU). The study focused on the awareness and use of electronic resources by researchers of Science and Social Science faculties in these three universities under study.

## RESEARCH METHODOLOGY

The population of the study was selected by stratified random sampling method. A questionnaire was designed to collect data and distributed among the researchers of Science and Social Science Faculty of three well established and multidisciplinary state Universities of Haryana.

Table 1 shows university wise total strength of the researchers. 432 researchers of Maharshi Dayanand University, Rohtak were selected for this survey, followed by 370 researchers from Kurukshetra University, Kurukshetra and 128 from Chaudhary Devi

**Table 1: University wise Population**

Universities	Researchers
Kurukshetra University, Kurukshetra	370
Maharshi Dayanand University, Rohtak	432
Chaudhary Devi Lal University, Sirsa	128
Total	930

Lal University, Sirsa. It is mentioned here that only those departments were selected under both the faculties which are common in three state universities under study.

Table 2 shows department wise valid responses received from the respondents. From the Science Faculty, maximum number of questionnaires were received from Chemistry department i.e. 38 followed by Mathematics with 29, Computer Science with 28, Physics with 25, Energy & Environmental Science with 17 and Food Science and Technology (known as Home Science in KUK) with 4.

Among the Social Science Faculty, maximum numbers of responses were received from Management Studies department (known as Business Administration in

CDLU) i.e. 61 followed by Commerce with 43, Economics with 39, Education with 37, Public Administration with 23 and Mass Communication with 15.

Total 427 questionnaires were distributed to the researchers personally, by emails, by Whatsapp and Google Form. Out of them, 371 valid questionnaires were received which are analyzed using SPSS 23<sup>rd</sup> edition software and the response rate of the survey is 86.88%.

## DATA ANALYSIS AND INTERPRETATION

Table 3 shows that all the researchers are aware about e-resources. It is matter of pride that in the age of ICT that all respondents are aware about e- resources.

**Table 3: Awareness about E-Resources**

Responses	Researchers	Percentage
Yes	371	100
No	0	0
Total	371	100

**Table 2: Sample of the Study**

Faculty	Name of the Department	Questionnaires distributed	Valid questionnaires received
Science	Physics	29	25
	Chemistry	43	38
	Mathematics	33	29
	Computer Science	31	28
	Energy and Environment Science	18	17
	Food Science and Technology	4	4
	Home Science	4	4
Social Science	Economics	45	39
	Public Administration	28	23
	Education	42	37
	Commerce	50	43
	Management Studies	72	61
	Business Administration	10	8
	Mass Communication	18	15
	Total	427	371

**Table 4: Use of E-Resources by the Researchers**

Responses	Researchers	Percentage
Yes	362	97.57
No	9	2.43
Total	371	100

Table 4 shows that 97.57% researchers use e-resources where as only 2.43% respondents said that they are not using-resources.

Comparisons made among the researchers of Kurukshetra University, Maharshi Dayanand University and Chaudhary Devi Lal University have been listed in Table 5, which shows that researchers from different

universities have no significant difference towards frequency of using e-resources because the p-value is more than value of analysis of variance i.e.0.05 except E-newspapers, E-standards/E-patents, E-newsletters, Anti-plagiarism Software, Search Engines like Google and Library OPAC/ Web-OPAC. The table reveals that researchers of CDLU have given higher priority to E-newspapers, E-standards/E-patents, E-newsletters, Anti-plagiarism Software and Library OPAC/ Web-OPAC, followed by researchers from MDU and KUK. In case of using search engines like Google the researchers of CDLU have given higher priority, followed by KUK and MDU.

**Table 5: ANOVA for Frequency of Using E-Resources**

E-Resources	Univer-sities	Mean	Std. deviation	Differences	Sum of squares	df	Mean square	F	Sig.	Remarks
E-journals	KUK	5.08	1.202	Between Groups	1.711	2	.856	.644	.526	Not Significant
	MDU	5.16	1.178	Within Groups	489.135	368	1.329			
	CDLU	5.29	.893	Total	490.846	370				
	Total	5.15	1.152							
E-books	KUK	4.74	1.330	Between Groups	3.856	2	1.928	1.101	.334	Not Significant
	MDU	4.84	1.354	Within Groups	644.446	368	1.751			
	CDLU	5.06	1.195	Total	648.302	370				
	Total	4.83	1.324							
E-theses/ E-dissertations	KUK	4.35	1.516	Between Groups	11.846	2	5.923	2.843	.060	Not Significant
	MDU	4.55	1.464	Within Groups	766.753	368	2.084			
	CDLU	4.90	1.125	Total	778.598	370				
	Total	4.52	1.451							
E-magazines	KUK	4.29	1.553	Between Groups	7.911	2	3.956	1.727	.179	Not Significant
	MDU	4.46	1.572	Within Groups	842.946	368	2.291			
	CDLU	4.73	1.157	Total	850.857	370				
	Total	4.43	1.516							
E-newspapers	KUK	4.60	1.678	Between Groups	19.385	2	9.692	3.778	.024	Significant
	MDU	4.76	1.675	Within Groups	944.141	368	2.566			
	CDLU	5.31	1.020	Total	963.526	370				
	Total	4.77	1.614							
E-standards/ E-patents	KUK	3.05	1.868	Between Groups	43.198	2	21.599	6.810	.001	Significant
	MDU	3.69	1.792	Within Groups	1167.130	368	3.172			
	CDLU	3.90	1.459	Total	1210.329	370				
	Total	3.47	1.809							

Table 5 contd...

E-Resources	Univer- sities	Mean	Std. deviation	Differences	Sum of squares	df	Mean square	F	Sig.	Remarks
E-newsletters	KUK	3.33	1.833	Between Groups	29.696	2	14.848	4.558	.011	Significant
	MDU	3.72	1.890	Within Groups	1198.714	368	3.257			
	CDLU	4.17	1.382	Total	1228.410	370				
	Total	3.63	1.822							
E-databases (Bibliographic)	KUK	3.48	1.792	Between Groups	17.084	2	8.542	2.876	.058	Not Significant
	MDU	3.78	1.769	Within Groups	1093.056	368	2.970			
	CDLU	4.12	1.323	Total	1110.140	370				
	Total	3.71	1.732							
Full text databases	KUK	3.48	1.844	Between Groups	9.788	2	4.894	1.590	.205	Not Significant
	MDU	3.60	1.769	Within Groups	1132.967	368	3.079			
	CDLU	3.98	1.407	Total	1142.755	370				
	Total	3.60	1.757							
CD ROMs/ DVDs	KUK	2.65	1.542	Between Groups	15.193	2	7.597	2.859	.059	Not Significant
	MDU	2.90	1.696	Within Groups	977.653	368	2.657			
	CDLU	3.27	1.646	Total	992.846	370				
	Total	2.85	1.638							
Subject Specific Portals	KUK	4.16	1.626	Between Groups	11.055	2	5.527	1.882	.154	Not Significant
	MDU	3.95	1.891	Within Groups	1080.633	368	2.937			
	CDLU	4.46	1.275	Total	1091.687	370				
	Total	4.11	1.718							
Anti-plagiarism Software	KUK	2.63	1.593	Between Groups	33.558	2	16.779	6.314	.002	Significant
	MDU	3.09	1.662	Within Groups	977.914	368	2.657			
	CDLU	3.48	1.627	Total	1011.472	370				
	Total	2.96	1.653							
Search Engines like Google	KUK	5.71	.804	Between Groups	7.498	2	3.749	3.455	.033	Significant
	MDU	5.42	1.284	Within Groups	399.359	368	1.085			
	CDLU	5.69	.673	Total	406.857	370				
	Total	5.57	1.049							
Institutional/ Digital Repository	KUK	3.77	1.817	Between Groups	14.470	2	7.235	2.405	.092	Not Significant
	MDU	4.02	1.762	Within Groups	1107.141	368	3.009			
	CDLU	4.37	1.358	Total	1121.612	370				
	Total	3.97	1.741							
Library OPAC/ Web-OPAC	KUK	3.32	1.887	Between Groups	21.262	2	10.631	3.376	.035	Significant
	MDU	3.69	1.731	Within Groups	1158.641	368	3.148			
	CDLU	4.00	1.572	Total	1179.903	370				
	Total	3.59	1.786							



Table 6 reveals that satisfaction level of researchers from different universities. When the responses were statistically tested, it was found that there is no significant difference in satisfaction level among the researchers of different universities because the p-value is greater than value of analysis of variance i.e.

0.05 except E-theses/E-dissertations, E-standards/E-patents and Library OPAC. The data also revealed that researchers from CDLU have shown more satisfaction with regard to E-theses/E-dissertations, E-standards/E-patents and Library OPAC, followed by researchers from MDU and KUK.

**Table 6: ANOVA for Satisfaction Level Regarding E-Resources**

E-Resources	Univer-sities	Mean	Std. deviation	Differences	Sum of squares	df	Mean square	F	Sig.	Remarks
E-journals	KUK	4.56	.537	Between Groups	.190	2	.095	.318	.728	Not Significant
	MDU	4.59	.571	Within Groups	109.886	368	.299			
	CDLU	4.63	.486	Total	110.075	370				
	Total	4.58	.545							
E-books	KUK	4.35	.650	Between Groups	1.051	2	.526	1.264	.284	Not Significant
	MDU	4.44	.669	Within Groups	153.024	368	.416			
	CDLU	4.50	.542	Total	154.075	370				
	Total	4.42	.645							
E-theses/ E-dissertations	KUK	4.24	.782	Between Groups	3.557	2	1.778	3.595	.028	Significant
	MDU	4.42	.666	Within Groups	182.044	368	.495			
	CDLU	4.50	.577	Total	185.601	370				
	Total	4.36	.708							
E-magazines	KUK	4.13	.770	Between Groups	1.462	2	.731	1.282	.279	Not Significant
	MDU	4.23	.780	Within Groups	209.778	368	.570			
	CDLU	4.31	.612	Total	211.240	370				
	Total	4.20	.756							
E-newspapers	KUK	4.21	.770	Between Groups	2.858	2	1.429	2.325	.099	Not Significant
	MDU	4.26	.826	Within Groups	226.188	368	.615			
	CDLU	4.48	.671	Total	229.046	370				
	Total	4.27	.787							
E-standards/ E-patents	KUK	3.72	.874	Between Groups	6.367	2	3.183	4.510	.012	Significant
	MDU	3.89	.861	Within Groups	259.773	368	.706			
	CDLU	4.12	.646	Total	266.140	370				
	Total	3.85	.848							
E-newsletters	KUK	3.81	.814	Between Groups	2.594	2	1.297	1.993	.138	Not Significant
	MDU	3.99	.831	Within Groups	239.470	368	.651			
	CDLU	3.94	.698	Total	242.065	370				
	Total	3.91	.809							
E-databases (Bibliographic)	KUK	3.95	.834	Between Groups	1.302	2	.651	1.034	.356	Not Significant
	MDU	3.83	.802	Within Groups	231.598	368	.629			
	CDLU	3.96	.625	Total	232.900	370				
	Total	3.89	.793							

Table 6 contd...

E-Resources	Univer- sities	Mean	Std. deviation	Differences	Sum of squares	df	Mean square	F	Sig.	Remarks
Full text databases	KUK	3.99	.798	Between Groups	.891	2	.446	.752	.472	Not Significant
	MDU	3.95	.804	Within Groups	218.041	368	.593			
	CDLU	4.10	.534	Total	218.933	370				
	Total	3.99	.769							
CD ROMs/ DVDs	KUK	3.74	.907	Between Groups	4.374	2	2.187	2.793	.063	Not Significant
	MDU	3.59	.903	Within Groups	288.208	368	.783			
	CDLU	3.90	.748	Total	292.582	370				
	Total	3.70	.889							
Subject Specific Portals	KUK	4.08	.824	Between Groups	.999	2	.499	.694	.500	Not Significant
	MDU	4.03	.911	Within Groups	264.888	368	.720			
	CDLU	4.19	.687	Total	265.887	370				
	Total	4.08	.848							
Anti-plagiarism Software	KUK	3.97	.936	Between Groups	.839	2	.420	.511	.600	Not Significant
	MDU	4.06	.890	Within Groups	302.137	368	.821			
	CDLU	3.94	.873	Total	302.976	370				
	Total	4.01	.905							
Search Engines like Google	KUK	4.66	.591	Between Groups	1.249	2	.624	1.469	.232	Not Significant
	MDU	4.53	.704	Within Groups	156.476	368	.425			
	CDLU	4.58	.637	Total	157.725	370				
	Total	4.59	.653							
Institutional/ Digital Repository	KUK	3.98	.789	Between Groups	.880	2	.440	.802	.449	Not Significant
	MDU	3.93	.762	Within Groups	201.794	368	.548			
	CDLU	4.08	.479	Total	202.674	370				
	Total	3.97	.740							
Library OPAC	KUK	3.81	.797	Between Groups	6.730	2	3.365	5.708	.004	Significant
	MDU	4.05	.786	Within Groups	216.968	368	.590			
	CDLU	3.71	.605	Total	223.698	370				
	Total	3.91	.778							
Social Media Tools	KUK	4.17	.797	Between Groups	.863	2	.431	.666	.514	Not Significant
	MDU	4.08	.827	Within Groups	237.648	367	.648			
	CDLU	4.20	.749	Total	238.511	369				
	Total	4.13	.804							

As is evident from Table 7, 35.80% researchers of MDU, followed by 31.80% researchers of KUK and 11.10% researchers reported difficulty in finding relevant information as their problem faced while using e-resources. 40.40% researchers of MDU, followed by 33.40% and 12.40% researchers of CDLU believed

that the information overload is their main problem. 44.50% researchers of MDU, followed by 34% researchers of KUK and 12.70% researchers of CDLU said that due to no Internet access at home they cannot use e-resources. It is found that 39.90% researchers of MDU, followed by 33.20% of KUK and

**Table 7: Reasons of Dissatisfaction regarding use of E-Resources**

Reasons	Response	Universities						Total
		KUK		MDU		CDLU		
Difficulty in Finding Relevant Information	Yes	118	31.80%	133	35.80%	41	11.10%	292
	No	029	07.80%	039	10.50%	11	03.00%	79
Information overload	Yes	124	33.40%	150	40.40%	46	12.40%	320
	No	023	06.20%	022	05.90%	06	01.60%	51
No Internet Access at Home	Yes	126	34.00%	165	44.50%	47	12.70%	338
	No	021	05.70%	007	01.90%	05	01.30%	33
Slow Internet Speed at Work Place	Yes	123	33.20%	148	39.90%	44	11.90%	315
	No	024	06.50%	024	06.50%	08	02.20%	56
Time Consuming	Yes	120	32.30%	153	41.20%	48	12.90%	321
	No	027	07.30%	019	05.10%	04	01.10%	50
Limited Access to Computer/Internet in University	Yes	132	35.60%	159	42.90%	45	12.10%	336
	No	015	04.00%	013	03.50%	07	01.90%	35
Confusion in Using E-resources	Yes	127	34.20%	148	39.90%	47	12.70%	322
	No	020	05.40%	024	06.50%	05	01.30%	49
Total	147		172		52		371	

11.90% researchers of CDLU reported that slow Internet speed at work place is their main problem while using e-resources. 41.20% researchers of MDU, followed by 32.30% researchers of KUK and 12.90% researchers of CDLU researchers find the accessing of e-resources as time consuming while 42.90% researchers of MDU, followed by 35.60% researchers of KUK and 12.10% researchers of CDLU claimed that limited access to computer/Internet in the university is a main reason in using e-resources. 39.90% researchers of MDU, followed by 34.20% researchers of KUK and 12.70% researchers of CDLU said that their major problem in using e-resources is confusion.

Table 8 reveals that the responses, when statistically tested, provide that there is a significant difference in frequency of problems faced while accessing relevant information among researchers of different universities covered under study, because the p-value is less than 0.05 of analysis of variance. This further shows that researchers from the KUK, MDU and CDLU universities have different opinions towards the problem faced except inadequate library resources in your

subject, non-availability of e-resources in your subject, inadequate library infrastructure, inadequate lab infrastructure and strict library rules. Researchers from KUK face more problems in case of poor Internet connectivity and lack of library orientation as compared to researchers from CDLU and MDU. The researchers of KUK face more problems i.e. in case of information scattered in too many sources, lack of time for searching, lack of knowledge in using the library catalogue/OPAC/Web-OPAC, lack of ICT skills in information searching and lack of technical support in library in accessing library as compared to researchers from MDU and CDLU.

Suggestions were invited from the researchers for the various sources and functioning of library and it was found that majority of the respondents (i.e. 57.10%) suggested that an email alert service is needed to be started for library subscribed e-resources and this demand gets first rank. The second rank is got by the “expert staff assistance in accessing/using e-resource” which is suggested by 31.30% respondents. Circulating the list of subscribed e-resources on monthly basis

**Table 8: ANOVA for Problems Faced While Accessing E-Resources**

Problems	Univer- sities	Mean	Std. deviation	Differences	Sum of squares	df	Mean square	F	Sig.	Remarks
Inadequate library resources in your subject	KUK	2.72	1.243	Between Groups	7.514	2	3.757	2.217	.110	Not Significant
	MDU	2.51	1.327	Within Groups	623.618	368	1.695			
	CDLU	2.31	1.380	Total	631.132	370				
	Total	2.57	1.306							
Non-availability of e-resources in your subject	KUK	2.46	1.178	Between Groups	2.932	2	1.466	1.010	.365	Not Significant
	MDU	2.28	1.176	Within Groups	533.990	368	1.451			
	CDLU	2.46	1.364	Total	536.922	370				
	Total	2.37	1.205							
Inadequate library infrastructure	KUK	2.08	1.101	Between Groups	.264	2	.132	.100	.904	Not Significant
	MDU	2.07	1.212	Within Groups	484.183	368	1.316			
	CDLU	2.00	1.048	Total	484.447	370				
	Total	2.06	1.144							
Inadequate lab infrastructure	KUK	2.14	1.233	Between Groups	1.962	2	.981	.738	.479	Not Significant
	MDU	2.02	1.124	Within Groups	488.734	368	1.328			
	CDLU	1.94	.998	Total	490.695	370				
	Total	2.06	1.152							
Poor Internet Connectivity	KUK	2.69	1.281	Between Groups	26.461	2	13.230	9.817	.000	Significant
	MDU	2.11	1.029	Within Groups	495.949	368	1.348			
	CDLU	2.33	1.216	Total	522.410	370				
	Total	2.37	1.188							
Lack of library orientation	KUK	2.42	1.227	Between Groups	9.080	2	4.540	3.010	.050	Significant
	MDU	2.09	1.179	Within Groups	554.985	368	1.508			
	CDLU	2.17	1.382	Total	564.065	370				
	Total	2.23	1.235							
Information scattered in too many sources	KUK	2.48	1.172	Between Groups	13.501	2	6.750	4.872	.008	Significant
	MDU	2.30	1.179	Within Groups	509.852	368	1.385			
	CDLU	1.88	1.182	Total	523.353	370				
	Total	2.31	1.189							
Lack of time for searching	KUK	2.52	1.106	Between Groups	12.883	2	6.442	5.077	.007	Significant
	MDU	2.18	1.138	Within Groups	466.906	368	1.269			
	CDLU	2.06	1.145	Total	479.790	370				
	Total	2.30	1.139							
Lack of know- ledge in using the library catalogue/ OPAC/Web-OPAC	KUK	2.43	1.261	Between Groups	17.759	2	8.879	6.138	.002	Significant
	MDU	2.28	1.176	Within Groups	532.355	368	1.447			
	CDLU	1.75	1.118	Total	550.113	370				
	Total	2.26	1.219							
Lack of ICT skills in inform- ation searching	KUK	2.20	1.244	Between Groups	13.766	2	6.883	5.039	.007	Significant
	MDU	2.17	1.152	Within Groups	502.703	368	1.366			
	CDLU	1.63	.991	Total	516.469	370				
	Total	2.11	1.181							

Table 8 contd....

Problems	Univer- sities	Mean	Std. deviation	Differences	Sum of squares	df	Mean square	F	Sig.	Remarks
Strict library rules	KUK	2.12	1.185	Between Groups	4.793	2	2.397	1.711	.182	Not Significant
	MDU	2.07	1.212	Within Groups	515.428	368	1.401			
	CDLU	1.77	1.078	Total	520.221	370				
	Total	2.05	1.186							
Lack of techni- cal support in library	KUK	2.32	1.211	Between Groups	9.391	2	4.695	3.372	.035	Significant
	MDU	1.98	1.165	Within Groups	512.399	368	1.392			
	CDLU	2.10	1.142	Total	521.790	370				
	Total	2.13	1.188							

Table 9: Suggestions Regarding Increasing the Use of E-Resources

Suggestions	Count	No. response	Responses						Total	Rank
Organizing workshops/ training programmes frequently	N %	0 0.0	192 51.80	40 10.80	30 8.10	23 6.20	18 4.90	<b>68</b> <b>18.30</b>	371 100.0	<b>6</b>
Increasing the time of accessing e-resources in the library	N %	26 7.0	89 24.00	80 21.60	37 10.00	<b>75</b> <b>20.20</b>	35 9.40	29 7.80	371 100.0	<b>4</b>
Expert staff assistance in accessing/ using e-resources	N %	22 5.9	111 29.90	<b>116</b> <b>31.30</b>	42 11.30	36 9.70	26 7.00	18 4.90	371 100.0	<b>2</b>
Online tutorials	N %	19 5.1	110 29.60	66 17.80	41 11.10	39 10.50	<b>74</b> <b>19.90</b>	22 5.90	371 100.0	<b>5</b>
Circulating list of subscribed e-resources on monthly basis	N %	32 8.6	87 23.50	93 25.10	<b>90</b> <b>24.30</b>	17 4.60	32 8.60	20 5.40	371 100.0	<b>3</b>
Email alert from university library about subscribed e-resources	N %	19 5.1	<b>212</b> <b>57.10</b>	42 11.30	20 5.40	33 8.90	19 5.10	26 7.00	371 100.0	<b>1</b>

placed at third rank as it is suggested by 24.30% respondents. Increasing the time of accessing e-resources in the library is the next (fourth) rank as it is suggested by the 20.20% researchers. Online tutorials is on the fifth rank as it is suggested by 19.90% researchers and organizing workshops/training programmes frequently is on sixth rank as it is suggested by 18.30% researchers.

## FINDINGS

1. It is found that all the researchers are aware about e-resources and 97.57% researchers use e-resources.

- The researchers of CDLU have given higher priority to e-newspapers, e-standards/e-patents, e-newsletters, Anti-plagiarism Software and library OPAC/ Web-OPAC, followed by researchers from MDU and KUK. In case of using search engines like Google the researchers of CDLU have given higher priority, followed by KUK and MDU.
- 50.94% researchers responded that their library is not providing remote access to e-resource.
- 64.96% respondents said that the library does not take any feedback regarding continuation and discontinuation of subscribed e-resources.

5. It is revealed that researchers from CDLU have shown more satisfaction with regard to e-theses/e-dissertations, e-standards/e-patents and library OPAC, followed by researchers from MDU and KUK.
6. It is found that 44.50% researchers of MDU, followed by 34% researcher of KUK and 12.70% researchers of CDLU told that due to no Internet access at home they cannot use e-resources.
7. Researchers from KUK face more problems like poor Internet connectivity and lack of library orientation as compared to respondents from CDLU and MDU. The researchers of KUK face more problems i.e. in case of information scattered in too many sources, lack of time for searching, lack of knowledge in using the library catalogue/OPAC/ Web-OPAC, lack of ICT skills in information searching and lack of technical support in library in accessing library as compared to researchers from MDU and CDLU.
8. The study found that majority of the researchers i.e. 57.10% suggested that an e-mail alert service is needed to be started for library subscribed e-resources.

## CONCLUSION

The present study compares use and awareness of e-resources by the researchers of three state Universities of Haryana i.e. K.U. Kurukshetra, M.D.U, Rohtak and CDLU, Sirsa. Total 930 researchers were selected for this study and it has been found that all the researchers were aware about e-resources and almost all the researchers use e-resources. Majority of the researchers also suggested that an e-mail alert service needed to be started for library subscribed e-resources. Therefore, the study recommended that library should organized library orientation programme regarding use of e-resources and improves the Internet connectivity.

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## **Use pattern of E-ShodhSindhu Resources by the Faculty Member and Research Scholar of Bangalore University: A Study**

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### **ABSTRACT**

E-Resources are essential components of Library resources. Without e-resources, it is difficult to serve the user's needs in University Libraries. The majority of Research and University Libraries are providing resources through the Consortium. e-ShodhSindhu is one of the largest Consortia among the academic libraries; the Consortium is available for all the University and affiliated college Libraries. This paper mainly discusses the usage analysis of e-resources by the faculty through the e-Shodhsindhu Consortium and Bibliographic Databases at Bangalore University.

**Keyword:** e-Journals, E-ShodhSindhu, Consortium, UGC-INFONET, INDEST-AICTE

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### **INTRODUCTION**

E-Journals are a boon to research scholars and faculty members searching for scholarly information. No university library can be self-sufficient concerning nascent information required by their academic community. To overcome problems of information requirements of information seekers, the University Grants Commission (UGC) started the "UGC-Infonet Digital Library Consortium in 2004, and it was a landmark in the history of higher learning in 2003. It was later renamed as INDEST-AICTE Consortium in December 2005, with the AICTE playing a crucial role in enrolling its approved engineering colleges and institutions as members of the Consortium. The MHRD in September 2012, constituted an Expert Committee on Library Consortium to survey the then-existing scenario of Government-funded library consortia in the country and to explore the Possibilities of joint

negotiations and collaborative services amongst them. In the light of the extent of duplication of resources in the different consortia and the additional resources subscribed to by individual libraries, the Committee recommended bringing the three consortia funded by the MHRD under one umbrella. Accordingly, it was announced to form eShodhSindhu by merging the three consortia initiatives, namely UGC DLC, N-LIST and INDEST-AICTE Consortia.

### **About E-Shodh Sindhu**

Based on the recommendation of an Expert Committee, the Ministry of HRD (now renamed as Ministry of Education) has formed e-ShodhSindhu, merging three consortia initiatives, namely UGC-INFONET Digital Library Consortium, NLIST and INDEST-AICTE Consortium. The e-ShodhSindhu continuously providing current as well as archival access to more than 10,000

core and peer-reviewed journals and several bibliographic, citation and factual databases in different disciplines from a large number of publishers and aggregators to its member institutions, including centrally-funded technical institutions, universities and colleges that are covered under 12(B) and 2(f) Sections of the UGC Act.

### **Aims and Objectives**

The e-ShodhSindhu: Consortia for Higher Education E-Resources is to provide access to qualitative electronic resources, including full-text, bibliographic and factual databases to academic institutions at a lower rate of subscription. The primary aims and objectives of the e-Shodh Sindhu are as follows:

- Setting up e-ShodhSindhu: Consortia for Higher Education E-Resources by augmenting and strengthening activities and services offered by three MHRD-funded Consortia;
- Develop a formidable collection of e-journals, e-journal archives and e-books on perpetual access basis;
- Monitor and promote usage of e-resources in member universities, colleges and technical institutions in India through awareness and training programmes;
- Provide access to subscription-based scholarly information (e-books and e-journals) to all educational institutions;
- Provide access to scholarly content available in open access through subject portals and subject gateways;
- Take-up additional activities and services that require collaborative platform and are not being performed by existing Consortia;

### **About Bangalore University**

Bangalore University is located in the Garden City of Bangalore aptly hailed as the “I.T. Capital of India”,

was established in July 1964 as an offshoot of the University of Mysore, primarily to include institutions of higher learning located in the metropolitan city of Bangalore and the districts of Bangalore, Kolar and Tumkur, which eventually became a separate university. Initially, the two premier colleges of the city, the Central College (CC) and the University Vishweshwaraya College of Engineering (UVCE) formed the nucleus of Bangalore University. At present, the University offers 50 Post Graduate Courses and Employment Oriented Diploma and Certificate Courses. The University has launched the Five years Integrated Courses in Biological Sciences. The vision of the University is to make distinctive and significant contributions to the cause of higher education in Humanities, Social Science, Law, Commerce, and Science & Technology. The University is providing quality teaching and encouragement to research in frontier areas with social relevance that would reflect its mission and goals.

### **REVIEW OF LITERATURE**

Several surveys have been conducted on use of the E-ShodhSindhu consortium; some of the relevant studies are mentioned as under:

Vuppala (2016) the government of India has taken various steps to introduce e-resources facility in academic institutions for the benefit of Research Scholars. Because information resources, especially journals, are becoming very expensive due to their availability in electronic format. On the other hand, libraries are facing a financial crunch which has led to the birth of library cooperation/ research sharing. UGC-Info net Digital Library Consortium recently changed to E-Shodhsindhu consortium for Higher Education E resources in order to provide quality e-resources to support learning and research activities covering full text, bibliographical and factual databases.

Kumar *et al.* (2018) the paper explains about terms and definitions of Digital libraries, e resources in E-shodhsindhu followed by aims and objectives of E-



Resources, Internet, Internet Users. It also explains how remarkable change had occurred with advent of E-shodhsindhu with reference to both print and online e-Journals. It also explains about subscription, usage and ease of publishing the Journal in terms of Money and Time.

Kumar *et al.* (2018) this paper is a study about the use of the E-Shodh Sindhu by the research scholars. The paper deals with the e-resources accessible in the University through the Consortium, the extent of their use by the research scholars, their judgement about the adequacy of the resources in the Consortium, and the problems and challenges that the scholars face in the effective use of the resources. The study was conducted among a random sample of 150 research scholars of the University of Kerala who are members of the Kerala University Library through a survey based on a structured questionnaire. The scholars consider E-ShodhSindhu as essential to support higher learning and research.

#### **Publisher's of E-journals under E-Shodh Sindhu available in the Bangalore University**

Publishers play a major role in consortia; through consortia- publishers, at one instance, can sell the

'Package' of their publications to a 'set of customers through one license agreement which is efficient for both the Libraries and Publishers. Table 1 represents the available e-Journals and Databases under e-ShodhSindhu consortia, in which Taylor & Francis Journals and J-Gate Plus (JCCC) are widely accessed when compared to other Journals and Databases.

#### **Bibliographic Databases Bangalore University**

Bibliographic Databases play a major role in University Libraries since most researchers are working in University Libraries compared to college libraries. Bangalore University has nine bibliographic databases which are represented in Table 2.

#### **Scope of the Study**

The Scope of Study is restricted to use of e-Resource used by Faculty and Research Scholar of Bangalore University, Bangalore.

#### **METHODOLOGY**

The survey method is going to use for this Study 200 questionnaire Prepared and randomly distributed among 60 faculties and 140 Research Scholar, out of this 160

**Table 1: Usage of e-Journals in Publishers wise**

<b>Publisher's Name</b>	<b>URL of the Site</b>	<b>Number of Journals</b>
American Chemical Society	<a href="https://pubs.acs.org/">https://pubs.acs.org/</a>	49
American Institute of Physics	<a href="https://aip.scitation.org/">https://aip.scitation.org/</a>	19
American Physical Society	<a href="https://journals.aps.org/">https://journals.aps.org/</a>	15
Annual Reviews	<a href="https://www.annualreviews.org/">https://www.annualreviews.org/</a>	43
Economic & Political Weekly	<a href="https://www.epw.i">https://www.epw.i</a>	01
J-Gate Plus (JCCC)	<a href="https://jgateplus.com">https://jgateplus.com</a>	50,613
JSTOR	<a href="https://www.jstor.org/">https://www.jstor.org/</a>	3,165
Oxford University Press	<a href="https://academic.oup.com/journals">https://academic.oup.com/journals</a>	262
Project Muse	<a href="http://muse.jhu.edu/">http://muse.jhu.edu/</a>	676
Taylor and Francis	<a href="https://www.tandfonline.com/">https://www.tandfonline.com/</a>	1,078
Springer Link	<a href="https://link.springer.com/">https://link.springer.com/</a>	1,722
ProQuest	<a href="https://search.proquest.com/131170">https://search.proquest.com/131170</a>	1754
Total		59397

**Table 2: Bibliographic Databases**

Database	Website
Grammarly	<a href="https://www.grammarly.com/edu">https://www.grammarly.com/edu</a>
EBSCO	<a href="http://web.a.ebscohost.com">http://web.a.ebscohost.com</a>
Manupatra	<a href="http://www.manupatrafast.in/pers/Personalized.aspx">http://www.manupatrafast.in/pers/Personalized.aspx</a>
India stat	<a href="https://www.indiastat.com">https://www.indiastat.com</a>
JOVE Biology	<a href="https://www.jove.com/">https://www.jove.com/</a>
Institute for Studies in Industrial Development (ISID) Database	<a href="http://isid.org.in/isid-online-databases/">http://isid.org.in/isid-online-databases/</a>
MathSciNet	<a href="https://mathscinet.ams.org/mathscinet/index.html">https://mathscinet.ams.org/mathscinet/index.html</a>
Web of Science	<a href="https://www.webofknowledge.com/">https://www.webofknowledge.com/</a>
South Asia Archive (SAA)	<a href="http://www.southasiaarchive.com">http://www.southasiaarchive.com</a>

questionnaires are collected from faculty members and research scholars.

### Objectives of the Study

1. To know the Awareness of e-Resources by Faculty and Research Scholar
2. To understand the purpose of usage on e-ShodhSindhu
3. To find out the problems, Challenges in using e-shodh sindhu
4. To evaluate the satisfactory level of users
5. To study the frequency of use of E-Resources by the faculty members and research scholars
6. To know the availability and usage of e resources available at Shodhganga
7. To find out the satisfaction level of faculty members and Research scholars about using E-resources in the E-shodhsindhu Consortium.

### DATA ANALYSIS AND INTERPRETATION

Libraries play an important role in educational institutions. The role of Librarians is to achieve free flow of information from the point of generation to the point of utilization effectively and efficiently. This study was undertaken to examine the Use of e-ShodhSindhu consortia by the researchers and Faculty of Bangalore

University. Required data was collected and analyzed using the structured questionnaire method. The results of the computation are presented in the tables.

### Designation Wise Distribution

The Table 3 represents the designation of the respondents in this questionnaire; around 200 questionnaires were distributed out of that 160 questionnaires were collected.

**Table 3: Distributed of questionnaires**

Designation	Number	Percentage
Research Scholar	120	75
Assistant Professor	12	7.5
Associate Professor	15	9.37
Professor	13	8.12
Total	160	100

It is observed that 120 (75%) are Research scholars, 15 (9.37%) are Associate professor, 13(8.12%) are Professor and 12(7.5%) are Assistant professor. This may be summarised as majority of the respondents are Research Scholars.

### Gender Wise Distribution

Gender representation of Faculty and Research scholars from the surveyed libraries have been shown in Table 4. As per the above table female respondents and their qualification is concerned 15 are Faculty (9.35%) and 40 are Research scholars (25%). As for

**Table 4: Gender Wise distribution**

Representatives	Gender Representation				Total	
	Male		Female			
	Number	Percentage	Number	Percentage	Number	Percentage
Faculty	25	15.65	15	9.35	40	25
Research Scholar	80	50	40	25	120	75
Total	105	65.63	55	34.37	160	100

the male respondents and their educational qualification 25(15.65%) are Faculty and 80(50%) are Research Scholars.

It shows that there are more Faculty and Research Scholars in male category when compared to the female category.

### Frequency of Visits to the Library

Survey respondents were asked whether they visit the library daily, once a week, once a fortnight, once a month and occasionally.

As per the above Table 5 most of research scholars about 100(45.05%) visits daily, 25 (11.27%) visits once a week, 20(9%) visits once a fortnight and 22 (9.91%) visits once a month and about 20(9%) of Faculty visits

daily, 10(4.5%) visits once a week, 15(6.75%) visits once a fortnight, 5(2.25%) visits once a month and about 5(2.25%) visits occasionally. As per the above table the majority of research scholars visit daily.

### Awareness about e-Resources

e-Resources are an essential part of the education system. It supports the important requirements of the researchers and Faculty. Most of the researchers access e-Journals rather than the print sources. The Table 6 represents the user awareness about the e-Resources.

It is observed from Table 6 that the majority of Research Scholars 110 (68.75) are more aware about the e-resources than the faculty 40(25%).

**Table 5: Users visit to the library**

Periodicity	Faculty		Research Scholar		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Daily	20	9.0	100	45.05	120	54.05
Once a week	10	4.50	25	11.27	35	15.77
Once a fortnight	15	6.75	20	9	35	15.77
Once a month	05	2.25	22	9.91	27	12.16
Occasionally	05	2.25	00	0	05	2.25
Total	55	24.77	167	75.23	222	100

**Table 6: e-Resources awareness**

Respondents	Yes		No		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Faculty Member	40	25	0	0	40	25
Research Scholar	110	68.75	10	6.25	120	75
Total	150	(93.75%)	10	(6.25%)	160	(100%)

### User's satisfaction level in using E-Resources of the e-Shodhsindhu Consortium

Table 7 represents the users' satisfaction in using e-resources through e-Shodh Sindhu.

The above table represents that about 16 (10%) Faculty members are fully satisfied, 20(12.5%) are partially satisfied and 4(2.5%) are dissatisfied with the e-resources available through e-Shodhsindhu and most of Research scholars 30 (18.75%) are fully satisfied, 75(46.87%) are partially satisfied and 15(9.37%) are dissatisfied.

### User Satisfaction Resources

The level of satisfaction toward the utilization of library resources by the respondents has been summarized in Table 8.

The Table 8 depicts that 51 (31.87%) of respondents are "Extremely Satisfied" towards utilization of library resources, followed by 63 (39.37%) of respondents are "satisfied", 28 (17.5%) of respondents are "Moderately Satisfied" and 18 (11.26%) of respondents are "dissatisfied" towards utilization of library resource.

### Problems in Accessing E-Shodhsindhu

e-resources are very essential for the Research Scholars and Faculty at University libraries. Most e-Resources to University are available through Consortium. While accessing the resources the major problems faced by the Research Scholars and Faculty are restricted access, lack of training, slow internet speed, full-text accessing problems, lack of sufficient resources and other resources. These challenges are listed in Table 9.

Table 9 shows that major problem faced in accessing the e-resources is that 55(34.37%) users faced slow internet speed, followed by 35(21.87%) users faced with lack of training, 30(18.75%) users faced with restricted access, 21(13.12%) faced with full-text accessing problems, 14(8.75%) lack of sufficient resources and 5(3.76%) users find difficulty from the above mentioned problems in accessing the resources.

### CONCLUSION

The above study revealed that most e-resource users are researchers compared to Faculty and Researchers are satisfied with existing e-resources. Slow Internet

**Table 7: User's Satisfaction**

Respondents	Fully satisfied		Partially Satisfied		Dissatisfied		Total	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Faculty member	16	10	20	12.5	04	2.5	40	25
Research Scholar	30	18.75	75	46.87	15	9.375	120	75
Total	46	28.75	95	59.38	19	11.87	160	100

**Table 8: User satisfaction towards the resources**

	Faculty (N-40)		Research scholar (N-120)		Total (N-160)	
	Number	Percentage	Number	Percentage	Number	Percentage
Highly satisfied	16	10	35	21.87	51	31.87
Satisfied	18	11.25	45	28.12	63	39.37
Moderately satisfied	06	3.75	22	13.75	28	17.5
Dis satisfied	0	-	18	11.26	18	11.26
Total	40	25	120	74.99	160	100

**Table 9: Problems in accessing e-shodhsindhu**

Problems	Faculty		Research Scholar		Total (N-160)	
	Number	Percentage	Number	Percentage	Number	Percentage
Restricted Access	10	6.25	20	12.5	30	18.75
Lack of Training	05	3.125	30	18.75	35	21.875
Slow Internet Speed	15	9.375	40	25	55	34.375
Full-text Accessing Problems	05	3.125	16	10	21	13.125
Lack of sufficient resources	04	2.5	10	6.25	14	8.75
All the above	03	3.5	02	1.25	05	4.76
Total	42	27.875	118	72.75	160	100

access is a major problem Researchers and Faculty face in accessing e-resources. With this study, it is found that Consortium is an essential component of the University Library. With Consortium, the Users can access the majority of the resources available for their research purpose.

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## **Prospecting of Free and Open Access Journals by the Intellectual Community of Agricultural Sciences of Karnataka Region: An Analytical Study**

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### **ABSTRACT**

Library and Information Centres play pivotal roles to fulfil the thirst of knowledge seekers. We are living in a revolutionary era of Information and Communication Technology (ICTs). The revolution of ICTs emerged as a boon for library and information science professions which opened a door for accessing digital resources i.e. free and open source platforms. The key objective of the study is to explain about prospect of Free and Open Access Journals special reference of Directory of Open Access Journals (DOAJ) by the Intellectual Community (ICs) of Agricultural Sciences of Karnataka Region with special reference of University of Agricultural Sciences, Bangalore. The study used structured questionnaires as a tool of data collection to attain the motto of the study, 255 questionnaires distributed among ICs and 89 per cent respondents given effective responses which have been explained in data and interpretation section. The study revealed that DOAJ resources helped to fulfil the academic and research needs of the intellectual community and suggested that there is a need to promote these resources which provide more accessibility of library resources and set a trend for accessing open and free resources platforms and tools.

**Keywords:** Free open access resources, DOAJ, Intellectual community, Agricultural sciences university, Bangalore, Library and information resource centre

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### **INTRODUCTION**

**Man is made by his belief as he believes so he is- Bhagwat Gita**

The revolution of information and communication technology has emerged a new era for human being i.e. 'Digital Era'. The digital era opened enormous opportunities in all spheres of human beings for living a quality life and inclusive development of human beings. The Government of India has taken a lot of

initiatives for upliftment, and providing the 'quality of life' and enhancing 'ease of living' of Indian Citizens.

Our lawmakers has been using a missionary approach for the sustainable and inclusive development of India, and a

'Digital India Mission' launched in the year of 2015 to empower the digital transformation of Indian Citizen. The prime objectives of the mission are to provide the digital literacy and empower the Indian society for



maximum utilisations of services and facilities of digital era. Indian Education Scenario explicated that our intellectual community are using the digital resources and services to fulfil the thrust of knowledge and accomplished their educational and professional study and task.

Due to the Revolution era, there is a flood of digital resources, services and facilities in the digital platform. A number of social groups, activist and individuals have been offering digital resources free of cost. In education sectors, various e-consortia, community and individuals has been providing the intellectual resources and services free of cost for upliftment of intellectual society and human beings.

### Agricultural Universities of Karnataka Region

The education has been divided into various sectors and disciplines which provided the fundamental and specialization in particular subject and field to the intellectuals. Indian Education scenarios provided education in various sectors, viz. Agriculture, Pharmaceutical Science, Technology, Engineering, Social Science and many more. Due to diversity of environment and soils in the Karnataka region, it supported deep study in various crops. As per the details at the web portal of **Indian Council of Agricultural Research (ICAR), New Delhi**, total 63 universities in Agricultural Science and Research and among them 6 universities in the Karnataka state and 6 universities in Rajasthan. The details of the Universities of Agricultural and Horticulture Sciences in Karnataka region are as follows:

1. University of Agricultural Sciences, Bangalore.
2. Karnataka Veterinary, Animal and Fisheries University, Bidar.
3. University of Agricultural Sciences, Raichur.
4. University of Agricultural Sciences, Dharwad.
5. University of Horticulture Sciences, Bagalkot.

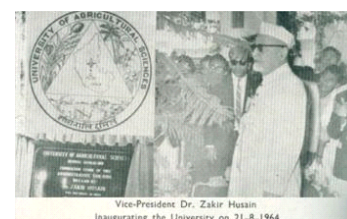


6. University of Agriculture and Horticulture Sciences, Shimoga.

The Karnataka region has been providing the agriculture its allied Sciences education and nurtured more 10 per cent intellectual community of India.

### Universities of Agricultural Science (UAS), Bangalore

The University of Agricultural Sciences, Bangalore is an important academic and research institution in the field of Agricultural and allied sciences.



The university was inaugurated by Dr. Zakir Hussain, Vice-President of India in 21<sup>st</sup> August, 1964, defining its importance for inclusive and sustainable development of India. India needed to be self-reliant in the Agricultural and its allied field. After the independent of India, there were wide scopes and an urgent need for Indian education scenario to empower the Indian intellectual society for development of technical and innovative research to fulfill the hunger of India and contribute and support to world population.

The University provided quality education and facilitated world class teaching and learning tools, resources and faculty and supporting staff members. The data of the university's websites explained that more than 4745 students are getting diploma, Under/Post graduate and research degree in agricultural and allied sciences. More than 381 faculty members have been providing quality education and fulfilling the academic and research need of the intellectuals at six campuses and 21 research centers in the Karnataka regions. The climate diversity provided an opportunity for students, researchers and faculty members to attain the research objectives and set an example in front of the world intellectual community in the Agricultural Sciences and



its allied sectors and industries. The following image depicted the 10 climate zones of the Karnataka State of India (Figure 1).

## Library and Information Centre of UAS, Bangalore

Library and Information Center play a key role for the fulfil the thrust of knowledge of the knowledge seekers. UAS, Bangalore nurtured the world class facilities to its intellectuals and its Library has been offering vast amount and quality resources and library services and facility among the end users. The library has developed user centric service design model to utmost satisfaction

of the knowledge seeker and fulfil their academic and research needs. The Figure 2&3 depicted the herculean view of library. Library design a single gateway for accelerating the utilisation of library resources and services.

## Library Resources, Service and Facilities

Library has an enormous collection of Print and Electronic resources viz. Book, Journals, Thesis, CDs/ DVDs, E-Books, E-Databases, and the following Table 1 and 2 depicted the herculean view of library resources and images explained about the library services and facilities.

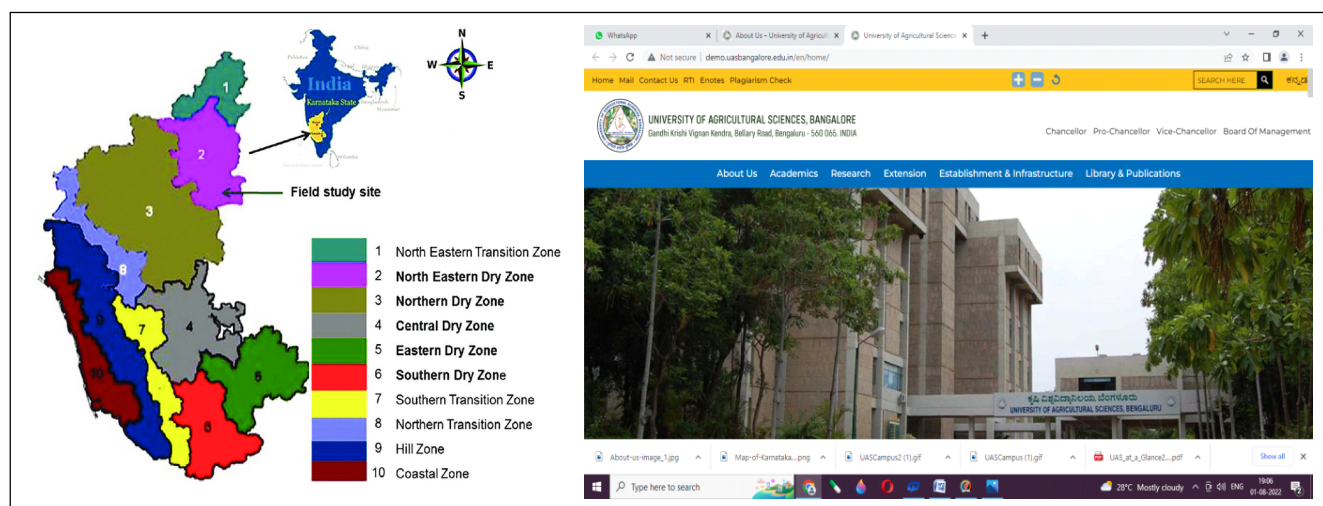


Figure 1: Universities of Agricultural Science (UAS), Bangalore

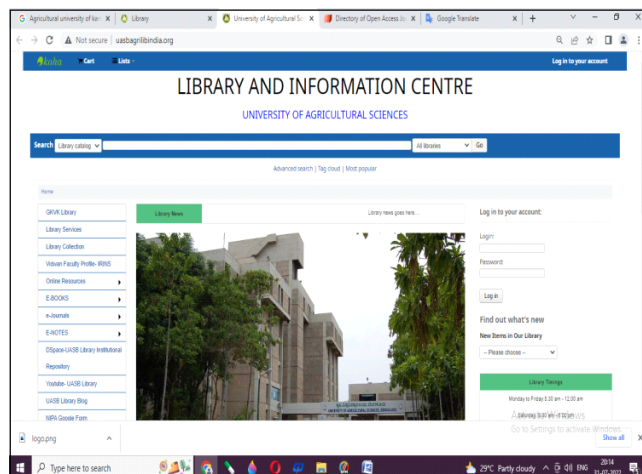


Figure 2: Library and Information Centre



Figure 3: University of Agricultural Sciences



**Table 1: Herculean view of Library Resources of UAS, Bangalore**

Resources	GKVK Library	CoA, Hassan	CoA, Mandya	CoS, Chintamani	Total
Books (including Back Volumes)	157703	20278	20853	13211	212045
Pamphlets	11490	12	99	1265	12866
Thesis/Dissertations	11963	-	178	67	12208
Project Reports	19276	12	722	241	20251
Microfilms	68	-	-	-	68
Microfiche	167	-	-	-	167
Maps	78	20	-	-	98
CD ROMs and DVDs	321	203	314	153	991
E-Books	207	25	18	20	270
E-Journals	27	29	-	5	61
Total	201300	20579	22184	14962	259025

**Table 2: Library Services and facilities**

Book Borrowing Facilities	Inter Library loan	Current Awareness Services
Database of Current periodicals	Reprographic Service	Selective Dissemination Services
On-line Current awareness Service	Reference Service	Virtual Reference Services
Non-Credit Course for PG Student	User Education	Frequently Asked Questions
Text Book Bank for SC/ST Students	Close Circuit Television (CCTV)	Library Orientation Programme

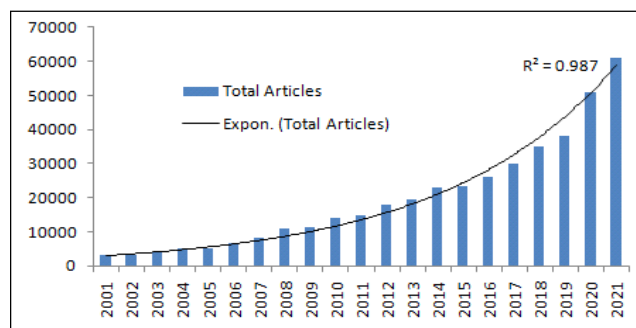
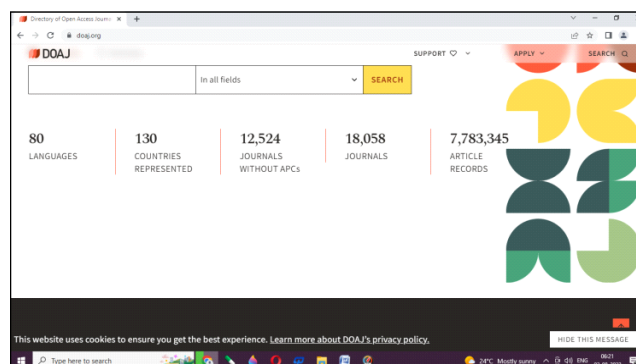
### Directory of Open Access Journals (DOAJ): DOAJ

DOAJ is an international community-curated online directory which has been providing the quality E-Journals to the intellectuals at the free of cost. The following image explains about the resources and services of DOAJ, it has more than 7,783,345 articles records and 18058 journals across 130 countries and in 80 languages in various disciplines of knowledge.

In the field of Agricultural and its allied Science 846 research journals and 474317 indexed articles available in the DOAJ platform. The Figure 4 and 5 briefly explains the exponential growth of the DOAJ databases and year wise details of Agricultural and its allied Sciences journal articles.

### LITERATURE REVIEW

Mostafa (2011) elaborated that the Library and Information Centre provides enormous digital resources which support to fulfill the desires of the intellectuals

**Figure 4: DOAJ Agricultural and Allied Science Articles****Figure 5: DOAJ databases**

of University of Bangladesh. The study suggested that the digital infrastructure facility improved and provide the 24/7 accessibility of internet facilities.

Sujatha (2011) explained that the academic community has been interested and focused to harnessing internet and digital resources. Library and Information Science Professional strived to provide the digital resources to the intellectual community for utmost satisfaction to the end user community. The study recommended that the speed of internet and availability of internet facilities be focused.

Thanuskodi and Ravi (2011) enunciated that faculty and students used internet resources and services in their learning and research activities. Ample of resources are available on digital platform. These resources and services enhanced the quality of academic and research productivity. The study also elaborated that by dint of these amenities, we nurtured the skillful intellectual which is the need of the hour.

Kaur and Randhawa (2010) analyzed that E-resources provide useful information to the research scholar and research guide which need of the library and information centre.

Patil and Parameshwar (2009) explained that E-resources help and support the intellectual community. The study recommended that Information literacy is play a key role for optimum harnessing of the E-resources.

Singh *et al.* (2009) concluded that internet services played a pivotal role for harnessing of the E-resources. The study recommended that development of the digital infrastructure and creating a digital environment in the academic institutions is the need of the hour.

Anuradha *et al.* (2011) enunciated in their case study of BITS Pilani's Intellectual Community on the theme of "Awareness and Use of Open Access and Online Resources. The study briefed that the emerging trend of utilization of E-resources has increased due to 24/7

availability and easy access with no bar of time and place.

Kanniyappan *et al.* (2008) conducted a study and got the various important findings which helpful for the sustainable development of the society. The Study enunciated that E-resources played a key role for fulfill the thrust of knowledge of the intellectual community.

Manjunath and Millinath (2008) discussed that the impact of digital resources in the intellectual community creating interested among the students and faculty members. These interests support the quality research and nurtured the intellectuals.

Mostafa (2011) enunciated that emergence of Information and Communication Technology, enormous intellectual resources are available which supported and helped to fulfill the thrust of knowledge of the end users. Library professionals offered quality library resources and facilities among the intellectual community.

Sujatha (2011) elaborated that academic community focused to accessing the E-resource for fulfill the academic and research needs. The study recommended that the quality of digital infrastructure needed to improve for better accessing and harnessing of digital resources and services.

Thanuskodi and Ravi (2011) described that learning community fulfilled their academic and research objectives by harnessing the E-resources and services. The study suggested that digital literacy programmed should be organized twice in a year for optimum utilization of the resources and services.

Kaur *et al.* (2010) recommended that library and information centre offered the quality resources and services to the end users and fulfill the academic and research need of the intellectual community, which is the motto of the library profession.

Patil and Parameshwar (2009) illustrated that E-resources enhanced of utilization of the library facilities

and services. It support to increased of the return of the investment of Library. The study recommended for effectively utilization of the e-resources, library professionals needed to organize the digital literacy program for intellectual community.

Singh *et al.* (2009) depicted that E-resources facilitated the 24/7 accessibility with no bar of place, mean end users can accessed these resources at their fingertips. The subject is only availability of the internet connection. Library professionals developed a user centric system for fulfill the thrust of knowledge to the end user.

Davis (2013), concluded that internet services played a pivotal role for harnessing of the E-resources. The study recommended that development of the digital infrastructure and creating a digital environment in the academic institutions is the need of the hour.

Anuradha *et al.* (2011) illustrated that E-resources enhanced accessibility of library and information resources centers. Students and faculty members fulfill their academic and research needs and produce the quality output as per their predefined objectives.

Kanniyappan *et al.* (2008) revealed that E-resources played a key role for the intellectual development and library professionals offered the optimum satisfaction to the end users.

Manjunath and Millinath (2008) illustrated that digital resource supported to design user centric library service system. The intellectual community could access these resource from anywhere and anytime. E-resource develop the interest among the intellectual community & produced the quality result in research and academics.

Singh *et al.* (2020) depicted that harnessing of digital technology enhancing the productivity of intellectuals and fulfills the gap between the end user and library services and resources.

## OBJECTIVES

Renwick (2005) illustrated that the prime objective of the study to understand the awareness and utilization

of open access resources i.e. DOAJ by intellectual community of University of Agricultural Science, Bangalore The major objectives behind the study are as follows.

- To understand the awareness of the DOAJ resources
- To know the utility frequency of digital resources
- To recognize of harnessing purpose of digital contents
- To understand the challenges for optimum harnessing of the resources
- To get the recommendation for the maximum utilization of the resources

## METHODOLOGY

The study used the survey methods for the detailed information and data collection of the harnessing of resources and satisfaction by the end users. To accomplish the objectives of the study a structured questionnaire designed as a tool for the data collection and more than 255 questionnaires distributed among students and faculty members of University of Agricultural Science, Bangalore, India. More than 250 responded and took active participation and only 227 respondents' submitted effective responses and use for the study. The details of the responses are elaborated in the data analysis and interpretation section of the study.

## SCOPE AND LIMITATION OF THE STUDY

The scope of study to know the Prospecting of Free and Open Access Journals by the Intellectual Community of the University of Agricultural Science, Bangalore India. Study also highlighted the E-resources, E-databases, E-journals and other intellectual resources which are available in the Library and Information Resource Centre, Bangalore. The study is limited to the utility behaviour and prospecting of Free and Open

Access Journals (DOAJ) by the Intellectual Community of UAS, Bangalore.

## DATA ANALYSIS AND INTERPRETATION

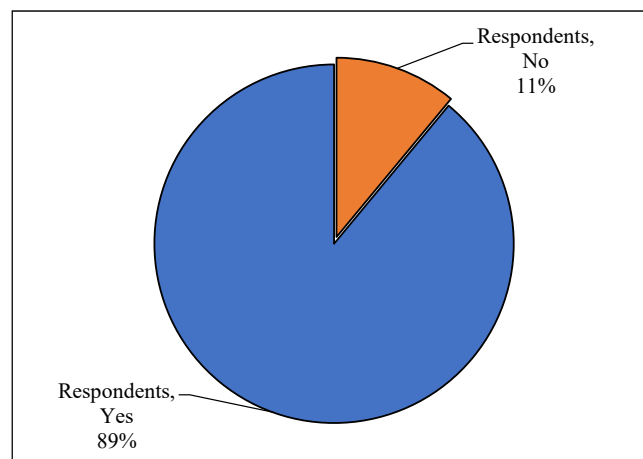
This part of the study briefed and explained the data which produced concrete results for fulfill the prime objectives of the study. There is no need to incorporate the demographical data of the study. Study conducted on utilization of DOAJ resource and there are zero effects of gender, age, and etc and it helped to save the time of respondents.

### Awareness of DOAJ Resources

The intellectual community of University of Agricultural Science, Bangalore provides the quality education and Library and Information Resource Centre offer the quality Library resources and services which are supported to fulfill the academic and research need. Following Table 3 and Figure 6 depicted that more than 89 per cent end users were well aware about the resources.

**Table 3: Awareness of DOAJ Resources**

DOAJ Resources	Respondents	Percentage
Yes	202	89
No	25	11
Total	227	100

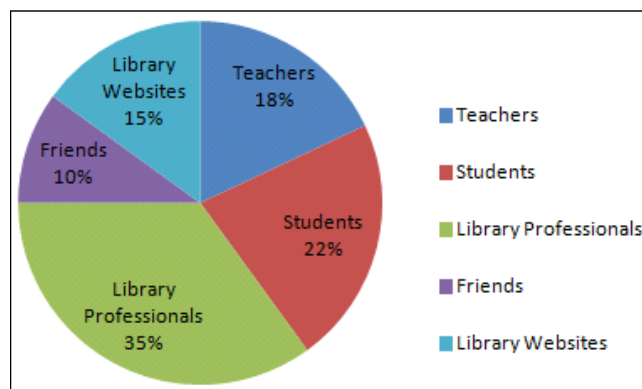


**Figure 6: Awareness of DOAJ Resources in percentage**

The Table 4 illustrated about the sources of end users awareness of DOAJ resources and facilities. Data depicted that 35 per cent end users source of awareness was Library professional and 22 per cent from the students. Figure 7 illustrated the details of the awareness source of End Users.

**Table 4: Sources of Awareness of DOAJ Resources**

Sources of Awareness	Respondents	Percentage
Teachers	41	18
Students	50	22
Library Professionals	79	35
Friends	23	10
Library Websites	34	15
Total	227	100



**Figure 7: Sources of Awareness of DOAJ Resources percentage**

### Frequency of using DOAJ Resources

Table 5 and Figure 8 explicated the data about the frequency of DOAJ resources. The data of explicated that 25 per cent responded using daily basis and 41 per cent used twice in a week of DOAJ resources.

**Table 5: Using Frequency of DOAJ Resources**

Using of Years DOAJ	Respondents	Percentage
Daily	57	25
Twice a week	93	41
Weekly	68	30
Monthly	9	3
Total	227	100

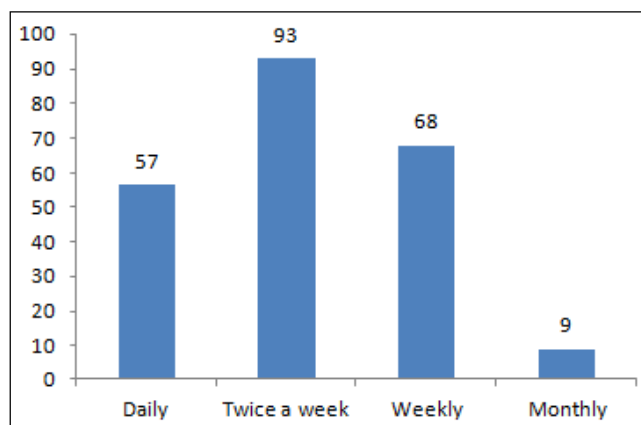


Figure 8: Frequency of using DOAJ resources

30 percent users used weekly basis and 3 percent used the DOAJ once in a month or rarely. The data explained that more than (25+47) 72 per cent used frequently. It shows that DOAJ resources help and support for fulfill the academic and research needs of the Intellectual community.

#### Using Period of the DOAJ Resources

Table 6 depicts the usage period of DOAJ resources more than 4 percent users using these resources since last ten year. It means DOAJ resources the quality resources and full fill the thirst of knowledge of end users.

AS per the data in the aforesaid table and its explanation showed that DOAJ resources fulfill the Return of Investment (ROI) of Library and Information Resources Centre, Bangalore College. For clarification of the data Figure 9 supported to understand the end users perception about the DOAJ resources.

Table 6: Using for Years of DOAJ

Using of Years DOAJ	Respondents	Percentage	Explanation
$0 < N \leq 2$	84	37	Greater than 0 but less than or equal to 2 Years
$2 < N \leq 5$	104	46	Greater than 2 but less than or equal to 5 Years
$5 < N \leq 10$	30	13	Greater than 5 but less than or equal to 10 Years
$10 < N$	9	4	More than 10 years
Total	227	100	<b>N=Year</b>

N= Years of using DOAJ Resources

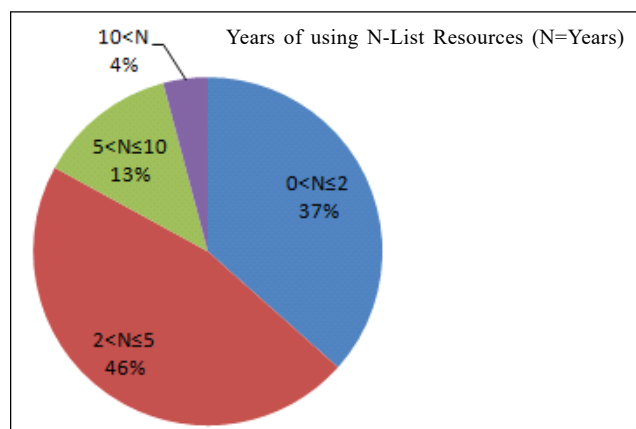


Figure 9: Using for Years of DOAJ

#### Motto of using DOAJ Resources

The Table 7 and Figures 10 illustrated the objectives of harnessing the resources. It explained that more 43 per cent end users usage for fulfill the research needs and 25 per cent accomplished the project works. This showed DOAJ resources provided the quality resources for fulfilling the Academic, research and project need and helped to update knowledge of the end users.

Table 7: Motto for using of DOAJ Resource

Motto for using of E-resources	Respondents	Percentage
To accomplish academic works	25	11
To complete the project works	57	25
To help for research activities and articles	98	43
To updated knowledge and reference works	48	21
Total	227	100

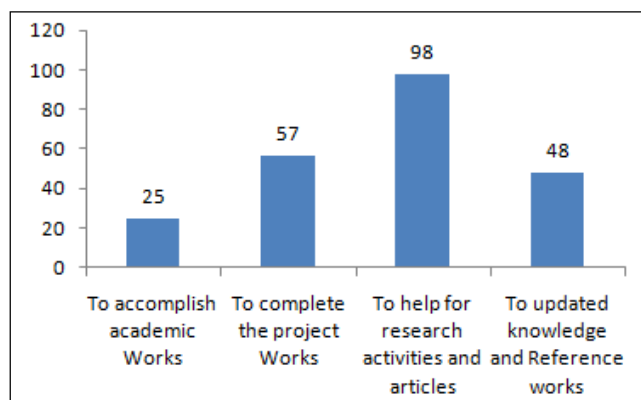


Figure 10: Motto for using of DOAJ Resource

### Using place of DOAJ resources

The above Table 8 shows that 70% end users harnessed the DOAJ resources in the campus whereas 30% end users used resources from off campus.

### Quality of Resources (DOAJ)

The Table 9 expresses the quality of resources which are offered in the DOAJ resources. The Figure 11 illustrated that 53 percent end users said excellent quality and 38 percent said good quality resources. As per the data more 91 percent end users expressed that DOAJ offered the quality resources which helped to accomplish the academic and research study.

### Users satisfaction of the DOAJ Resources

Users' satisfaction plays a key role in the service oriented organization. The prime motto of the Library and Information Centre is providing the utmost satisfaction. The Table 10 depicts the satisfaction level

Table 9: Quality of DOAJ Resources

Quality of Resources	Respondents	Percentage
Excellent	120	53
Good	86	38
Average	16	7
Poor	5	2
Total	227	100

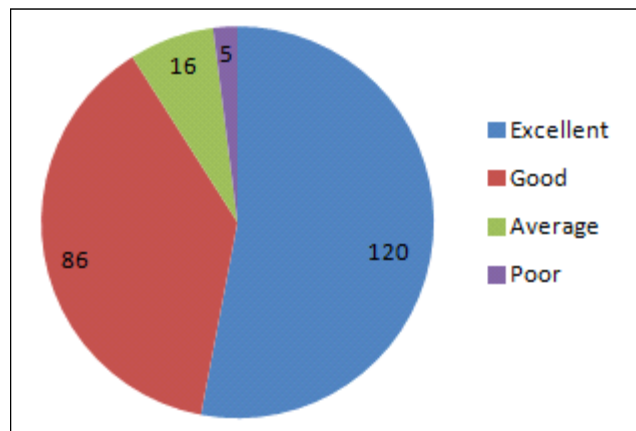


Figure 11: Quality of DOAJ Resources

Table 10: User Satisfaction of DOAJ resources

Satisfaction	Respondents	Percentage
Fully Satisfied	91	40
Satisfied	82	36
Partially Satisfied	48	21
Not Satisfied	7	3
Total	227	100

of the end users of the University of Agricultural Science, Bangalore. As per the above data, more than 76 per cent end users were satisfied with the DOAJ Resources and 21 percent partially satisfied. Only 3

Table 8: Location accessing DOAJ E-Resources

Location for accessing DOAJ E-Resources	Respondents	Percentage	Remarks
Library	54	24	In campus used (24+31+15) =70
Department	70	31	
Computer Center	34	15	
Home	64	28	Other than Campus (28+2) =30
Any Other	5	2	
Total	227	100	

percent satisfied due to some more need of the resources.

### Challenges for Harnessing the DOAJ Resources

There were some challenges to harnessing the resources and service of the library and information centre, Table 11 illustrated about the challenges in optimum harnessing of the DOAJ resources.

**Table 11: Challenges for Harnessing the DOAJ resources**

Particular	Respon- dents	Percen- tage
Lacuna of Adequate ICT Infrastructure	20	9
Speed of Internet	14	6
Power Interruptions	9	4
Lacuna of IT Skills	43	19
Lacuna of Supporting staff	59	26
Motivation for harnessing of resources	82	36
Total	227	100

The data Table 11 illustrated that 9 percent Lacuna of Adequate ICT Infrastructure, 6% Speed of Internet, 4% Power Interruptions, 19% lacuna of Information and Communication Technology skills, 26 percent need of supporting staff and 36 percent interested the motivation for harnessing of the DOAJ resources.

### Barrier for DOAJ

The study explored the various barriers for utilization of the DOAJ Resources. The Table 12 explicated the barriers. Digital literacy and Communication skills need to enhance for optimum harnessing of the Library and DOAJ Resources.

**Table 12: Barrier for harnessing of DOAJ resources**

Barrier for using DOAJ	Respondents	Percentage
Time Crisis	32	14
Appropriate Information	45	20
Communication Skills	57	25
Insufficient Systems	34	15
Digital Illiteracy	59	26
Total	227	100

### Suggestions for Maximum Utilizing DOAJ

The respondents have been given various suggestions for the optimum harnessing of the library and information resources centre. The Table 13 explained that end users required more orientation programmes and were helped by the supporting staff.

**Table 13: Suggestions for maximum utilizing DOAJ**

Particular	Respon- dents	Percen- tage
Promotion for Harnessing	34	15
Need more Computer Systems	11	5
Appointment of Supporting staff	36	16
Need orientation Programme twice in a year	59	26
Organize Digital Illiteracy Programme twice in a year	48	21
Design User manual	14	6
Design FAQ (Frequently Asked Questions)	25	11
Total	227	100

### CONCLUSION

The exponential growth of ICTs and the revolutionary approach of digital contents and its services, intellectuals wanted the desired information with no bar of time and place at their fingertips. The university library developed a digital library to fulfil the thrust of knowledge of the Intellectuals. Study recommended and suggested that digital literacy and awareness programs should be conducted twice a year for optimum harnessing of intellectual resources. University of Agricultural Science, Bangalore India developed and nurtured the intellectual to take active participation in the inclusive development of India as well as the world. The purpose of this study is to understand and enable the university libraries to support and cooperate with intellectual works and offer quality library resources among the intellectual community of UAS, Bangalore.

### RECOMMENDATIONS

The study recommended that library and information science professionals have to strive for utilisation of the

open and free resources which will enhance the quality services and provide the maximum library resources at the least cost which is the prime objectives of library and information science professions.

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## Aims and Scope

- JIM promotes research work among young library professionals, researchers, students and faculty members.
- JIM motivates them to carry out actual research work and publish their manuscripts.
- JIM is to provide a better platform to the LIS Professionals with new dimensions.
- JIM scope is restricted with Library & Information services.

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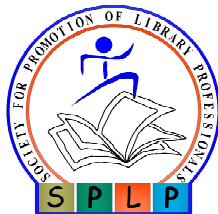
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