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USE OF PERIODICALS IN THE CENTRAL LIBRARY AT RAJIV GANDHI COLLEGE OF ENGINEERING AND TECHNOLOGY, KIRUMAMPAKKAM, PUDUCHERRY: A USERS' SURVEY

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Abstract

This paper investigates the use of periodical collection by the Undergraduate Students,Postgraduate students, and faculty members by conducting a survey at Rajiv Gandhi College of Engineering and Technology Central Library, Kirumampakkam, Puducherry. About 51 foreign journals, 51 Indian journals and 57 online International journals are being subscribed by the institution. The finding of the investigation reveals that most of the respondents are satisfied with the periodical collection.

Keywords: *Use of periodicals, Users' Survey*

1. INTRODUCTION

Periodicals are the major sources of information. They carry usually original and nascent information. To enable the research scholars and academicians, to avoid the duplication of research and to cope with the latest developments in their fields, libraries are obliged to subscribe and obtain the necessary periodicals. Among the different sections of a University/College Library, the periodical section presents the most challenging problems for librarians and administrators, the basic reason being the fact that this section grows faster than any other section. Since the publication of the first journal in 1665 'Le Journal Desscavans' in Paris, and 'Philosophical Transaction' in London, there has been an enormous and steady growth in the number of periodicals. The number of scientific journals and articles these from are doubling every 15 to 20 years. It is estimated that each year 1 million books are published. 80 to 90 thousands periodicals are released, 2 million research reports are issued, and nearly 3 million articles are appearing in various magazines and journals. Thus scientific and technical literature is rising at the rate of 60 million pages in a year. In view of this increasing trend, we find that a significant proportion of the library budget is spent on periodicals. Periodicals provide the nascent thought on a subject along with the historical development of various concepts. Their acquisition in any library is a must for the promotion of research and teaching [1].

Libraries supporting the programs/activities of research and education take up the responsibilities of acquiring and making available to its clientele the required periodicals. But the modern librarian finds it very difficult to streamline the policy for acquiring periodicals due to various constrains such as proliferation of periodicals, progress of inter-disciplinary and multi-disciplinary research, rising cost of periodicals, and financial stringency on the one side and increasing and diverse needs of users on the other side.

2. IMPORTANCE OF PERIODICALS

Periodical publication, which contain the first hand information about the research in progress in a particular subject field, are very useful for the clientele of university/ college library. They occupy an important place in library because of their coverage in research, discoveries, methods, inventions and latest information in various branches of knowledge. The significant developments in the field of S&T have opened the floodgates knowledge. As a result, we live in the era of miracles and marvels of information explosion. If we would like to keep ourselves familiar with the changing frontiers and scenarios of

information, the only immediate source among the library collections is periodicals. It will not be an exaggeration, if we say that periodicals from the heart of the university/ college library for the development of R&D oriented, skilled manpower for the nation [2].

Periodicals are the stable food for research works and from the backbone of the library collection. The role of periodicals in disseminating the latest knowledge is apparently pivotal. In the words of Denis Grogan " A well high universal finding of many surveys of the literature habits of scientists and technologists is that the most frequently used of all sources of information are periodicals: typically they account for well over half of all their reading". Books may become obsolete very soon. But periodicals can keep up with the onward march of research and development. No wonder if more amount of money is spent by libraries for the procurement of periodicals than books [3].

3. LITERATURE REVIEW

There are several studies in the literature on the use of library collection. But, there are far fewer articles on use of collection in special libraries, particularly the use of periodicals. Among the early studies, Guha conducted one on use of scientific and technical secondary periodicals in nine research and academic libraries in Delhi by using questionnaire and observation methods [4]. The study concludes that use of periodicals differ from library to library based on special subject areas of students. The present study focuses on the use and users' satisfaction with the periodical collection in the Rajiv Gandhi College of Engineering and Technology Central Library, Kirumampakkam, Puducherry.

4. OBJECTIVES OF THE STUDY

The study intends to cover the full range of facts relating to the use of periodical collection in the Rajiv Gandhi College of Engineering and Technology, Kirumampakkam, Puducherry. The specific objectives of the study are as follows:

i. To analyse the use of periodicals collection in Science and Technology
ii. To determine the users preferences on various secondary sources
iii. To find out the use of secondary periodicals subscribed by the library
iv. To examine the users' preference on language of periodicals
v. To find out the use / consultation of periodicals in other libraries / information centers
vi. To determine the users' preference on medium (soft / hard copy) of periodicals
vii. To collect users opinion regarding e-journals and their use
viii. To analyse adequacy of periodicals collection; and
ix. To suggest suitable recommendations to solve the problems as to improve the situation for the benefit of the users.

5. METHODOLOGY

Questionnaire and literature survey methods were used for data collection. A total of 100 questionnaires were administered and 85 filled in questionnaires were obtained from the users.

6. ANALYSIS AND DISCUSSION

The category-wise distribution of the population of the study is given in Table 1. In the users' category, out of eighty five (85) respondents 18 were faculty members, 16 PG students and 51 UG students.

Table 1 Category of Users

User Category	Questionnaire supplied	Responded	%
Faculties	20	18	21
PG Students	20	16	19
UG Students	60	51	60
Total	100	85	100

The analysis of the data collected from the questionnaires reveals that the indexing and the abstracting periodicals subscribed by the library are fairly used.

Table 2 Use of Secondary Sources

Sl.No.	Sources	Users Order of Preference	% of Users Preference
1	Indexes / Abstracts	8	9.41
2	Contents Lists	10	11.76
3	Bibilographies	14	16.47
4	Reviews	6	7.05
5	Directed by Faculties / Friends	5	5.88
6	Internet	42	49.41

Table 2 shows the preference of users for various sources that they use to locate the required articles in journal. Eight respondents (9.41%) gave their preference to indexes and abstracts, 10 respondents (11.76%) gave first preference to contents lists, 14 respondents (16.47%) gave first preference to bibliographies, 6 respondents (7.05%) gave first preference to reviews, 5 respondents (5.88%) gave the preference to the option, directed by faculties / friends and 42 respondents (49.41%) gave the preference to the internet. It is inferred from the table that majority of the people depends heavily on internet periodicals for locating the required article in journal.

Table 3 Preference for Language of Periodicals

SLNo	Languages	No. of. Respondents			Total	Percentage
		UG Students	PG Students	Faculty Members		
1	English	51	13	18	82	96.47
2	Other than English	00	03	00	03	03.53
Total		51	16	18	85	100

As shown in the Table 3, 96.47% of the respondents prefer English language periodicals and only 3.53% of the respondents prefer periodicals in languages other than English.

Table 4 Consultation of Journals from Other Libraries

SLNo.	Answer	No. of. Respondents			Total	%
		UG Students	PG Students	Faculty Members		
1	Yes	33	16	7	56	65.88
2	No	18	-	11	29	34.12
Total		51	16	18	85	100

Data given in the Table 4 shows that 65.88 % respondents approach other libraries. The remaining 34.12 % do not consult inferred data, majority of the user community depends on their college library for satisfying their curricular and project / research needs.

Table 5 Preference on Medium of Periodicals

SLNo.	Answer	Respondents			Total	%
		UG Students	PG Students	Faculty Members		
1	Hard Copy	25	14	8	47	55.29
2	E - journals	26	2	10	38	44.71
Total		51	16	18	85	100

Data given in the Table 5 shows that 55.29 % of the respondent have given first preference to hard copy periodicals and only 44.71 percent have given first preference to soft copy periodicals. This way shows mainly due to ignorance of the majority of the respondents about the merits of electronic journals.

Table 6 Electronic Journals as an Alternative

SLNo	Answer	Respondents			Total	%
		UG Students	PG Students	Faculty Members		
1	Yes	38	15	15	68	80
2	No	13	1	3	17	20
Total		51	16	18	85	100

Data given in the Table 6 shows that 80% of the respondents are of opinion that e-journals cannot be found as an alternative to print journals. Only 20% of the respondents have suggested that e-journals can be considered as an alternative to print journals.

Table 7 Consultation of Online Journals

SLNo	Answer	Respondents			Total	%
		UG Students	PG Students	Faculty Members		
1	Yes	30	14	9	53	62.35
2	No	21	2	9	32	37.65
Total		51	16	18	85	100

As shown in the Table 7, 62.35% of the respondents have referred online journals for satisfying their curricular and research needs and the remaining 37.65% have not referred online journals.

Majority of the respondents (56.47%) were satisfied with the periodicals collection. The remaining 43.53 % stated that they were not satisfied with the collection.

7. FINDINGS

- The majority of the users mainly depends on the internet for locating the required journal articles. Bibliographies are their second choice. Contents lists and index/abstracts occupy third and fourth places respectively.
- Online periodicals subscribed by the library are fairly used.
- Majority of the users prefer English language periodicals.
- 34.12 % of the users approach other libraries for consulting the periodical articles.
- Majority of the users prefer hard copy of journals.
- Majority of the users feel that e-journals can be an alternative to print journals.
- Only 44.71% of users referred online journals.
- Majority of the users were satisfied with the periodicals collection.
- Majority of the users referred only international journals.

8. SUGGESTIONS AND CONCLUSION

1. Necessary steps should be taken to strengthen the Current Awareness Services (CAS).
2. Steps should be taken to intimate the users about the arrival of the new issue of journals.
3. Necessary steps should be taken for providing proper assistance to compensate the insufficiency of the collection by means of photocopies of articles from documentation centres.
4. Attempts should be made periodically to study the users' needs to create a balanced collection of periodicals based on the needs and their priorities.
5. Periodical evaluation of the journals subscribed in the library could be made in relation to the growing and changing needs of users.
6. Try to ensure prompt receipt of periodicals in time and adequate allocation of budget to prevent inadequate in the collection.
7. It is essential to envisage new plan to direct the selection of periodicals so as to match it with the future developments possible for the library; and
8. Finally, necessary steps must be taken for the acquisition of important online journals.

The study shows that the periodicals used at the Rajiv Gandhi College of Engineering and Technology is satisfactory. But the findings of the study reveals the pathetic condition of e-journals collection of the library. Majority of the users were satisfied with the present collection of periodicals. It has been found from the study that subscription to print / hard copy journals is adequate. In the present digital era, it is essential that the Rajiv Gandhi College of Engineering and Technology Library to focus on subscription to electronic journals.

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USE OF INTERNET SERVICE IN PONDICHERRY UNIVERSITY LIBRARY: AN EVALUATIVE STUDY

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Abstract

We are living in a knowledge society. The growth of information has been increasing exponentially. Information is available in a variety of formats viz. Microforms, CD-ROMs, DVD-ROMs, E-books, E-journals, etc. On the other hand, the users in the modern society demand for information within no time irrespective of the format. At this juncture, we, as information professionals, are responsible to organise the growing literature in a systematic way for efficient dissemination and effective utilization of resources. Keeping the above fact in mind, the paper aims at analyzing the usefulness of internet service and the effectiveness of e-resources provided through UGC-INFONET in Pondicherry University Library.

Keywords*: Use of internet, Pondicherry university library*

1. INTRODUCTION

The term internet, sometimes called the "Information Super Highway," is defined as a worldwide, publicly accessible series of interconnected computer networks that transmit data by packet switching using the standard Internet Protocol (IP) [1].

It is a "network of networks" that consists of millions of smaller domestic, academic, business, and government networks, which together carry various information and services, such as electronic mail, online chat, file transfer, and the interlinked web pages and other resources of the World Wide Web (www)[2].

The features of internet are: interaction with the users through e-mail, sending the documents like photographs, graphics, sounds, text, video, multimedia and interactive content including games, office applications and scientific demonstrations through World Wide Web (www), providing remote access, collaboration, file sharing, etc [3].

As stated earlier, these simple features of the internet, over a world-wide basis, are changing the basis for the production, sale, and distribution of anything that can be reduced to a computer file for transmission. This includes all manner of print publications, software products, news, music, film, video, photography, graphics and the other arts [4].

Use of internet is exclusively important for the libraries due to the following reasons [5]:

- Quick dissemination of information
- Greater efficiency in transmitting information
- Saving cost and time of users and librarians
- Access to variety of contents
- Remote and Multiple access
- Sharing resources
- Inter-operability

2. ANANDA RANGAPILLAI LIBRARY: AN OVERVIEW

The university library was inaugurated on 11 September 1986 by Dr. K.Venkatasubramanian the first Vice-Chancellor of Pondicherry University. The university library named after Ananda Ranga pillai - the great diarist of Pondicherry and dubash of Dupleix, the erstwhile French Governor of Pondicherry, moved to its separate building costing Rs.100 lakhs in June 1990. The

university library serves the students, research scholars, members of the faculty and non-teaching staff of the university. Reference Service, OPAC Service, CD-ROM Database Service, Online Journal Service, Reprographic and Photocopying facilities are provided to the library users and is kept open on all the working days of the university for the users.

3. OBJECTIVES OF THE STUDY

i. To study the effectiveness of internet service at Pondicherry University Library
ii. To analyse the users' satisfaction about the internet service provided by PUL
iii. To examine the adequacy of resources provided through internet service
iv. To identify the issues associated with the services offered through internet; and
v. To provide suggestions in order to improve the existing service, and to overcome the issues

4. METHOD OF DATA COLLECTION

The questionnaire method was adopted for the present study. A close ended questionnaire comprising 20 questions about the usefulness of internet service rendered in PUL was framed. A total 75 questionnaires were distributed among the users who were present, and 51 filled in questionnaires were received back. Then, the filled in questionnaires were analysed using MS-Excel.

5. SCOPE AND LIMITATIONS OF THE STUDY

- The present study is confined to only internet service at PUL.
- The number of respondents taken as sample is very limited.
- The number of respondents comprises of only two categories namely, Students and Research Scholars.
- No statistical tool has been applied other than simple percentage.
- Appropriate sampling technique could not be used due to lack of time.

6. RESULTS AND DISCUSSION

The collected data from 51 respondents using questionnaire method has been analysed at different angles using various parameters that are as follows:

6.1 Subject-wise Distribution of Total Respondents

The number of respondents has been distributed according to the specialization and presented in Table 1. The Table 1 indicates that 15.69 percent of the users are from Chemistry. The other users are from Computer Application (13.73%), Mathematics & Statistics (7.84%), Commerce (7.84%), Business Administration (7.84%), Economics (7.84%), English (5.88%) and others (9.80).

6.2 Sex-wise Distribution of Total Respondents

Besides the above classification of respondents, an attempt has been made to categorise the respondents sex-wise and it has been presented in Table 2. The table summerises that the male users combining students and research scholars together are 44 in number that accounts for 86.27 percent. The female users are 13.73 percent. It is observed that male users utilize the internet service of PUL more than that of female users.

6.3 Satisfaction of Respondents about the Number of Computers Installed

It has been analysed keeping in view the satisfaction of respondents about the number of computers installed. The result (Table 3) shows that 25 users that accounts for 49.02 percent are satisfied while 50.98 percent of population is not satisfied with the number of terminals installed in the internet centre of PUL. Therefore, most of the users are in need of installing more computers to minimize the problems.

6.4 Satisfaction of Respondents about Staff Support

With regard to the level of satisfaction of users towards staff support, the result, as can be seen in Table 4, reveals that 72.55 percent of the users have regarded as good, 7.84 percent is very good, and 1.96 percent is excellent. Contrastingly, 17.65 percent of users revealed that the support service is poor.

Table 1 Subject-wise Distribution of Respondents

Subject	Students	Research Scholars	Total	Percentage
Chemistry	6	2	8	15.69
Computer Application	7	0	7	13.73
Mathematics & Statistics	4	0	4	7.84
Commerce	3	1	4	7.84
Business Administration	4	0	4	7.84
Economics	4	0	4	7.84
English	3	0	3	5.88
Physics	3	0	3	5.88
Physical Education	1	1	2	3.92
Political Science	0	2	2	3.92
Geology	2	0	2	3.92
Ecology	0	1	1	1.96
Education	1	0	1	1.96
Tamil	1	0	1	1.96
Others	3	2	5	9.80
Total	**42**	**9**	**51**	**100.00**

Table 2 Sex-wise Distribution of Respondents

Category of User	Male	%	Female	%
Students	36	85.71	6	14.29
Research Scholars	8	88.89	1	11.11
Total	**44**	**86.27**	**7**	**13.73**

Table 3 Satisfaction of Respondents about the Number of Computers Installed

Category of User	Satisfied	%	Not Satisfied	%
Students	20	47.62	22	52.38
Research Scholars	5	55.56	4	44.44
Total	**25**	**49.02**	**26**	**50.98**

Table 4 Satisfaction of Respondents about Staff Support

Category of User	Excellent	%	Very Good	%	Good	%	Poor	%
Students	1	2.38	4	9.52	29	69.05	8	19.05
Research Scholars	-	-	-	-	8	88.89	1	11.11
Total	**1**	**1.96**	**4**	**7.84**	**37**	**72.55**	**9**	**17.65**

6.5 Satisfaction of Respondents about Speed of Internet

With respect to the speed of internet, Table 5 summarises that majority of the users amounting to 74.51 percent are not satisfied while 25.49 percent is satisfied. Majority of the dissatisfied users are Students (32%). It is clear from the result that students utilize the facility more effectively than the research scholars.

Table 5 Satisfaction of Respondents about Speed of Internet

Category of User	Satisfied	%	Not Satisfied	%
Students	10	23.81	32	76.19
Research Scholars	3	33.33	6	66.67
Total	**13**	**25.49**	**38**	**74.51**

6.6 Satisfaction of Users about Working Hours of the Internet Centre

As far as the working hours of the centre is concerned, it is observed that 52.94 percent of users are satisfied and 47.06 percent is not satisfied.

Table 6 Satisfaction of Users about Working Hours of the Internet Centre

Category of User	Satisfied	%	Not Satisfied	%
Students	22	52.38	20	47.62
Research Scholars	5	55.56	4	44.44
Total	**27**	**52.94**	**24**	**47.06**

6.7 Distribution of Users by Frequency of Visit

Table 7 indicates the response of the users to the frequency of visit. The result brings out a fact that 45.10% of users visit daily and weekly. 7.84 percent of users visit occasionally and the remaining 1.96 percent visit monthly.

Table 7 Distribution of Users by Frequency of Visit

Category of User	Daily	%	Weekly	%	Monthly	%	Occasionally	%
Students	16	38.10	23	54.76	-	-	3	7.14
Research Scholars	7	77.78	--	--	1	11.11	1	11.11
Total	**23**	**45.10**	**23**	**45.10**	**1**	**1.96**	**4**	**7.84**

6.8 Opinion of the Respondents about Downloading

With regard to the opinion of users about the downloading facility, 78.43 percent of respondents reveal that the downloading is permissible and rest of the users that accounts for 21.57 percent as mentioned in Table 9.

Table 8 Distribution of Respondents by amount of Time Spent

Category of User	5 Hours a week	%	10 Hrs a week	%	15 Hrs a week	%	>15 Hrs a week	%
Students	35	83.33	3	7.14	2	4.76	2	4.76
Research Scholars	4	44.44	2	22.22	3	33.33	-	-
Total	**39**	**76.47**	**5**	**9.80**	**5**	**9.80**	**2**	**3.92**

Table 9 Opinion of the Respondents about Downloading

Category of User	Yes	%	No	%
Students	33	78.57	9	21.43
Research Scholars	7	77.78	2	22.22
Total	**40**	**78.43**	**11**	**21.57**

6.9 Satisfaction of Respondents about Adequacy of Resources

In connection with the adequacy of resources provided by the internet centre of PUL, 70.59 percent (Table 10) of users are satisfied whereas 29.41 percent is not satisfied.

Table 10 Satisfaction of Respondents about Adequacy of Resources

Category of User	Satisfied	%	Not Satisfied	%
Students	28	66.67	14	33.33
Research Scholars	8	88.89	1	11.11
Total	**36**	**70.59**	**15**	**29.41**

6.10 Satisfaction of Respondents about the Maintenance of Computers

Table 11 indicates the response of users about the maintenance of computers. It is observed that 68.63 percent of users are of the opinion that the maintenance is satisfactory while the remaining 31.37 percent is of the opinion of unsatisfactory.

Table 11 Satisfaction of Respondents about the Maintenance of Computers

Category of User	Satisfied	%	Not Satisfied	%
Students	27	64.29	15	35.71
Research Scholars	8	88.89	1	11.11
Total	**35**	**68.63**	**16**	**31.37**

6.11 Ranking of Websites by Preference

An attempt has been made to analyse the priority of websites used by the respondents. The result reveals that in order of priority, Google ranks first recording 45 preferences. The other ranked search engines are Yahoo (26 users), MSN (10 users) and Wikipedia (10 users).

Table 12 Ranking of Search Engines by Preference

Search Engine	No. of Respondents	Rank
Google	45	1
Yahoo	26	2
msn	10	3
Wikipedia	10	3

6.12 Distribution of Users by Purpose of Using Internet

Most of the users prefer to read the electronic documents in computer centre. As per the results represented in Table 13, it is reported that first and second priorities are given by 14 and 17 users respectively for reading purpse. The other preferred choices are Database Search and Literature Collection.

Table 13 Distribution of Users by Purpose of Using Internet

Description	Priority 1	Priority 2	Priority 3
Reading	14	17	5
Literature Collection	7	11	7
Database Search	13	9	8
e-Resources	4	5	6
e-mail	--	1	6
Chatting	2	2	7
Employment	6	4	4
Higher Studies	4	1	2
Newspaper Reading	1	--	2
Entertainment	--	--	1

7. OBSERVATIONS AND SUGGESTIONS

Some of the important observations made are:

- Internet speed is very slow.
- The present working hours are not sufficient.
- Individual time limit is not followed.
- Trained staff are required to assist the users.
- Lack of awareness about the resources available through UGC – INFONET e-journals consortium.
- The resources provided through the internet service are not sufficient.

Based on the overall comments received from the users, the following suggestions are made to overcome the issues related with the internet service provided at PUL:

- Bandwidth may be increased to overcome the problem of low-speed of internet.
- The working hours of the internet centre may be extended upto 11 p.m. at least.
- The number of installations of internet in computers may be increased to 30 terminals.
- The check list for e-journals accessible through UGC-INFONET may be displayed for information.
- User orientation programme may be conducted to make the users aware of the e-resources.
- E–resources may be added based on the demand of the users.

8. CONCLUSIONS

With the analyses of data collected from the users of Internet Service Centre of PUL, it is concluded that:

- 25 users that account for 49.02 % are satisfied while 50.98 % of population is not satisfied with the number of terminals installed in the internet centre of PUL.
- With regard to the level of satisfaction of users towards staff support, the users have opined that 72.55 % is good, 7.84 % as very good, and 1.96 % as excellent. Contrastingly, 17.65 % of users reveal that the support service is poor.
- With respect to speed of internet, majority of the users amounting to 74.51 % are not satisfied while 25.49 % is satisfied.
- As far as the working hours of the centre are concerned, it is reported that 52.94 % of users is satisfied and 49.06 % is not satisfied.
- Regarding the frequency of visit, 45.10 % is recorded by the visitors of daily and weekly. 7.84 % of users visit occasionally and the remaining 1.96 % visit monthly.
- 78.43 % of respondents reveal that the downloading is permissible.
- In connection with the adequacy of resources provided by the Internet Centre of PUL, 70.59 percent of users are satisfied whereas 29.41percent are not satisfied.
- 68.63 % of users opined that the maintenance is satisfactory while the remaining 31.37 % is of the opinion of unsatisfactory.
- In order of priority of websites, Google ranks first recording 45 preferences. The other ranked websites are Yahoo (26 users), MSN (10 users) and Wikipedia (10 users).
- Most of the users prefer to read the electronic documents in computer centre. It is reported that first and second priorities are given by 14 and 17 users respectively for reading. The other preferred choices are database search and literature collection.

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SCIENTOMETRIC APPRAISAL OF INDIAN JOURNAL OF AGRONOMY

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Abstract

The Indian Journal of Agronomy taken this study covers the details from 2000-2006. This paper analyses the authorship pattern, the range and frequency of references cited. The maximum number of papers published in the 'Indian Journal of Agronomy' during the study period was 136 in 2001 and minimum number of papers was 83 in 2004. The results indicate that the trend is towards double authorship (35%) and average length of papers as 4, average number of references as 5, degree of collaboration as 0.892% and maximum number of articles are from the subject Cereal crops (44.36%). Halflife of this journal is calculated as 9.

Keywords: *Indian journal of agronomy, Scientometrics*

1. INTRODUCTION

Scientometrics is a branch of the 'Science of Science'. Nalimov and Mulchenko [1] define this term, 'as a sub-field which applies quantitative methods to the study of science as an information process'. Haitun [2] treats 'Scientometrics', as a scientific discipline, which performs reproducible measurements of scientific activity and reveals its objective quantitative regularities. According to him, Scientometric methods include statistical and thesaurus methods, and indicators as to the number of citations, term etc.

2. OBJECTIVES

The objectives of this study or to find out the:

i. Year-wise distribution of papers
ii. The nature of authorship pattern in Indian Journal of Agronomy
iii. The degree of collaboration
iv. The average length of papers
v. The frequency of references cited
vi. The subject-wise distribution of articles and
vii. The halflife of the journal

3. SOURCE AND METHODOLOGY

The Journal "Indian Journal of Agronomy" has been selected as the source journal. It is a quarterly publication of the Indian Society of Agronomy, Indian Agricultural Research Institute, New Delhi, India. The data has been compiled from Indian Journal of Agronomy articles from 2000 to 2006. For each article, the following data have been noted: a) number of authors [3], b) number of page [4], c) number of reference [5], d) degree of collaboration [6], e) subject of article [7], f) nature of form of citation [8] and g) obsolescence of periodicals [9]. All the collected data are tabulated year-wise for the period from 2000 to 2006.

4. ANALYSIS AND INTERPRETATION

The total number of papers published in seven years (2000-2006) is 760. The Number of citations observed in the study period is 4477. The observed data are clearly tabulated in the following pages.

Table1 provides the details regarding the distribution of 760 articles in the volume 45-51 of Indian Journal of Agronomy. The maximum number of papers 188 (13.60%) were published in 1999 and minimum number of papers 83 (6.01%) in 2004. The analysis source that, from 2000, the number of articles was in decreasing trend till 2004 and then a gradual increase has been observed.

Table 1 Distribution of Articles

Year	Volume Number	Number of Articles
2000	45	157
2001	46	136
2002	47	108
2003	48	86
2004	49	83
2005	50	96
2006	51	94
Total		**760**

Table2 depicts the details regarding the number of pages published during the study period. From the observed data, 226 (29.74%) articles cover four pages and 14 (1.84%) articles cover two pages. Hence, average number of pages has been observed was four.

Table 2 Length of the Articles

Number of Pages	2000	2001	2002	2003	2004	2005	2006	Total	%
Two	0	0	0	0	4	5	5	14	1.84
Three	2	6	6	39	42	56	40	191	25.13
Four	44	26	26	38	26	27	39	226	29.74
Five	46	46	33	7	10	8	9	159	20.92
Six	43	29	23	2	1	0	0	98	12.89
Seven	15	15	12	0	0	0	1	43	5.66
Above Seven	7	14	8	0	0	0	0	29	3.82
Total	**157**	**136**	**108**	**86**	**83**	**96**	**94**	**760**	**100**

Table 3 reveals that, out of 760 articles, one article had no references at all. The number of articles with single reference was 7 (0.92%). 148 (19.47%) articles having five references was the highest number of references during the study period followed by six references with 131 (17.24%) articles.

Table 3 Year-wise Distribution of References

No. of References	2000	2001	2002	2003	2004	2005	2006	Total	%
Null	0	0	0	0	1	0	0	1	0.13
Single	1	0	3	0	2	0	1	7	0.92
Two	7	5	5	2	2	3	1	25	3.29
Three	15	11	16	3	8	5	8	66	8.68
Four	25	22	16	9	6	13	10	101	13.29
Five	22	25	24	11	17	26	23	148	19.47
Six	23	20	10	15	24	20	19	131	17.24
Seven	21	19	10	13	8	15	13	99	13.03
Eight	19	13	6	19	8	11	8	84	11.05
Above Eight	24	21	18	14	7	3	11	98	12.89
Total	157	136	108	86	83	96	94	760	100

Table 4 indicates the details about the authorship pattern. Out of 760 articles, 82 (10.79%) articles were contributed by single author, 266 (35%) were by two authors, 246 (32.37%) articles were by three authors, 125 (16.45%) articles were by four authors and 41 (5.39%) articles were by above four authors. Joint authorship is widely accepted in this era.

Table 4 Authorship Pattern

Pattern	2000	2001	2002	2003	2004	2005	2006	Total	%
Single	20	19	17	4	10	6	6	82	10.79
Two	48	48	40	34	35	30	31	266	35.00
Three	48	43	29	29	21	42	34	246	32.37
Four	34	17	17	14	12	13	18	125	16.45
Five and above	7	9	5	5	5	5	5	41	5.39
Total	**157**	**136**	**108**	**86**	**83**	**96**	**94**	**760**	**100**

To analyze the nature of the researcher's participation in research activity, author productivity is tested. Degree of collaboration enables one to examine the research trends in terms of author productivity.

In order to determine the collaboration in quantitative forms, "K. Subramaniyam's formula $C = N_m/(N_m + N_s)$ where C = Degree of collaboration of scientists, N_m = Number of multiple authored papers, N_s = Number of single authored papers" was used. From Table 5, the degree of collaboration in publications during the study period is calculated as 0.892 percent.

Table 5 Degree of Collaboration

Year	Single Author Papers	Multiple Author Papers	Degree of Collaboration
2000 to 2006	82	678	0.892

Table 6 deals with the Subject-wise distribution of articles during the study period. Out of 760 articles, Cereals crops occupy first place as 45.26% with 344 articles, Oil seed crops occupy second place as 17.37% with 132 articles. The minimum number of articles were in the Spices crops and Aromatics with 15 and 3 articles respectively.

Table 6 Subject-wise Distribution of Articles

Sl.No.	Subject	2000	2001	2002	2003	2004	2005	2006	Total	%
1	Cereal	68	65	41	33	44	54	39	344	45.26
2	Oil seed	33	27	27	16	8	10	11	132	17.37
3	Pulse	19	17	10	8	10	14	22	100	13.16
4	Vegetable	7	6	8	8	3	1	5	38	5.00
5	Medicinalplants	7	6	5	5	3	0	1	27	3.55
6	Fiber	4	4	4	3	1	5	6	27	3.55
7	Sugar crop	6	2	5	6	3	6	6	34	4.47
8	Croppingsystem	6	2	1	3	5	1	1	19	2.50
9	Fodder	3	4	3	2	3	3	2	20	2.63
10	Spices	4	3	3	1	3	0	1	15	1.97
11	Aromatics	0	0	0	1	0	2	0	3	0.39
	Total	**157**	**136**	**108**	**86**	**83**	**96**	**94**	**760**	**100**

Table 7 shows the year-wise distribution of citations. It is observed that in the study period 4477 citations were referred. Maximum number of citations were recorded as 967 in the year 2000 and minimum was in 2004 as 468 citations.

Table 8 reveals the form-wise distribution of citations. Journal citations attain the first place as 3587 (78.42%) followed by books as 362(7.91%) and the last place by bulletin as 19(0.42%) citations.

Table 7 Year-wise Distribution of Citation

Sl.No.	Year	No. of Citations	%	Cumulative %
1	2000	967	21.14	21.14
2	2001	833	18.21	39.35
3	2002	609	13.31	52.67
4	2003	586	12.81	65.48
5	2004	468	10.23	75.71
6	2005	551	12.05	87.76
7	2006	560	12.24	100
	Total	**4574**	**100**	

Table 8 Form-wise Distribution of Citations

Form	2000	2001	2002	2003	2004	2005	2006	Total	%
Journal	758	664	450	440	363	449	463	3587	78.42
Book	72	60	58	59	63	31	19	362	7.91
Proceeding	68	63	49	49	21	42	58	350	7.65
Thesis	41	23	36	28	14	14	8	164	3.59
Annual report	23	21	15	8	6	12	7	92	2.01
Bulletin	5	2	1	2	1	3	5	19	0.42
Total	**967**	**833**	**609**	**586**	**468**	**551**	**560**	**4574**	**100**

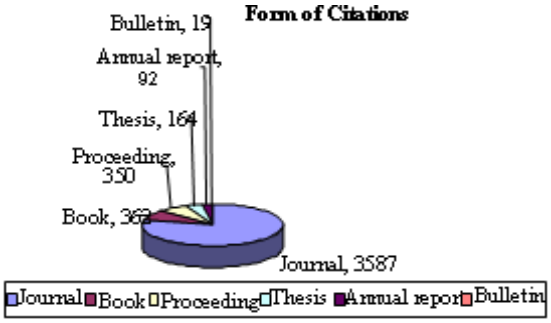

Fig.1 Form-wise distribution of citations

Table 9 exclusively represents the obsolescence of journals cited in the study period. A total of 4477 citations cited have been arranged up to the age of 30 and above 30. It is evident from the table that, out of a total of 4477 citations, half of these citations come to 2238 which are approximately 9 years old.

5. FINDINGS AND CONCLUSION

The following findings and conclusion can be drawn from the present study:

- The average length of papers is four, which covers 226 (29.74%) articles.
- The average number of references is 5, which covers 148 (19.47%) articles.
- Most of the articles are contributed by two authors with 266 (35.00%) papers.
- Maximum number of articles are in Cereal crops with 344 (45.26%) articles.
- Journal citations attain the first place by 3587 (78.42%).
- Halflife of journal is 9 years.

Hence, it can be concluded that single authorship trend is decreasing and joint authorship is getting increased. Since journals are publishing current news, it is widely referred from the result that Indian's main food crop is Cereal crop.

Table 9 Obsolescence of Citations

Age	2000	2001	2002	2003	2004	2005	2006	Total	Cumulative Total
0	0	1	0	3	1	2	1	8	8
1	11	11	7	7	7	12	20	75	83
2	44	40	14	26	16	27	27	194	277
3	52	54	32	26	17	31	30	242	519
4	67	68	50	40	40	47	34	346	865
5	66	57	52	45	44	55	39	358	1223
6	79	44	39	33	37	50	56	338	1561
7	63	54	34	33	25	30	26	265	1826
8	64	56	41	29	29	32	28	279	2105
9	84	45	27	34	20	22	26	258	2363
10	61	47	35	34	16	21	16	230	2593
11	41	54	31	26	28	25	21	226	2819
12	27	40	24	24	29	29	15	188	3007
13	38	39	22	24	12	25	10	170	3177
14	29	30	22	23	22	27	26	179	3356
15	26	18	21	15	21	12	9	122	3478
16	37	15	14	20	10	7	15	118	3596
17	20	20	17	16	11	8	9	101	3697
18	23	24	20	13	13	8	7	108	3805
19	24	11	10	11	12	7	5	80	3885
20	21	14	12	16	9	7	6	85	3970
21	16	11	10	5	5	6	4	57	4027
22	10	13	9	16	7	5	3	63	4090
23	2	8	9	16	4	4	4	47	4137
24	3	6	10	10	8	11	2	50	4187
25	2	7	4	8	2	8	1	32	4219
26	0	2	4	6	1	1	2	16	4235
27	13	8	3	2	0	8	5	39	4274
28	2	7	4	2	5	0	4	24	4298
29	6	0	6	1	0	1	2	16	4314
30	5	2	2	2	1	2	1	15	4329
Above30	31	27	24	20	16	21	9	148	4477
	967	**833**	**609**	**586**	**468**	**551**	**463**	**4477**	

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AWARENESS OF DIGITAL LIBRARIES IN VELLORE TOWN, VELLORE DISTRICT, TAMIL NADU: A STUDY

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Abstract

Research and practice in digital libraries (DL) has exploded worldwide in the 1990s. Substantial research funding has become available, libraries are actively involved in DL projects and conferences, journals and online news lists proliferate. In general, researchers view digital libraries as content collected on behalf of user communities, while practicing librarians view digital libraries as institutions or services. Future trends point toward the need for extensive research in digital libraries and for the transformation of libraries as institutions. This study is to analyse the awareness on Digital Libraries among the users in Vellore town, Tamil Nadu.

Keywords: *Digital Library, User Education*

1. INTRODUCTION

Everybody in this world wants to know the new inventions and innovations. As humanity is always in search of knowledge, inventions become inevitable. But, inventions are not possible to get in particular place and in a particular area of operation [1].

A library is a collection of information, sources and services. It is organized for use and maintained by a public body, an institution or a private individual. In the more traditional sense, a library is a collection of books.

This collection and services are used by people who choose not to-or cannot afford to-purchase an extensive collection by themselves, who need material no individual can reasonably be expected to have, or who require professional assistance with their research [2].

The inventions can be made easier if only we have basic knowledge of computer, with this computer knowledge we can gather all the information required [3].

Automation is one of the most rapidly changing areas in the library field. Proper planning for smooth changing over from manual system to automated system will remove most of the hurdles likely to arise in introducing the computers in library and information activities. However the joy of seeing the smooth flow of work with increased efficiency is immeasurable.

Borgman defined Information Society as "where majority of people are engaged in creating, gathering, processing and distribution of information." Though this definition gives a clear picture of the society, the information society is characterized as dynamic and often influenced by technology or it is a society that is called technology based. An information society is a society in which the creation, distribution, diffusion, use, and manipulation of information is a significant economic, political, and cultural activity. The knowledge economy is its economic counterpart whereby wealth is created through the economic exploitation of understanding [4].

A digital library is a library in which collections are stored in digital formats (as opposed to print, microform, or other media) and accessible by computers. The digital content may be stored locally, or accessed remotely via computer networks.

2. NEED FOR UNDERSTANDING DIGITALIZATION OF LIBRARY

Exponential growth of knowledge and information (Information now largely available in Machine-Readable Forms), emergence of information networks at National and International levels etc. require digitalization for access, greater possibility of online and remote database searches, and resources sharing among libraries. Library is a system. This system is those desired by its users. Two distinct bodies of user may be considered. The library staff who control the system, and enters new information; and the ordinary library user (reader) who requires the services of the system.

3. OBJECTIVES OF THE STUDY

This paper focuses on the following objectives:

i. To get an insight of the Digital Libraries in Vellore town.
ii. To understand the utility of Digital Library users.
iii. To understand the people awareness of Digital Libraries.
iv. To examine the trend setter of information society.

4. METHODOLOGY

The study covers both the primary and secondary data. Descriptive research design is most suitable. The primary data have been collected by interview method by using a structured questionnaire. For the purpose of the study, the data has been collected in Vellore Town. 120 library users have been randomly selected for the study as sample. Out of 120 respondents, only 100 respondents are included for the analysis of this study.

The explanation is given in data analysis. A population of the study includes all the users in the age group of 15 to 50 in Vellore town. The study has been conducted for two days.

5. SOURCES OF DATA COLLECTION

The secondary data has been collected from the published records, journals, magazines and web portals. Primary data has been collected by administrating questionnaire cum interview schedules to the users of the library.

Universe: Respondents in the age group of 15 to 50 years.
Sampling Unit: The sampling unit is limited to Vellore town in Tamilnadu.
Sample Size: 100 users
Sampling Design: Simple random sampling has been adopted. The collected data has been analyzed by using simple calculation using MS-Excel.

6. LIMITATIONS OF THE STUDY

- The study is limited to the Vellore town.
- The period of study is limited.
- One more limitation is that the sample size is too small to come to any conclusion and there may be discrepancies in data due to this.
- Users are using the computerized library. The researcher has focused only on these digital library as otherwise, the scope of the study will become extremely large.

7. DATA ANALYSIS

In order to study the user attitude towards the use of library, we have classified the users according to the categorywise. The user category is classified and tabulated as under.

Table 1 Distribution of Respondents (Category-wise)

S.No.	Category	No. of Respondents	%
1	Undergraduates	20	20
2	Postgraduates	30	30
3	Researchers	40	40
4	Others	10	10
	Total	100	100

It is apparent from the above table that 20% of the respondents are Undergraduates 30% of the respondents are Postgraduates students and the remaining 40% of the respondents are Researchers and the remaining 10% of the respondents are others.

Table 2 Users Opinion about Information Retrieval

Sl.No.	Use of Library	No. of Respondents	%
1	Very helpful	43	43
2	Helpful	42	42
3	Neutral	12	12
4	Unhelpful	3	3
Total		100	100

From Table 2, it is clear that 43% of the respondents feel satisfied on international retrieval, 42% of the respondents feel that they are helpful, 12% of the respondents are neutral and rest 3% of the respondents feel that the information retrieval are not helpful.

The researcher has also investigated the user's awareness about the Digital Library. The user's knowledge about latest inventions and investigations are positive. The following table clearly reveals the awareness of the users about the Digital Library.

Table 3 Awareness of Digital Library

S. No.	Awareness of Digital Library	No. of Respondents	Percentage
1	Yes	67	67
2	No	33	33
	Total	100	100

It is understood from the above table that 67% of the respondents have got awareness about the Digital Library, and 33% of the respondents are not aware of the Digital Library so far.

Table 4 Reason for Giving Preference for Digitalisation

S. No.	Particulars	No. of Respondents	%
1	Easy to get	6	6
2	Time Saving	5	5
3	Get all information	13	13
4	All the above	76	76
Total		100	100

From the above table, it is clear that 76% of the respondent have given preference to all the above method. 13% of the respondent have recorded that they can get information very easily and remaining 5% of the users have given the time saving as the reason for preferring digitilisation.

8. FINDINGS

1. It is evident from the fact that most (85%) of the respondents said that digitalization of library service is very helpful.
2. It is understood from the above table 3, 67% of the respondents have got awareness about the digital library.
3. It is evident from the above analysis that most of the respondents (76%) prefer for digitalization of library. The users' attitude regarding the accuracy of work, speed of work and work load, and automation in their libraries are correlated.

9. CONCLUSION

Every one will be proud that India has emerged among the top 20 wealthy nations of the world. The Country ranks 19th in the Global Wealth List 2006. The development of an infrastructure for sharing the technological information product is an effective way of the national improvement. The libraries are recognized as living pool of information. It is closely related to social life. It is passed from generation to generation through personal contacts or through recorded knowledge by way of digitalization.

It is concluded that all educational insitutions in Vellore town may improve their digital libraries to make the young generations involve in their studies and also their extra curricular acticvities.

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A SCIENTOMETRIC STUDY OF PUBLICATION ON ONCOLOGY DURING 1991 - 2007

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Abstract

This paper deals with a bibliometric study on the publication pattern of Oncology research output by SAARC scientists for the period 1991-2007 by means of a bibliographic search of publication covered Cancer and its related field. The present study enables the scientific output in this field to be evaluated. The results obtained reveal growing interests in applying this model to analyze the papers published on Cancer.

Keywords: *Scientometric study, Oncology*

1. INTRODUCTION

Studies of publication patterns, also known as bibliometric or quantitative studies are useful indicators of scientific productivity, trends emphasis of research in various disciplines, and of researchers preferences for publication outputs. Results of such studies may be very useful in decision making in research administration and planning, in collection development and use in libraries. These results further enable policy makers in different organizations and funding agencies such as Foundation for Research and development (FRD) and Centre for Scientific Information and Research (CSIR) to evaluate their decisions on the awarding of grants to individuals and institutions [1].

Scientific productivity has been linked to various factors, such as age and subject specialization and economic indicators such as government expenditure on civil research and development. According to Budd and Seavey prestige and productivity go together and can be summed up as a "Scientist's lifework" [2]. A study conducted by Pouris showed that the criteria used for ranking academic institutions in South Africa range from opinion surveys to measures of research of research productivity as proxied by publication counts in a sample of reputable Journals. According to Price and Beaver prestige seems to one of the driving forces that encourage scientists to publish profusely. There is a relationship between the importance of the scientist and the logarithm of the number of papers published during their life. Prestige is a driving force that prompts authors to publish in foreign journals. Many of the bibliometric studies which have been conducted in other countries, provide a theoretical context for this research. Lancaster argues that many scientists in developing countries prefer to publish in foreign journals rather than in their native journals for the sake of prestige and recognition and half of the papers of Indian scientists are published in the United States. Garfield agreed with Lancaster when he said that only 17 percent of Latin American research articles were published in local languages [3].

2. ABOUT ONCOLOGY

Cancer is a generic term for a group of more than 100 diseases that can affect any part of the body. Other terms used are malignant tumors and neoplasm[4]. One defining feature of cancer is the rapid creation of abnormal cells which grow beyond their usual boundaries and which can invade adjoining parts of the death from cancer. Cancer is a leading cause of death world wide. From a total of 58 million deaths world wide in 2005, cancer accounts for 7.6 million (13%) of all deaths. The main types of cancer leading overall cancer mortality are: Lung (1.3 million deaths/Year), Stomach (almost 1 million deaths/year), Liver (662,000 deaths/year), Colon (655,000 deaths/year) and Breast (502,000 deaths/year). More than 70% of all cancer deaths in 2005 occurred in low and middle income countries.

3. METHODOLOGY

The bibliographic search was conducted during 1991 and 2007 from the databases of the PubMed and MEDLINE.

The criteria for the study chosen were based on the key words Oncology and Cancer including all articles published in journals prior to 1991 and 2007. It has been observed that a total of 883 records are available. The form of publications includes Journal articles, Research reports, Reviews, Case studies, Books and Survey reports.

Lotka's law is a useful method for analyzing author productivity [5]. Lotka discovered that for a period of time greater than ten years, the more articles produced by an author. Therefore productivity is related not to the number of articles published by an author but to its logarithm. The formula of Lotka's law states that yx=c x-n , whereby the expected frequency of the number of authors (y) with a given number of publications (x), can be obtained by calculating the constant c and the exponent n. the calculation of n is given by the following formula:

$$N = \frac{N\sum XY - \sum X \sum Y}{N\,\Sigma x^2 - (\Sigma X)^2}$$

Where N is the number of data pairs included in the analysis, and X and Y are respectively the algorithms of X (number of articles) and Y (number of authors). The value of N can be used to calculate C with the help of following formula;

$$C = \frac{1}{\Sigma 1/x^n}$$

4. DATA ANALYSIS AND INTERPRETATION

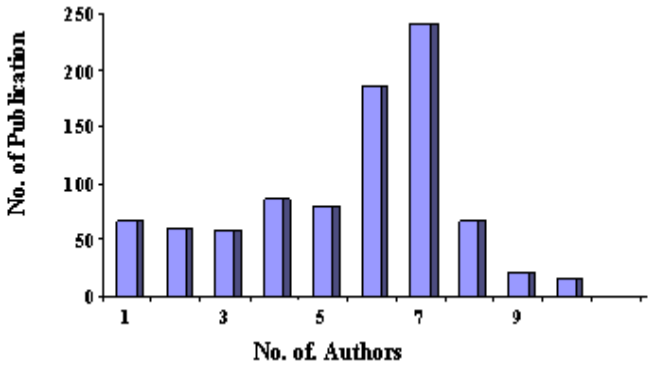

Fig.1 Authorship Pattern

The number of authors contributing to articles ranges 1 and 10, although it is most common (27.29%) to have two or three authors per article (Fig.1). The mean number of contributors is 88.3 authors, with a standard deviation of 1.77.

Table 1 shown that collaboration rate of Oncology literature studies between 1991-2007. Single authored papers accounted for 7.58 percent and multi authored papers 84.83 percent higher than single authored papers. The average collaboration rate measure between single authored and multi authored is 0.92 for seventeen years.

Table 1 Author Collaboration Co-efficiency

Year	Single Author	Multi Author	Total	Collaboration Rate
1991	6	51	57	0.89
1992	4	52	56	0.92
1993	3	45	48	0.93
1994	4	44	48	0.91
1995	3	46	49	0.93
1996	5	48	53	0.93
1997	1	57	58	0.98
1998	2	39	41	0.95
1999	7	47	54	0.87
2000	4	47	51	0.92
2001	3	56	59	0.94
2002	2	50	59	0.94
2003	7	49	52	0.96
2004	6	45	51	0.88
2005	4	44	48	0.91
2006	2	49	51	0.96
2007	4	46	50	0.92
	67 (7.58%)	816 (92.41%)	883	0.92

A growth of publications was observed during 1991-2007. The highest growth rate (41%) was found during 1991-1997 with 370 articles followed by 1998-2003 (35%) with 313 articles. Table 2 illustrates the growth rate of publications on oncology by observing MEDLINE and PUBMED databases during these periods.

Table 2 Block-wise Distribution of Publications

Block years	No.of. Articles	%
1991-1997	370	41
1998-2003	313	35
2004-2007	200	24
Total	**883**	**100**

The 883 publications included in the analysis are distributed across a total of 22 journals from different fields, the most important being Cancer as well as medicine. Given the large number of journals with an interest in the health field the publication of articles shows a wide scatter. However, Tumor Xenograft and Myocardial infarction have been published widely during the study. Table 3 shows the journals which has published more than ten articles in the field of cancer.

Table 3 Number of Publications of the Most Productive Journals

Sl.No.	Name of the Journal	No. of publications
1	Suppresses protein synthesis	43
2	Rotational angiography	32
3	Transcriptional angiography	38
4	Cell transformation	29
5	Echo cardio graphic analysis	14
6	Pulmonary vein isolation	32
7	Myocardial infarction	61
8	Cell polymplocytic leukemia	28
9	Acute myeloid leukemia	32
10	Hemophagocytic syndrome	64
11	Infantile leukemia	47
12	Peripheral lymphocytes	53
13	Ovarian cancer	39
14	Tumor xenograft	68
15	Cell carcinoma	54
16	Surgery of Gastric cancer	29
17	Small cell lung cancer	34
18	Chemotherapy in lung cancer	47
19	Nasopharyngeal carcinoma	48
20	Veterinary oncology	54
21	Malignant tumor	20
22	Adjuvant chemotherapy	21
	Total	**883**

5. CONCLUSION

The present study offers a preference to the issue of medical by technological developments that is being observed in the field of Oncology related areas. The result obtained reveals a growing interest in applying in author collaboration and journal productivity of publications and it has been observed that the journal output was widely published in Tumor Xenogrft and Myocardial infarction. The growth rate of publications was observed which indicates maximum level during 1991-1997. The Oncology scientists prefer their published articles in medical journals especially in reference to Cancer.

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Dr. K. VELUTHAMBI: A BIOBIBLIOMETRIC STUDY

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Abstract

Dr. K. Veluthambi has worked in various fields namely Plant Genetic Engineering, Plant Physiology, Microbiology, Virology and Plant Molecular Biology. In his 27 years of productive life, he collaborated with 78 colleagues and students and published 50 papers during 1980- 2006. The collaboration co - efficient is 0.53%. Highest collaborations were with B. W. Poovaiah (9) and A. S. Karthikeyan (7). The core journals published his paper were: Journal of Plant Physiology (10), Journal of Bacteriology (4) and Current Science(3).

Keywords: *Bradford distribution, Collaboration co-efficient, Publication productivity, Scientometrics*

1. INTRODUCTION

Bibliometric studies deal with biographical study of the individual careers of scientists and researchers and correlates bibliographical analysis of publications or academic and scientific achievements. This paper looks into the scientific work done by Dr. K. Veluthambi and his role in the advancement of science in general and Plant Biotechnology (Plant Genetic Engineering) in particular in India and elsewhere.

Dr. K. Veluthambi was born on 7 March 1953. His Postgraduation is at University of Madras. During 1975 -1981 he did his Ph. D in Biochemistry at Dr. Ramesh Maheswari's Laboratory in Indian Institute of Science. He worked in Dr. John Giovanelli's Laboratory on Enzymatic Regulation of Amino Acid Biosynthesis in Plants. He joined as a reader at Madurai Kamaraj University, Madurai in May 1988 and promoted as Professor under CDS in 1995.

He has been Visiting Professor for various Universities in India and abroad. In recognition of his work, he was elected as fellow of the Indian Academy of Sciences, Member in DBT Task Force in Agricultural Biotechnology (1997-1999), Member in DBT Task Force on Medicinal and Aromatic Plants (2003-2005) and a nominated Committee Member for the Kerala State Council of Science, Technology and Environment in 2004.

2. HYPOTHESES

The following hypotheses are formulated with a view to analyse the empirical validity of the framed objectives of the present study.

i. There is a significant difference in the rate of growth in productivity regarding the number of journals in Biotechnology.
ii. There is a significant difference in the authorship pattern among the publications of the incumbent.
iii. The publication productivity of Dr. K. Veluthambi conforms to the Bibliometric laws.

3. DATA COLLECTION

The data for this analysis are the total periodical publications by a particular scientist. It was decided that the source for collecting data should not be a secondary one alone as generally in the case of Bibliometrics and Scientometrics, but also resort to primary data from the 'Horse Mouth' – the concerned scientist who is available very well on the campus of Madurai Kamaraj University. In addition to the data provided by the scientist, internet was also resorted in supplementing data. Google.scholar. com was logged in to download the required citation for each of the articles published by Dr. K. Veluthambi.

4. STATISTICAL TOOLS

The records downloaded were converted into ISO format acceptable to CDS/ISIS. The principles and laws governing bibliometrics have been applied.

The following tools have been used to carryout the study:

1. Descriptive Analysis
2. Percentage Analysis
3. Correlation Analysis

5. DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of collected data, employing appropriate statistical tools and techniques wherever necessary.

. **Table 1 Year and Age-wise Publications of Dr. K. Veluthambi (1980- 2006)**

SL. No.	Year of Publication	Total Publications	Age of Author
1	1980	1	27
2	1981	1	28
3	1982	2	29
4	1983	0	30
5	1984	5	31
6	1985	3	32
7	1986	2	33
8	1987	2	34
9	1988	1	35
10	1989	1	36
11	1990	0	37
12	1991	0	38
13	1992	0	39
14	1993	0	40
15	1994	0	41
16	1995	3	42
17	1996	5	43
18	1997	1	44
19	1998	1	45
20	1999	2	46
21	2000	0	47
22	2001	2	48
23	2002	1	49
24	2003	6	50
25	2004	2	51
26	2005	4	52
27	2006	5	53
Total		50	

The annual average publication productivity of the author works out to be 1.85 articles. Table 1 shows that the first paper of the author makes his maiden entry as a science communicator in 1980 when he was 27 years of age. His publishing activity is continuous excepting the years during 1983, 1990-1994 and 2000.

His highest productivity is in 2003 with 6 publications (age 50) followed by five papers in 1984, 1996 and 2006 (ages 31, 43 and 53), 4 papers in 2005 (age 52), 3 papers in 1985 and 1995 (ages 32 and 42).

From the Table 1 it is inferred that the most productive years are between 50th and 53rd years of his age. These productive years have as many as 17 (34 %) papers of his publications forming more or less one third of his total contributions.

The remaining 66 percentage of productivity life was 27 to 50 years of his age. The total productivity taken for this study (up to 2006) of the author spans 27 years starting from his age of 27.

This shows that Dr. K. Veluthambi maintains the level of research almost throughout his research career.

To measure the collaborative research pattern, a simple indicator called collaboration co-efficient (number of collaborative papers divided by total number of papers) is used. Highest collaboration coefficient (1.00) for Dr. K. Veluthambi is found during 1980-2006.

Table 2 shows the authorship pattern of Dr. K. Veluthambi. It is found from the table that Dr. K. Veluthambi published 13 (26%) articles as first author, 12 (24%) each as second and third author, 6 (12%) as fourth author, 2 (4%) each as fifth, sixth and seventh author and 1 (2%) as tenth author.

Further, it can be inferred that Dr. K. Veluthambi does not have any single author publication to his credit. During an interview, he reveals that the rank of an author among collaborators in the publication depends upon the amount of collaboration. The frankness of the scientist is highly appreciated by the investigator.

Table 2 Publication Productivity of Dr. K. Veluthambi (1980- 2006)

Sl.No.	Year	1st Aut	2nd Aut	3rd Aut	4th Aut	5th Aut	6th Aut	7th Aut	8th Aut	9th Aut	10th Aut	MT	TP
1	1980	-	-	1	-	-	-	-	-	-	-	1	1
2	1981	1	-	-	-	-	-	-	-	-	-	1	1
3	1982	2	-	-	-	-	-	-	-	-	-	2	2
4	1983	-	-	-	-	-	-	-	-	-	-	0	0
5	1984	4	1	-	-	-	-	-	-	-	-	5	5
6	1985	1	2	-	-	-	-	-	-	-	-	3	3
7	1986	1	1	-	-	-	-	-	-	-	-	2	2
8	1987	1	1	-	-	-	-	-	-	-	-	2	2
9	1988	1	-	-	-	-	-	-	-	-	-	1	1
10	1989	1	-	-	-	-	-	-	-	-	-	1	1
11	1990	-	-	-	-	-	-	-	-	-	-	0	0
12	1991	-	-	-	-	-	-	-	-	-	-	0	0
13	1992	-	-	-	-	-	-	-	-	-	-	0	0
14	1993	-	-	-	-	-	-	-	-	-	-	0	0
15	1994	-	-	-	-	-	-	-	-	-	-	0	0
16	1995	-	1	1	1	-	-	-	-			3	3
17	1996	-	2	2	1	-	-	-	-	-	-	5	5
18	1997	-	-	1	-	-	-	-	-	-	-	1	1
19	1998	-	1	-	-	-	-	-	-	-	-	1	1
20	1999	-	-	2	-	-	-	-	-	-	-	2	2
21	2000	-	-	-	-	-	-	-	-	-	-	0	0
22	2001	-	-	2	-	-	-	-	-	-	-	2	2
23	2002	-	1	-	-	-	-	-	-	-	-	1	1
24	2003	1	1	1	1	-	1	1	-	-	-	6	6
25	2004	-	-	-	-	1	-	-	-	-	1	2	2
26	2005	-	-	1	1	1	1	-	-	-	-	4	4
27	2006	-	1	1	2	-	-	1	-			5	5
Total		13	12	12	6	2	2	2	-	-	1	50	50
Percentage		26	24	24	12	4	4	4	-	-	2	100	100
Average Factor		0.26	0.24	0.24	0.12	0.04	0.04	0.04	-	-	0.02		

MT-Total of Multi-authored publications TP-Total Publications

Table 3 Authorship Patterns and Number of Publications (1980- 2006)

No. of Authors	Total No. of papers	%	Total No. of Authorship	%
One Author	-	-	-	-
Two Author	11	22	22	11.51
Three Author	15	30	45	23.56
Four Author	13	26	52	27.23
Five Author	4	8	20	10.47
Six Author	1	2	6	3.14
Seven Author	4	8	28	14.66
Eight Author	1	2	8	4.19
Nine Author	-	-	-	-
Ten Author	1	2	10	5.24
Total	**50**	-	**191**	-
Percentage	**100**	**100**	-	**100**

Dr. K. Veluthambi published 50 multi-authored papers during 1980-2006. His collaboration ranges between two and ten and has never exceeded more than ten. The multi-authored papers include: two-authored with 11 articles three-authored with 15, four authored with 13, five authored with 4, six authored with 1, seven-authored with 4, eight-authored and ten authored with 1 each. The total number of collaborative authorship for the total no. of articles published by Dr. K. Veluthambi is 191.

The scientist's interaction with the scholars working under him maintains a healthy record. The authorship credit of researcher's collaboration with Dr. K. Veluthambi is given in the following Table 4.

Table 4 Authorship Credit of Researcher's Collaboration with Dr.K.Veluthambi

Sl.No.	Name	Period of Association	Tl Yrs	No. of Articles	Average Factor
1	Veluthambi.K	1980-2006	27	50	-
2	Maheswari.R	1980-1982	2	4	0.02
3	Shalini.C	1980	1	1	0.005
4	Mahadevan.S	1980-1982	2	4	0.02
5	Poovaiah.B.W	1984-1986	2	9	0.047
6	Giovanelli.J	1984	1	1	0.005
7	Thompson.G.A	1984	1	1	0.005
8	Mudd.S.H	1984	1	1	0.005
9	Datho.A.H	1984	1	1	0.005
10	Rhee.J.K	1985	1	1	0.005
11	Mizrahi.Y	1985	1	1	0.005
12	Raghothama.K.G	1985	1	1	0.005
13	Balamani.V	1986, 1995,2004	3	4	0.02
14	Jeyaswal.R.K	1987	1	2	0.01
15	Gelwin.S.B	1987-1989	3	4	0.02
16	Slightom	1987	1	1	0.005
17	Ream.W	1988	1	1	0.005
18	Krishnan.M	1989	1	1	0.005
19	Gould.J.H	1989	1	1	0.005
20	Smith.R.H	1989	1	1	0.005
21	Sunilkumar.G	1995,1999	2	2	0.01
22	Ramanathan.Vai	1995-1996	2	2	0.01
23	Vijayachandra.K	1995- 1999	4	2	0.01
24	Palanichelvam.K	1995-1996	2	2	0.01
25	Sharma.K.S	1995-1996	2	2	0.01
26	Vanitha Rani. R	1996,2003-2006	7	5	0.026
27	Karthekeyan.A.S	1996-1999 2003-2006	7	7	0.037
28	Anuradha.S	1996	1	1	0.005
29	Muthukumar.B	1996-1997	2	2	0.01
30	Mariamma.M	1996-1997	2	2	0.01
31	Gnanam.A	1996-1997	2	2	0.01
32	Madhava Naidu.M	1998	1	1	0.005
33	Srinivasan.C.S	1998	1	1	0.005
34	Naidu.R	1998	1	1	0.005
35	Phogat.S	1999	1	1	0.005
36	Saunders.K	2001	1	1	0.005
37	Wege.C	2001	1	1	0.005
38	Jeske.H	2001	1	1	0.005
39	Stanley.J	2001	1	1	0.005
40	Krishnamohan.A	2001	1	1	0.005
41	Balaji.V	2001-2006	6	5	0.026
42	Jacob.S.S	2002-2003	2	3	0.016
43	Rajamuni.P	2003-2006	3	2	0.01
44	SriDevi.G	2003-2006	4	4	0.02
45	Aditya.K	2003	1	1	0.005
46	Gupta.K	2003	1	1	0.005
47	Arun Sharma	2003	1	1	0.005
48	Pooggin.M	2003,2005	2	3	0.016
49	Shivaprasad.P.V	2003-2006	4	6	0.031
50	Chinchore.Y	2003	1	1	0.005
51	Sabapathi. N	2003	1	1	0.005
52	Meena.P	2003	1	1	0.005
53	Nandakumar.R	2003	1	1	0.005
54	Samiyappan.R	2003	1	1	0.005
55	Muthukrishnan.S	2003	1	1	0.005

Table continued...

56	Anbalagan	2004	1	1	0.005
57	Anuradha	2004	1	1	0.005
58	Thillaichidambaram	2004-2006	3	3	0.016
59	Parameshwari.C	2004-2006	3	2	0.01
60	Saminathan.M	2004	1	1	0.005
61	Dhandapani.M	2005	1	1	0.005
62	Trinks.D	2005	1	2	0.01
63	Rajeswaran.R	2005	1	2	0.01
64	Akbergenov.R	2005	1	1	0.005
65	Oakeley.E.J	2005	1	1	0.005
66	Hohn.T	2005	1	4	0.02
67	Guerra-Peraza	2005	1	1	0.005
68	Kirk.D	2005	1	1	0.005
69	Seltzer.V	2005	1	1	0.005
70	Schmidt.A.C	2005	1	1	0.005
71	Herzog	2005	1	1	0.005
72	Agbergenov.R	2005	1	1	0.005
73	Thomas.M	2006	1	1	0.005
74	Biswas.D	2006	1	1	0.005
75	Yadav.B.C	2006	1	1	0.005
76	Subramaniam	2006	1	1	0.005
77	Shah.J.M	2006	1	1	0.005
78	Dhurigai.N	2006	1	1	0.005
	Total			**191**	

Dr. K. Veluthambi collaborated with 78 researchers during 1980 – 2006. The publication productivity of Dr.K.Veluthambi research group (collaborators) is displayed in Table 4. It has been observed that B.W.Poovaiah has collaborated with Dr. K. Veluthambi in the production of maximum number of papers i.e. 9 published during the years 1984 – 1986, A.S.Karthikeyan follows next with 7 papers during the years 1996-1999 and 2003 – 2006, P.V.Shivaprasad with 6 papers from the year 2003 – 2006 and V. Balaji and R.Vanitharani both with 5 papers each during the years 2001-2006 and 1996, 2003 – 2006 respectively.

Dr. K. Veluthambi published good number of papers in collaboration with foreign colleagues including S.H.Mudd (1984), A.H.Datho (1984), J.K. Rhee (1984) Y.Mizrahi (1985), E.J. Oakeley (2005), T. Hohn (2005), Guerra-Peraza (2005), D.Kirk (2005), V. Selzer (2005), and E.Herzog (2005) from USA, Germany, Switzerland and London.

Table 5 Publication Productivity of Dr. K. Veluthambi and his Collaborators

No. of Papers (p)	No. of Authors (n)	Total No. of Authorship (n x p)	Prominent Collaborators
1	50	50	
2	13	26	
3	3	9	
4	6	24	Poovaiah.B.W – 9
5	2	10	Karthekeyan.A.S - 7
6	1	6	Sivaprasad.P.V – 6
7	1	7	Balaji. V - 5
9	1	9	Vanitharani. R - 5
50	1	50	
Total	**78**	**191**	

Many researchers collaborated with Dr. K. Veluthambi for one time, that is with one paper is 50; with two papers is 13; with three papers is 3; with four papers is 6; with five papers is 2; with six papers and seven papers is 1 and with 9 papers is 1. Total authorship credit for 78 authors counts 191, each collaborating author being given one authorship credit for each paper. Dr. K. Veluthambi, to his credit has 26.18 percentage of total authorship credit.

Table 6 Dissemination of the Channels of Communication Used by Dr. K. Veluthambi

Sl.No.	Channel of Communication	No. of Papers	Cumu-lative	Period	Country of Publication
1	Archives of Virology	1	1	2004	Germany
2	Biochemical and Biophysical research Communications	1	2	1984	Nether land
3	Current Microbiology	1	3	1996	USA
4	Current Science	3	6	1996,2003 2005	India
5	Developments in Plantation Crops Research	1	7	1998	USA
6	Indian Journal of Biotechnology	1	8	2003	India
7	Journal of Virology	2	10	2005- 06	USA
8	Journal of Swamy Botanical Club	1	11	2006	India
9	Journal of American Society for Horticultural Science	1	12	1985	USA
10	Journal of Bacteriology	4	16	1987-2001	USA
11	Journal of Bioscience	2	18	1996,2004	India
12	Journal of general Virology	2	20	2001,2006	USA
13	Journal of Plant Biology	1	21	1999	Germany
14	Journal of Plant Physiology	10	31	1997	USA
15	Journal of Virological Methods	1	32	2006	Germany
16	Journal Plant Biochemistry & Biotechnology	2	34	2003	India
17	Molecular & Bio Chemical Parasitology	1	35	2006	USA
18	Nature Biotechnology	1	36	2003	London
19	Plant Biotechnology	1	37	2006	USA
20	Plant Cell Physiology	2	39	1985	London
21	Plant Cell Reports	2	41	1996	Germany
22	Plant Disease	1	42	2003	USA
23	Plant Molecular Biology	2	44	1995	Netherland
24	Plant Molecular Biology Reporter	1	45	1995	Netherland
25	Plant Science	2	47	1999,2002	USA
26	Proceedings of the National Academy of Science	1	48	1987	USA
27	Science	1	49	1984	USA
28	Virus Genes	1	50	2006	Netherland

From the Table 6, it is found that the contributions of Dr .K. Veluthambi (50 publications) has been spread over 28 journals of different countries. The journal-wise scattering of publications of Dr. K. Veluthambi is given in the table.

It is inferred that the top ranking journals with more number of publications comparatively speaking are: Journal of Plant Physiology (10), Journal of Bacteriology (4) and Current Science (3). The country of publication of the journals is from USA and India.

The following chart shows the year-wise publication of Dr. K. Veluthambi.

Fig.1 Year-wise distribution & growth trend

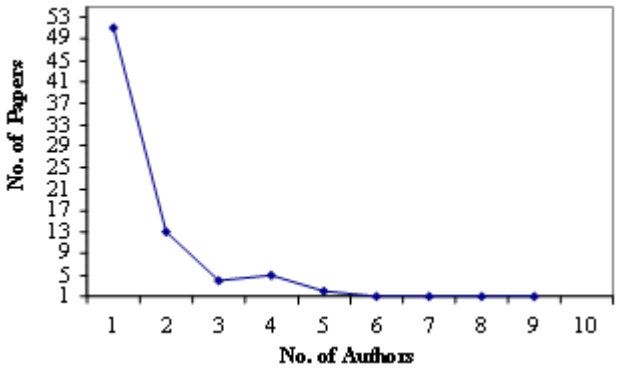

Fig.2 Publication Productivity of Dr. K. Veluthambi and his collaborators

Bradford's Law of Scattering

Zones	Number of Journals
1	6
2	63
3	597

The total number of journals figured in the study were 666 which were ranked on the basis of their publication count (productivity) on the subject Herbal Plants. The top ranking publication count was by Journal of Medicinal and Aromatic Plant Science with 473 publications that formed 13.91 percent. The first 6 journals had produced 1122 records. Having this as the first zone, the second and third zones were arrived at, by counting the number of journals that had produced nearly 1122 records.

On application of Bradford's law on the data on Herbal Plants literature, it was found that the result invalidated Bradford's Law of distribution. The first zone contained 6 journals and the second zone contained 63 journals which was nearly 10 x 6. According to Bradford's Law, the ratio of the three zones should be in the form of $1: n : n^2$. In the present study, the ratio of the zones are

$$6 : 63 : 597$$
$$= 1 : 10.5 : 99.5$$
$$= 1 : n : n^2 \text{ approximately where } n = 10$$

From the Figure 2, it is found that the present study corroborates with that of Bradford's Law.

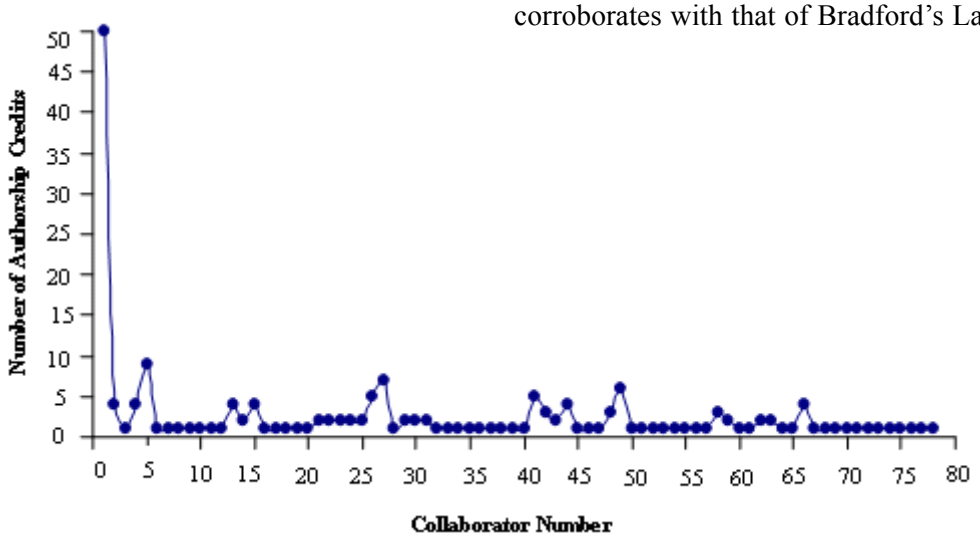

Fig. 3 Authorship credits to collaborators with Dr. K. Veluthambi

6. CONCLUSION

The above bibliometric study of Dr. K. Veluthambi undoubtedly proves the usefulness of his work in the field of Plant Biotechnology. The large amount of papers written in his field along with a large number of collaborators give us an indication to inspire the young bio-technological researchers throughout the world. His passion to reachout to various people in different countries has been proved beyond doubt.

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USABILITY OF LIBRARY RESOURCES IN MANONMANIAM SUNDARANAR UNIVERSITY, TAMIL NADU: A CASE STUDY

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Abstract

This paper evaluates the use of library facilities and information resources in Manonmaniam Sundaranar University. A survey of 60 faculty members from Manonmaniam Sundaranar University was conducted through questionnaire. The data collected covers the use of library resources, services, photocopying services, etc., classification and cataloguing and physical facilities provided by the university authorities. It is concluded that the main intention of using libraries has been the academic interest of the faculty members.

Keywords: *Electronic resources, Library resources and information, Usability*

1. INTRODUCTION

The present era is the era of information and knowledge revolution. Many electronic resources are available in the library. The increase in information available on the web has influenced information seeking behaviour, innumerable types of information, in a large variety of containers and in many different locations that are all available in one place. In the modern society, the types of information and the media which present them have become manifold and multifarious, offering men and women a vast selection. Regardless of which group in a human society is discussed, each one bases its actions upon current information and discards the earlier data. Philosophies emphasize the direct, experiential acquisition of knowledge in the material, physical plane of existence as the most proper form of information. The library, therefore, is the most widely used information available to literate societies. The librarian should be aware of what kind of information is being sought, and how it can be obtained. Due to the rapidly escalating cost of purchasing and electronic media, the library has the duty to provide and maintain efficient services.

2. REVIEW OF LITERATURE

P.M.Naushad Ali and M.D.Ehsan Hasan have conducted a study on Library and Information Services in central library of Aligarh Muslim University from the teachers' point of view. Aligarh Muslim University has a long history of academic excellence. It has produced many eminent personalities in different fields. The central library of the university has given the needed phillip to the excellent record of the university [1].

Ibohal Singh, Khomdon Sing and Joteen Singh described the results and assess the attitude of the users towards the services of Manipur University Library under INFLIBNET programme by conducting a survey. Facilities and major achievements of Manipur University library are highlighted. Findings are summarized in a suggestive way as to provide services in future to meet the needs of the users [2].

Suriya, Sangeetha and Nambi carried out a research work on "Information Seeking Behaviour of Faculty Members from Government Arts Colleges in Cuddalore District." The purpose of their study was to investigate, how faculty members seek information from the library. It mentions that most of the respondents (38.12 percent) visited the library several times a week to meet their information needs. Regarding the type of search made by the respondents the majority of the respondents (56.87 percent) made their search by subject [3].

Mahapatra discussed in his paper that the importance of information needed as a concept in the library environment and elaborated the theoretical and conceptual analysis on information needs as a tool in user study [4].

3. STATEMENT OF THE PROBLEM

This study examines the usability of library resources in Manonmaniam Sundaranar University Library. The information needs can be assessed on the basis of duration and quantum of time utilization in search of information in libraries of their own faculty; and so the time aspect had been brought within the purview of the present study. The present study discusses the usability of library resources among the Professors, Readers, Selection Grade Lecturers, and Lecturers in the disciplines of Manonmaniam Sundaranar University, Tirunelveli.

4. RESEARCH DESIGN

For the successful conduct of any research study and meaningful inferences, an appropriate methodology is indispensable. The main focus of this study is to analyse the utilization of university library by the faculty members of Manonmaniam Sundaranar University, Tirunelveli.

4.1 Objectives

The following are the major objectives of the present study:

i. To identify the purpose for which the faculty members visit the library.
ii. To asses the level of satisfaction about library collection.
iii. To find out the problems of users while trying to use electronic resources and
iv. To compare the usability of print and electronic journals.

4.2 Scope

The determination of the information needs and seeking patterns is a prelude to an effective identification and operation of a national policy on information. In university libraries whose collection policy tends toward technology, it is pertinent to observe that scientific information is sin-qua-non to the incoming generation.

4.3 Methodology

A study is mainly based on the primary data collected from the university faculty in Manonmaniam Sundaranar University through a well designed questionnaire. Besides, the secondary data have been collected from sources like university hand book, registers, records, university bulletin and web sites. The questionnaire was distributed to 96 respondents' personaly. Only 60 responses were received back.

4.4 Limitations

Manonmaniam Sundaranar University is having twenty one departments and consists of faculty members, research scholars and students. The investigator found it difficult to conduct the survey of all these categories of people belonging to different departments within the stipulated time. So, in this study, only faculty members have been considered for the survey in the Abishekapatti Campus alone.

Table 1 shows the information services provided by the library. It reveals that most of the faculty members have (46.67 %) used the OPAC and 10 percent of respondents have used the Content Page Services. Very less members have used the Reprographic Services. The Newspaper Clipping and ILA services are not provided in the library.

Table 1 Distribution of Information Services of the Library

Sl.No.	Service	Lecturer	S.G Lecturer	Reader	Professor	Total	%
1	Indexing and Abstracting Services	5	2	4	4	**15**	**25.00**
2	Circulation	2	-	2	1	**5**	**8.33**
3	Content Page Services	3	-	2	1	**6**	**10.00**
4	OPAC	9	4	8	7	**28**	**46.67**
5	Newspaper Clipping Services	-	-	-	-	-	-
6	Reference Services	1	1	2	1	**5**	**8.33**
7	ILA	-	-	-	-	-	-
8	Reprographics Services	-	-	-	1	**1**	**1.67**
Total		20	7	18	15	60	100

Table 2 illustrates the purpose of information seeking by the faculty members. It reveals that 38.33 % faculty members sought information for preparing class lectures, 15 % to up-date knowledge and only 3.33% for entertainment.

Table 2 Distribution of Purpose of Information Seeking

Sl.No.	Purpose	Lecturer	S.G Lecturer	Reader	Professor	Total	%
1	For Preparing Lecture	9	3	6	5	**23**	**38.33**
2	For Updating Knowledge	3	1	3	2	**9**	**15.00**
3	For Doing Research Work	5	-	-	-	**5**	**8.33**
4	For presenting paper	2	2	5	5	**14**	**23.34**
5	For Guiding Researches	-	-	4	3	**7**	**11.67**
6	For Entertainment	1	1	-	-	**2**	**3.33**
Total		20	7	18	15	60	100

Table 3 shows the type of materials used by the faculty. It is clearly seen that 38.33 % of respondents of faculty members are using popular type of information sources. 1.67 % of faculty members used government publications.

Table 3 Distribution of Type of Materials Used

Sl.No.	Materials	Lecturer	S.G Lecturer	Reader	Professor	Total	%
1	Textbooks	8	2	6	3	**19**	**31.67**
2	Periodicals	6	3	8	6	**23**	**38.33**
3	Newspapers	2	1	-	-	**3**	**5.00**
4	Exhibition	-	-	-	-	-	-
5	Govt.publication	-	-	-	1	**1**	**1.67**
6	Reference from Books	4	1	4	5	**14**	**23.33**
7	Pamphlets	-	-	-	-	-	-
Total		20	7	18	15	60	100

Table 4 shows the type of journal used in this library. It is clearly seen that 60 % of the respondents use both print and electronic journals 23.33 % of the respondents used print journals and 16.67 % uses electronic journals. It reveals that most of them are aware of both print and electronic journals used in their library.

Table 4 Distribution of Type of Journals Used

Sl.No.	Category	Print	Electronic	Both	Total
1	Lecturer	3	4	13	**20**
2	S.G Lecturer	2	1	4	**7**
3	Reader	4	3	11	**18**
4	Professor	5	2	8	**15**
5	Total	14	10	36	**60**
Percentage		23.33	16.67	60.00	100

Table 5 shows the problems of information seeking by the faculty members. It is clearly seen that majority of the faculty members (36.67%) faced the lack of seating facility in the library. Only 3.33 % of them do not know how to use the library catalogue.

Table 6 shows the use of internet by faculty members. 90 % of faculty members used the internet and only 10 % of faculty members are not used the internet

Table 5 Distribution of Problems of While Seeking Informations

Sl.No.	Problems	Lecturer	S.G Lecturer	Reader	Professor	Total	%
1	Material is not Available	2	-	2	2	**6**	**10.00**
2	Library Staff are Unwilling	1	-	1	1	**3**	**5.00**
3	Incomplete Information	3	-	2	2	**7**	**11.67**
4	Unsuitability of Library working hours	-	2	1	-	**3**	**5.00**
5	Library Lack of seating Facilities	6	3	7	6	**22**	**36.67**
6	Do not know to use the Catalogue	2	-	-	-	-	**3.33**
7	Information Scattered	2	1	2	2	**7**	**11.67**
8	Information is to Vast	4	1	3	2	**10**	**16.66**
9	Information Source Not up to date	-	-	-	-	-	-
Total		20	7	18	15	60	100

Table 6 Distribution of Use of Internet

Sl.No.	Category	Yes	No	Total
1	Lecturer	18	2	**20**
2	S.G Lecturer	7	-	**7**
3	Reader	15	3	**18**
4	Professor	14	1	**15**
5	Total	54	6	**60**
Percentage		90.00	10.00	100

Table 7 shows the satisfaction of library system. It reveals that the most of the faculty members feel satisfied with the present library system and only less number of faculty members are not satisfied with the present library system.

Table 7 Distribution of Satisfaction of Library System

Sl.No.	Category	Yes	No	Total
1	Lecturer	12	8	**20**
2	S.G Lecturer	6	1	**7**
3	Reader	16	2	**18**
4	Professor	12	3	**15**
5	Total	46	14	**60**
Percentage		76.66	23.33	100

5. SUGGESTIONS

- Library should establish campus network so that the users will be able to browse the catalogue of the M S University library without physically visiting the library.
- Separate reading room for staff should be provided.
- The library should give awareness service among the users by conducting programmes such as initiation/ extension lecture, group discussion, demonstrations, conference and seminars.
- User studies should be conducted to know the information requirement of the users.
- The quality and efficiency of photocopying section should be provided.
- More fund should be alloted to acquire electronic resources.
- More computer/ terminals should be installed in the library for the benefit of the faculty members.
- Number of scientific journals have to be improved.

6. CONCLUSION

The successful operation of any library depends to a large extent on the choice of library collections. The choice of the collection should meet the need and requirements of the end users. Consequently, librarians must be aware of how the faculty members seek information. The first three preferences given by the faculty members for seeking information are textbooks, periodicals and reference from a book. It is also observed that the majority of faculty members sought information for preparing lectures, writing and presenting papers and research works

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USE OF INTERNET / WEB RESOURCES BY THE STUDENTS OF NORTH ORISSA UNIVERSITY: AN ANALYSIS

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Abstract

Internet is now-a-days play a vital role in accessing large amount of information on various disciplines. The e-journals, e-books and e-databases available in web are thus considered as the most important resources for information professionals. This study focuses on the use pattern of internet by the students of Computer Science Department, North Orissa University. This investigation includes the purpose of internet use, use of internet resources, its impact on teaching and research and the problems faced while using the internet.

Keywords: *Browsers, Internet, Search engine, Search strategy*

1. INTRODUCTION

The emergence of internet and its WWW (World Wide Web) has given a new face-lift to the information systems and services. Some of the outstanding and valuable digital resources are freely available on internet. The popularity and ease in use of WWW has lured most of the reputed publishers to host their products on web which is now rapidly giving way to the global network information environment, exemplified today by the internet. Internet has brought about a new academic culture of outstanding and cooperation. It can be dovetailed to the library system to reap the benefits of information resources held by internet .

Internet has emerged as the most powerful medium for storage and retrieval of information. It works round the clock and connects every nook and corner of the globe. With an unprecedented growth in the quantum of knowledge worldwide and the easy accessibility, internet has become an unavoidable necessity for every institution of higher learning and research.

2. LITERATURE REVIEW

Madhusudan [1] conducted a survey on internet use by the research scholars in University of Delhi that a majority of 70% respondents use internet daily. Google was considered as the most favorite search engine. Keyword searching was the most preferred search strategy. A study made by Dhanavandan, Esmail and Sivaraj [2] on searching of information from the internet among the engineering students in Cuddalore District, Tamil Nadu revealed that 80% respondents were using internet and most of them were accessing internet in cyber café. Most of the users were using internet for personal communication. A survey conducted by Saravanan and Mary [3] on teachers approach to internet and online information resources in the university of Kerala reveals that the main purpose of using internet was for the preparation of classroom teaching. The most preferred search engine was Google. A survey made by Khare, Thapa and Sahoo [4] on internet use by the Ph. D. scholars of Dr. H.S. Gour University, Sagar, Madya Pradesh. The major findings indicated that the main purpose of internet use were educational purposes, job searching, entertainment and communication purposes. The basic problem faced by them was not getting pin-pointed information as per their requirement. Kaur and Manhasb [5] made a survey on use of internet services and resources in the engineering colleges on Punjab and Haryana. The findings reflected that more than 75% of the respondents use internet services mainly for educational and research purposes. Google and Yahoo search engines were found to be more widely used than other search engines. A study made by Nazim [6] on the information searching behaviour in the internet by the users of Aligarh Muslim University that self instruction was the best method of learning internet usage. Google and Yahoo were the most popular search engines among

the internet users of Aligarh Muslim University. Majority of internet users used internet for education and research purposes. Slow speed, information overloaded, and limited access terminals were some of the factors that affected respondents' use of the internet.

3. OBJECTIVES OF THE STUDY

The present study has the following aims and objectives:

i. To identify the various sources adopted for learning internet
ii. To ascertain the use of different browsers by the respondents
iii. To indicate the most frequently used search engines for browsing information through internet
iv. To ascertain the frequency of using internet
v. To indicate the basic purposes of using internet
vi. To indicate the frequently used search strategies by the respondents
vii. To find out the different categories of information access from internet/ web Resources
viii. To find out the level of satisfaction with the internet services
ix. To identify the benefits of internet over the conventional documents
x. To ascertain the problems normally encountered by using internet and
xi. To ascertain the criteria for evaluating web resources by the respondents.

4. METHODOLOGY

In the present study, questionnaire method was adopted to collect information from the respondents. Keeping the well-defined objectives of the present investigation, a well structured questionnaire was prepared and the same was distributed to the respondents in person followed by observation and interview with respondents as and when necessary.

5. SAMPLE SIZE

The questionnaire were distributed to 98 students (belongs to the Department of Computer Science and Department of Mathematics and Computing). Total number of response was 90 (91.83%). Out of these responses, 10 have not used internet. So, finally a number of 80 respondents are being considered for data analysis and interpretation.

6. ANALYSIS OF DATA

Table1 Sources Adopted for Learning Internet

Sources Adopted for learning Internet	No. of Responses	%
Self Instruction, Trial and Error	24	30
Assistance from colleagues	36	45
Online Instruction	20	25
Course Taught at the University	00	00
By reading Books, Articles on the Internet	10	12.5
Formal Training programmes like short courses, workshops etc.	06	7.5

In order to ascertain the sources adopted for learning internet, it was clear from the above table that a majority of 36 (45%) respondents have adopted the sources like assistance from colleagues followed by 24(30%) respondents have adopted self instruction, trial and error, 20 (25%) have adopted online instruction, 10 (12.5%) have adopted the sources like reading books, articles on the internet, and a minimum of 06 (7.5%) have adopted formal training. It was also clear that there is no any provision for courses taught at the university for learning internet.

Table 2 Types of Browsers Used

Types of Browsers Used	No. of Responses	%
Internet Explorer	74	92.5
MSN	6	7.5
Netscape Navigator	-	-
Opera	4	5
Mozilla Firebox	4	5

It is found from the Table 2 that the highest number of 74 (92.5%) respondents have used Internet Explorer, followed by 6 (07.5%) have used MSN, and each of 4 (5%) have used Opera and Mozilla Firefox respectively. It was also evident from this table that no respondents have used Netscape Navigator as internet browser.

Table 3 Most Frequently Used Search Engines

Most frequently Used Search Engines	No. of Responses	%
Google	72	90
Yahoo	28	35
Altavista	2	2.5
Rediff	18	22.5
Hotmail	6	7.5
MSN	-	-
Lycos	-	-
Sify	4	5
Others	2	2.5

It is clear from the Table 3 that a majority of 72 (90%) respondents use Google search engine followed by Yahoo 28 (35%), Rediff 18 (22.5%), Hotmail 6 (7.5%), Sify 4 (5%) and a minimum of 2 (2.5%) by Altavista as their most frequently used search engine.

Table 4 Frequency of Internet Use

Frequency of Internet use	No. of Responses	%
Less than 2 hours a week	44	55
2-4 hours a week	22	27.5
5-6 hours a week	12	15
7-9 hours a week	2	2.5
10-20 hours a week	2	2.5
More than 20 hours a week	-	-

It is seen from the Table 4 that of 44 (55%) respondents have used internet less than 2 hours a week followed by 22 (27.5%) respondents have used 2-4 hours a week, 12 (15%) have used 5-6 hours a week and each of 2 (2.5%) have used 7-9 hours and 10-20 hours a week respectively. No respondents have used internet more than 20 hours a week.

Table 5 Basic Purpose of Internet Use

Basic Purpose of Internet Use	No. of Responses	%
Education	64	80
Research	4	5
Communication	32	40
Entertainment	26	32.5

In order to ascertain the basic purpose of using internet, it was clear from the Table 5 that a maximum of 64 (80%) respondents have considered to education as the basic purpose of using internet, followed by communication 32 (40%), Entertainment 26 (32.5%) and a minimum of 4 (5%) have recommended for research as the basic purpose of using internet.

Table 6 Frequently Used Search strategy

Frequently Used Search strategy	No. of Respondents	%
Boolean Logic	14	17.5
Wild card	36	45
Truncation	-	-
Any other	-	-

In regard to ascertain the frequently used search strategy by the respondents, it is clear that a majority of 36 (45%) respondents have used wild card system as search strategy followed by 14 (17.5%) as Boolean logic.

Table 7 Type of Information Need from Internet / Web Resources

Types of Information	No. of Responses	%
Bibliographic Information	4	5
Product Profile	2	2.5
Patents and Standards	-	-
Research Articles	4	5
Reference Queries	4	5
Research Reports	2	2.5
Educational Information	54	67.5
Career Planning and Placements	60	75
Fellowships/Scholarships	2	2.5
Project Reports(Ongoing and Completed)	6	7.5
E-journals	4	5

Table 7 shows that a majority of 60 (75%) respondents needs information on career planning and placements from internet followed by 54 (67.5%) educational information, 6 (7.5%) on project reports, each of 4 (5%) on bibliographic information, research articles, reference queries, e-journals and each of 2 (2.5%) on product profile, research reports, fellowships/scholarships. No respondents need information on patents and standards from internet.

Table 8 Level of Satisfaction with Internet Services

Internet Services	Partly Satisfied	Fully Satisfied	Not Satisfied
www	6 (7.5%)	74 (92.5%)	Nil
E-mail	8 (10%)	72 (90%)	Nil
News Groups	20 (25%)	56 (70%)	4 (5%)
Discussion Forum	38 (47.5%)	24 (30%)	6 (7.5%)
FTP	22 (27.5%)	26 (32.5%)	12 (15%)
BBS	28 (35%)	14 (17.5%)	18 (22.5%)
Chatting	18 (22.5%)	50 (62.5%)	8 (10%)
FAQ	24 30%)	30 (37.5%)	14 (17.5%)

Table 8 indicates that a majority of 74 (92.5%) respondents have fully satisfied with www followed by e-mail with 72(90%). On the other hand, a maximum of 38 (47.5%) respondents have partly satisfied with discussion forum and a majority of 18 (22.5%) have not satisfied with Bulletin Board Service.

Table 9 Benefits of Internet Over Conventional Documents

Benefits of Internet Over Conventional Documents	No. of Responses	%
Easy to use	44	55
More informative	56	70
Time saving	30	37.5
Easy to update	30	37.5
Less expensive	26	32.5
Global sources at one place	46	57.5
Effective communication	36	45

In order to ascertain the benefits of internet document over the conventional documents, Table 9 shows that a majority of 56 (70%) respondents viewed as more informative followed by 46 (57.5%) as global sources at one place, 44 (55%) as easy to use, 36 (45%) as effective communication, each of 30 (37.5%) as time saving and easy to update and a minimum of 26 (32.5%) have given their opinion as less expensive.

Table 10 indicates that a maximum of 36 (45%) respondents have encountered the problem like slow access speed followed by 32 (40%) by virus attack and a least number of 8 (10%) respondents encountered the privacy problem to greater extent respectively.

Table 10 Problems Encountered in Using Internet

Types of problems	To greater Extent	To Full Extent
Connectivity problem	20 (25%)	12 (15%)
Slow access speed	36 (45%)	8 (10%)
Virus attack	32 (40%)	28 (35%)
Power Fluctuation/failure	16 (20%)	16 (20%)
Lack of training in using Internet	20 (25%)	20 (25%)
Unwanted web links	16 (20%)	12 (15%)
Slow downloading speed	24 (30%)	8 (10%)
Difficulty in finding relevant information	12 (15%)	12 (15%)
Privacy problem	8 (10%)	8 (10%)

Similarly, a majority of 28 (35%) respondents have encountered the problem of virus attack and a minimum of 8 (10%) have encountered the problems viz. slow access speed, slow downloading speed and privacy.

Table 11Criteria for Evaluating Web Resources

Criteria for Evaluating Web Resources	No. of Responses	%
Accuracy	56	70
Authority	12	15
Accessibility	24	30
Currency	14	17.5
Coverage	18	22.5
Target Audience	6	7.5
Objectivity	14	17.5

Table11 clearly shows that a majority of 56 (70%) respondents have evaluated the web resources by taking the criteria as accuracy followed by 24 (30%) by taking the accuracy as accessibility and other criteria viz. coverage, currency and objectivity, authority and target audience with the rank 3rd ,4th ,5th and 6th respectively.

7. MAJOR FINDINGS

- It is found that Google is the most frequently used search engine for the respondents as a maximum of 72 (90%) respondents have opted for this.
- A majority of 44 (55%) respondents are using internet for less than 2 hours a week. Hence, this frequency need to be increased among the respondents.

- It is evident that the basic purpose of internet is related to education.Majority of 64 (80%) respondents have used internet mainly for their educational purposes.
- A maximum of 60 (75%) have needed information about career planning and placements from internet followed by 54 (67.5%) have opted for educational information.
- Majority of 74 (92.5%) respondents have fully satisfied with www followed by e-mail with 72(90%) as compared to other internet services.
- 36 (45%) respondents have encountered the problem of slow access speed followed by 32 (40%) by virus attack as compared to other problems.
- Majority of 56 (70%) respondents have evaluated the web resources by taking the accuracy of information as the criteria.

8. CONCLUSION

Internet is now a most effective and user-friendly technology for accessing information in all fields. In educational institutions, the users like students, faculty members and research scholars, all have highly dependent on internet for accessing information and exchange their ideas in their respective disciplines. The electronic journals and e- databases available in the internet are widely used by the user community of higher education and research. Hence, a free internet service with increasing number of subscribed e-journals and e-databases facility is of great importance to meet the emerging needs for the users of university education system.

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INDIAN LITERATURE ON HEALTH SCIENCES: A SUBJECT APPROACH (1970 - 2000)

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Abstract

This paper presents the subject analysis of Indian Health Sciences Literature; and the subject analytical output for the overall study period of three decades, 1970-2000. It includes data related to world's literature on Health Sciences as covered in MEDLINE CD-ROM. About 23 subjects are identified which includes only those with the frequency of five and above. Further sub-disciplines have been identified in Health Sciences leading to the identification of 5 major clusters. General Medicine, Pharmacology and Biochemistry have formed as the first three clusters respectively based on their high frequency of occurrence. Each of these three clusters has formed as lone and individual clusters. Hence, these three clusters are identified as top ranked three sub-disciplines in the field of Health Sciences in India. The quantum of Indian output over the three decades has shown statistically high and a significant difference.

Keywords: *Health science, Subject approach*

1. INTRODUCTION

The increased international and national attention that has been focused on the role of health in human and economic development has resulted in increasing resources being committed to improving health in all settings. This requires good quality baseline information on the outcomes associated with the investment in Health Systems [1]. It requires baseline evidence on the way health systems are currently functioning, particularly on current levels of effective coverage of key interventions. It requires the ability to monitor inputs, functions, and outcomes over time and to make the necessary modifications to strategies and policies [2]. Routine Health Information Systems (RHIS) provide some of this information, although in many countries they remain weak. But in all countries, there are limitations and gaps in the type of policy-relevant information that RHIS can provide. Research can also play a vital role in developing the baseline information required to assess the effect of increases in health resources on the outcomes that people value and on the way that system functions.

This paper is to trace the evolution of the discipline and to identify shift, if any, in the subject structure [3]. In this process, based on the frequency of occurrence of the key words, as per the Medical Council of India (MCI) subject list, the sub-disciplines in Health Sciences were ranked. The ranked lists were obtained for the overall study period, 1970-2000 and further year-wise lists were obtained [4]. These lists along with the associated graphic support materials to identify the subject clusters and their positions are presented and discussed in detail subsequently [5].

2. OBJECTIVES

This paper attempts to quantify the literary output in the field of Health Sciences during the last three decades and identify the major sub-disciplines/specialties of India's R&D focus on the subject.

3. METHODOLOGY

The research is based on the literature included in the MEDLINE database. MEDLINE database is available from 1966 to till date. This study has considered MEDLINE CD-ROM version published by the US National Library of Medicine. The study is for a period of about three decades, 1966-2000. Since this is a too long a span of time it was split into seven units of years - 1970, 1975, 1980, 1985, 1990, 1995, and 2000. The year

2001 was excluded because indexing would have been incomplete at the time of the study. Journal article publications are only taken for the study. The major focus is on the discipline and its structural changes. Hence, the field 'MeSH' of each record of the database was considered as the most appropriate field for this purpose of study. Other few fields were also taken to yield related findings. All those records wherein the term 'INDIA' has occurred be in 'CP' or any other field(s), were downloaded. Only English language items were included for the purpose of this study. Statistical analysis has been carried out using SPSS and other relevant measures. This study period concludes at 2000 enabling the research to cover not less than three decades and also the study being undertaken in that year. Interestingly, the study period marks the last quarter of the century. Cluster Analysis, Agglomeration Schedule, Cluster Membership, Squared Euclidean Distance Matrix, Average Linkage and Dendrogram were used for analysis.

4. ANALYSIS AND DISCUSSIONS

MEDLINE CD-ROMs were read for each of the chosen sample year of the study. The search yielded the total world's literary output in the discipline Health Sciences. Table 1 provides literature input into MEDLINE CD-ROM year-wise for the period 1970-2000.

Table 1 Quantum of World's Health Sciences Literature

Year	Total Records
1970	211644
1975	240555
1980	263281
1985	307587
1990	376549
1995	381122
2000	253807
Total	**2034545**

It is known that the literary output in this field has been increasing over the period gradually. The total world's output is 20, 34,545 records.

The quantum of Indian Health Sciences literature as searched and retrieved from the MEDLINE CD-ROM is given in the following Table 2.

Table 2 Quantum of Indian Health Sciences Literature

Year	No. of Records	Indian Input to MEDLINE
1970	693	0.33
1975	2153	0.90
1980	2507	0.95
1985	2597	0.84
1990	3813	1.01
1995	4624	1.21
2000	2446	0.96
Total	**18833**	**0.93**

It is clear that the increase in the publications was spectacular in all three decades of the study period from 1970-2000, but for a decline in the end of the century. Perhaps, this is due to the fact that the input of the source journals into the database itself has reduced in number.

The objective of the research is to trace the evolution of the discipline and to identify shift, if any, in the subject structure.

During the period 1970-2000, 23 subjects were identified which includes only those with the frequency of five and above. For the selected 23 subjects Dissimilarity Coefficient Matrix was formulated using Squared Euclidean Distance. Table 3 shows the cluster membership for the 23 subjects in a range of solutions, i.e., the cluster membership for each case with respect to varying clusters from 2 to 10.

Table 3 Cluster Membership (1970-2000)

SLNo	Case	10 Clusters	9 Clusters	8 Clusters	7 Clusters	6 Clusters	5 Clusters	4 Clusters	3 Clusters	2 Clusters
1	General Medicine	1	1	1	1	1	1	1	1	1
2	Pharmacology	2	2	2	2	2	2	2	2	2
3	Biochemistry	3	3	3	3	3	3	2	2	2
4	Microbiology	4	4	4	4	4	4	3	3	2
5	Pathology	5	5	5	4	4	4	3	3	2
6	Community Medicine	6	6	6	5	5	5	4	3	2
7	Psychiatry	7	6	6	5	5	5	4	3	2
8	Human Anatomy	7	6	6	5	5	5	4	3	2
9	Other System	8	7	7	6	5	5	4	3	2
10	Respiratory Diseases	8	7	7	6	5	5	4	3	2
11	Obstetrics & Gynaecology	8	7	7	6	5	5	4	3	2
12	Paramedicals	8	7	7	6	5	5	4	3	2
13	Veterinary Science	8	7	7	6	5	5	4	3	2
14	Forensic Medicine	9	8	8	7	6	5	4	3	2
15	Surgery	9	8	8	7	6	5	4	3	2
16	Human Physiology	9	8	8	7	6	5	4	3	2
17	Orthopaedics	10	9	8	7	6	5	4	3	2
18	Dermatology	10	9	8	7	6	5	4	3	2
19	Ophthalmology	10	9	8	7	6	5	4	3	2
20	Radio Therapy	10	9	8	7	6	5	4	3	2
21	Paediatrics	10	9	8	7	6	5	4	3	2
22	Dentistry	10	9	8	7	6	5	4	3	2
23	Radio Diagnosis	10	9	8	7	6	5	4	3	2

To find out the top 3 subjects, leaving the actual number of clusters, the top 3 subjects from the formed 5 cluster membership were selected. Among the 5 clusters (Figure 1), first, second and third clusters were identified as individual clusters. The fourth and fifth clusters have 2 subjects (4th and 5th cases) and 18 subjects (6th to 23rd cases) grouped in them respectively. From the cluster membership, 3 more frequently occurring were identified and selected as the first 3 clusters. The above table and the Figure 2 shows that the prominent top 3 sub-disciplines are: General Medicine, Pharmacology and Biochemistry.

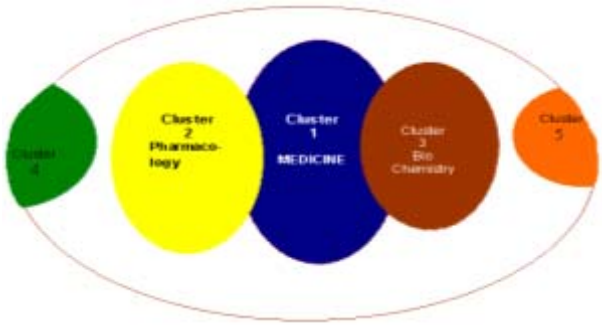

Fig.1 Top five clusters

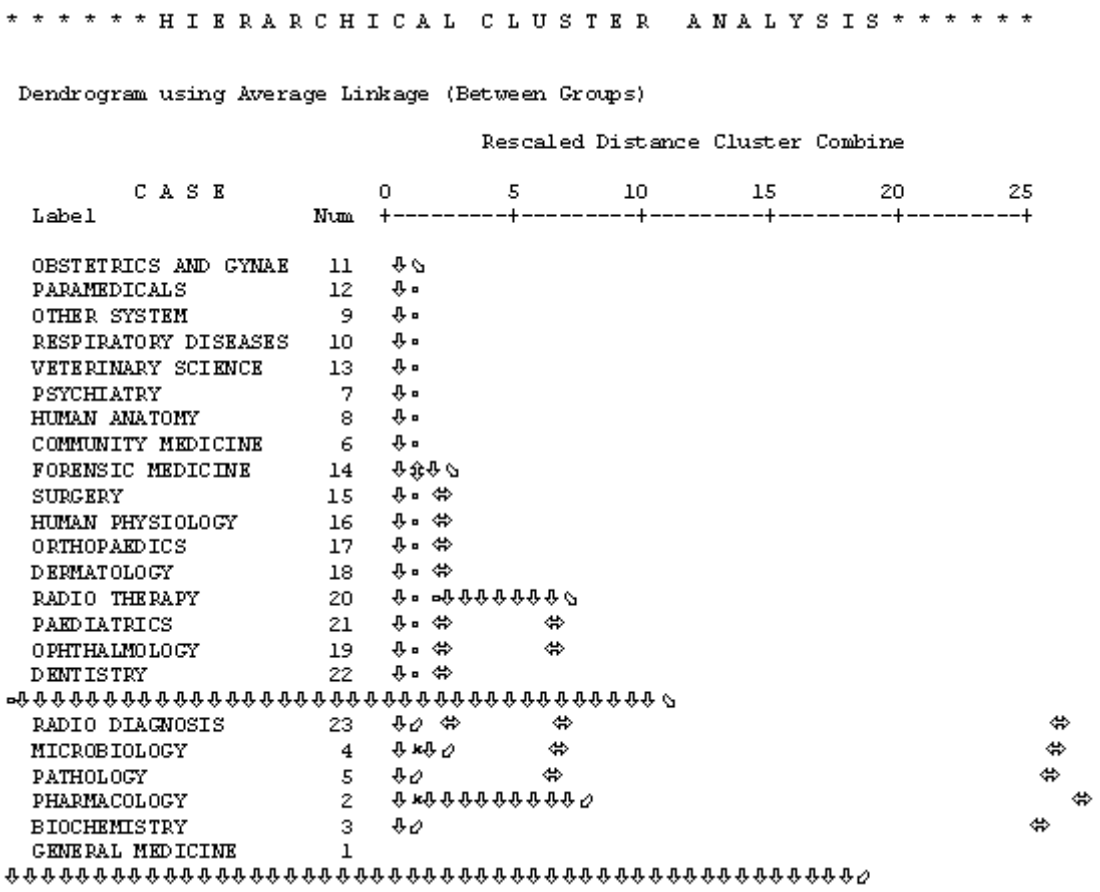

Fig. 2 Dendrogram (1970-2000)

6. CONCLUSION

The proportion of Indian output over the three decades has shown highly statistically significant difference (X2 value =1963.4 and p-value <0.0001). Similar phenomenon has been observed in world's Health Sciences Literature output also. During the study period, 23 sub-disciplines have been identified in Health Sciences. Among these subjects 5 clusters were identified. General Medicine, Pharmacology and Biochemistry have formed as the first three clusters respectively based on their high frequency of occurrence. Each of these three clusters has formed as lone and individual clusters. Hence, these three clusters are identified as top ranked three sub-disciplines in the field of Health Sciences in India. Cluster 4 comprises of 2 subjects, Microbiology and Pathology. Cluster 5 includes a range of about 18 subjects – Community Medicine, Psychiatry, Human Anatomy, Other Systems, Respiratory Diseases, Obstetrics & Gynaecology, Paramedicals, Veterinary Science, Forensic Medicine, Surgery, Human Physiology, Orthopaedics, Dermatology, Ophthalmology, Radio Therapy, Paediatrics, Dentistry, and Radio Diagnosis. The matrix shows a lot of dissimilarity between the top 5 subjects (Clusters 1-4) and the remaining 18 subjects (Cluster 5). The cluster characteristics clearly shows how each subject had formed with other subjects into the clusters based on the quantity of publications.

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AWARENESS AND UTILIZATION OF INFORMATION COMMUNICATION TECHNOLOGY AMONG THE MEMBERS OF FACULTY OF GOVERNMENT ENGINEERING COLLEGES IN TAMILNADU: A STUDY

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Abstract

The article deals with the usage of Information Communication Technology among the faculty members of Government Engineering Colleges in Tamilnadu. From this study, the investigators have been able to find out that many faculty members are consulting ICT from their colleges' computer labs and computer centers, not only for study purposes but also to update their own knowledge. However, the study also revealed several problems including lack of training and slow downloading. The researchers' feelings about the need for print resources as well as electronic resources are also discussed.

Keywords: *Usage of ICT, E-resources.*

1. INTRODUCTION

Libraries which were considered only as the storehouses of knowledge, have got a new outlook in the modern Information Communication Technology era [1]. The activities which were carried out manually in libraries with so much of pain and strain are being carried out smoothly with the help of ICT with greater effectiveness [2]. Library organization, administration and other technical processing have become easier and more quantum of work can be done in relaxed mood [3]. ICT, which is the basis for the MBO, generates more results at a given time [4].

2. OBJECTIVES

In order to pursue this study, the following objectives are framed in accordance with the scope of this investigation:

i. To asses the level of satisfaction about e-resource collection
ii. To know the databases which are used by members of faculty in their respective discipline
iii. To find out the problems of users trying to use e-resources
iv. To find out the extent of time spend by the faculty members for searching for information through electronic media
v. To identify the respondents Information and Communication Technology (ICT) use behaviour in terms of habit of browsing and internet access

3. HYPOTHESES

Based on the above mentioned objectives, the following hypotheses have been formulated and tested in the present study.

i. Respondents differ in their level of satisfaction about the e-resource collection.
ii. Users differ in their opinion about ICT library facilities and environment.
iii. Staff differ in their level of usage of computer and online services in the libraries
iv. There is a significant faculty-wise variation with respect to respondents' rating on utility of Information and Communication Technology (ICT) resources.
v. There is a significant faculty-wise variation with respect to respondents' frequency of using various databases and websites.

4. METHODOLOGY

This study attempts to examine the internet use behaviour among the faculty members of Government Engineering Colleges in Tamilnadu. It is primarily a fact-finding venture. The identified facts are cross tabulated with the faculty background, and occupational background of the respondents. Thus, it gives an analytical orientation to this study and the design of this study is partly exploratory in nature and partly analytical in nature.

5. SAMPLING

The researcher has selected six Government Engineering Colleges in Tamilnadu. viz., Salem, Coimbatore, Karaigudi, Tirunelveli, Bargur and Vellore. From each Government Engineering College, 50 respondents are selected as samples. While selecting samples, a stratification method is applied with a view to give relative weight age to the faculty members of different designations. Thus, the sampling of the study comes under stratified random sampling [5].

6. DATA ANALYSIS

The collected data are classified and tabulated according to the objectives and hypotheses stated. First, the data are recorded on data sheets and then fed to the computer personally.

Table 1 Faculty-wise Respondents' Extend of Using Various Internet Resources

Faculty	E-Journals			E-Books			Online Data bases			E-Articles			E-Publishing		
	Most Frequently	Frequently	Occasionally	Most Frequently	Frequently	Occasionally	Most Frequently	Frequently	Occasionally	Most Frequently	Frequently	Occasionally	Most Frequently	Frequently	Occasionally
Salem	11 22.00	10 20.00	29 58.00	23 46.00	15 30.00	12 24.00	18 36.00	16 32.00	16 32.00	15 30.00	18 36.00	17 34.00	11 22.00	18 36.00	21 42.00
Coimbatore	22 44.00	18 36.00	10 20.00	28 56.00	11 22.00	11 22.00	10 20.00	15 30.00	25 50.00	23 46.00	17 34.00	10 20.00	16 32.00	21 42.00	13 26.00
Tirunelveli	25 50.00	14 28.00	11 22.00	13 26.00	10 20.00	27 54.00	20 40.00	20 40.00	10 20.00	17 34.00	20 40.00	13 26.00	11 22.00	28 56.00	11 22.00
Karaigudi	10 20.00	12 24.00	28 56.00	14 28.00	10 20.00	26 52.00	16 32.00	12 24.00	22 44.00	18 36.00	22 44.00	10 20.00	12 24.00	15 30.00	23 46.00
Bargur	15 30.00	22 44.00	13 26.00	15 30.00	12 24.00	23 46.00	21 42.00	15 30.00	14 28.00	27 54.00	13 26.00	10 20.00	10 20.00	15 30.00	25 50.00
Vellore	20 40.00	12 24.00	18 36.00	20 40.00	8 16.00	22 44.00	13 26.00	17 34.00	20 40.00	19 38.00	12 24.00	19 38.00	14 28.00	14 28.00	22 44.00
Total	103 34.33	88 29.33	109 36.33	113 37.67	66 22.00	121 40.33	80 32.67	79 31.67	91 35.67	119 39.67	102 34.00	79 26.33	74 24.67	111 37.00	115 38.33

Faculty	Reference Works Dictionaries /Encyclopedias			Online Book Shop			Modal Exam Papers			Maps			Total
	Most Frequently	Frequently	Occasionally	Most Frequently	Frequently	Occasionally	Most Frequently	Frequently	Occasionally	Most Frequently	Frequently	Occasionally	
Salem	18 36.00	19 38.00	13 26.00	18 36.00	21 42.00	11 22.00	8 16.00	21 42.00	21 42.00	11 22.00	18 36.00	21 42.00	50
Coimbatore	17 34.00	8 16.00	25 50.00	22 44.00	13 26.00	15 30.00	22 44.00	13 26.00	15 30.00	17 34.00	18 36.00	15 30.00	50
Tirunelveli	18 36.00	17 34.00	15 30.00	27 54.00	9 18.00	14 28.00	20 40.00	14 28.00	16 32.00	20 40.00	14 28.00	16 32.00	50
Karaigudi	13 26.00	23 46.00	14 28.00	13 26.00	28 56.00	9 18.00	13 26.00	28 56.00	9 18.00	10 20.00	28 56.00	12 24.00	50
Bargur	15 30.00	23 46.00	12 24.00	15 30.00	23 46.00	12 24.00	15 30.00	23 46.00	12 24.00	12 24.00	26 52.00	12 24.00	50
Vellore	22 44.00	11 22.00	17 34.00	22 44.00	11 22.00	17 34.00	22 44.00	11 22.00	17 34.00	20 40.00	14 28.00	16 32.00	50
Total	103 34.33	101 33.67	96 32.00	117 39.00	105 35.00	78 26.00	100 33.33	110 36.67	90 30.00	90 30.00	118 39.33	92 30.67	300

ANOVA						
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**	**F crit**
Rows	320.0926	5	64.01852	3.675314	0.007876	2.449468
Columns	264.1481	8	33.01852	1.895599	0.087748	2.180172
Error	696.7407	40	17.41852			
Total	1280.981	53				

Table 2 Designation Wise Respondents' Extent of Using Internet Resources

Designation	E-Journals			E-Books			Online Database			E-Articles			E-publishing		
	Most freq uently	freq uently	Occasionally	Most freq uently	freq uently	Occasionally	Most freq uently	freq uently	Occasionally	Most freq uently	freq uently	Occasionally	Most freq uently	freq uently	Occasionally
Professor	19 34.55	15 27.27	21 38.18	20 36.36	18 32.73	17 30.91	13 23.64	19 34.55	23 41.82	12 21.82	28 50.91	15 27.27	9 16.36	30 54.55	16 29.09
Reader	22 33.33	15 22.73	29 43.94	22 33.33	12 18.18	32 48.48	22 33.33	16 24.24	28 42.42	32 48.48	16 24.24	18 27.27	22 33.33	16 24.24	28 42.42
Senior Lecturer	30 40.00	24 32.00	21 28.00	39 52.00	14 18.67	22 29.33	36 48.00	18 24.00	21 28.00	33 44.00	22 29.33	20 26.67	18 24.00	33 44.00	24 32.00
Lecturer	32 30.77	34 32.69	38 36.54	32 30.77	22 21.15	50 48.08	27 25.96	42 40.38	35 33.65	42 40.38	36 34.62	26 25.00	25 24.04	32 30.77	47 45.19
Total	103 34.33	88 29.33	109 36.33	113 37.67	66 22.00	121 40.33	98 32.67	95 31.67	107 35.67	119 39.67	102 34.00	79 26.33	74 24.67	111 37.00	115 38.33

Designation	Reference Works Dictionaries /Encyclopedias			Online Book Shop			Model Exam Papers			Maps			Total
	Most freq uently	freq uently	Occasionally	Most freq uently	freq uently	Occasionally	Most freq uently	freq uently	Occasionally	Most freq uently	freq uently	Occasionally	
Professor	23 41.82	12 21.82	20 36.36	13 23.64	32 58.18	10 18.18	29 52.73	11 20.00	15 27.27	15 27.27	18 32.73	22 40.00	55
Reader	16 24.24	22 33.33	28 42.42	32 48.48	16 24.24	18 27.27	16 24.24	35 53.03	15 22.73	25 37.88	15 22.73	26 39.39	66
Senior Lecturer	25 33.33	32 42.67	18 24.00	32 42.67	27 36.00	16 21.33	25 33.33	36 48.00	14 18.67	18 24.00	40 53.33	17 22.67	75
Lecturer	39 37.50	35 33.65	30 28.85	40 38.46	30 28.85	34 32.69	30 28.85	28 26.92	46 44.23	32 30.77	45 43.27	27 25.96	104
Total	103 34.33	101 33.67	96 32.00	117 39.00	105 35.00	78 26.00	100 33.33	110 36.67	90 30.00	90 30.00	118 39.33	92 30.67	300

ANOVA						
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**	**F crit**
Rows	1311.639	3	437.213	11.4916	7.26E-05	3.008786
Columns	396.2222	8	49.52778	1.301777	0.289306	2.35508
Error	913.1111	24	38.0463			
Total	2620.972	35				

A study of data in Table 1 indicates the faculty-wise respondents' frequency of access to e-resources. It is noted that out of the total 300 respondents 34. 33% of them most frequently access to e-journals, 29.33% of them frequently access to e-journals and the rest 36.33% of them occasionally access to e-journals. It is observed that out of the total 300 respondents 37.67% of them most frequently access to e-books, 22% of them frequently access to e-books and the rest 40.33% of them occasionally access to e-books.

It is observed that out of the total 300 respondents 32.67 % of them most frequently, 31.67% of them frequently and the rest 35.67% of them occasionally access to online data bases. It is significant that out of the total 300 respondents 39.67% of them most frequently access to e-articles, 34% of them frequently access to e-articles and the rest 26.33% of them occasionally access to e-articles.

It is noted that out of the total 300 respondents 24.67% of them most frequently, 37% of them frequently and the rest 38.33% of them occasionally access to e-publishing. It is observed that out of the total 300 respondents 34.33% of them most frequently, 33.67% of them frequently and the rest 32% of them occasionally access reference works dictionaries/encyclopedias. It is noted that out of the total 300 respondents 39% of them most frequently, 35% of them frequently and the rest 26% of them occasionally access online book shop.

It is significant that out of the total 300 respondents 33.33% of them most frequently, 36.67% of them frequently and the rest 30% of them occasionally access model exam papers. It is noted that out of the total 300 respondents 30% of them most frequently, 39.33% of them frequently and the rest 30.67 % of them occasionally access maps.

The faculty-wise analysis reveals the following facts. Majority of the respondent of faculty of Coimbatore (GEC) most frequently access to e-books (56%), e-articles (46%) , online book shop (44%) and model exam papers (44%). Majority of the respondents of faculty of Karaigudi (GEC) occasionally access to e-journals(56%), e-books (52%) and e-publications (46%).

Majority of the respondents of faculty of Tirunelveli (GEC) frequently access to online data bases (40%), and e-publications (56%). A considerable number of respondents of faculty of Vellor (GEC) most frequently access to reference works dictionaries/encyclopedias (44%), online books shop (44%), model exam papers (44%) and maps (40%).

The ANOVA to a model is applied for further discussion. At one point the computed ANOVA value 3.67 which is greater than its tabulated value at 5 % level of significant. Hence, variation with respect to most frequent access to various Information and Communication Technology (ICT) resources is statistically identified as significant. In another point the computed ANOVA value 1.89 which is lesser than its tabulated value at 5 per cent level of significance. Hence, variation among chosen faculties of Government Engineering Colleges in Tamilnadu statistically identified as insignificant with respect to respondents' most frequent access to various internet resources.

It is seen clearly from the above discussion that respondents mainly most frequently access to e-articles online book shop and e-books. They occasionally access to online data bases and e-publications .

Table 2 shows the data on designation-wise respondents' extent of using various Information and Communication Technology (ICT) resources. Majority of the reader respondents frequently use e-articles (48.48%), on-line book shop(48.48%) and maps

(37.88%). A considerable number of Senior Lecturer respondents frequently use e-journals (40%), e-books (52%) and on-line data bases (48%). Majority of the Lecturer respondents occasionally use e-journals (36.54%), e-books (48.08%), e-publications (45.19%) and model exam papers (44.23%).

The ANOVA to a model is applied for further discussion. At one point the computed anova value 11.49 which is greater than its tabulated value at 5% level of significance. Hence , variation with respect to most frequent access to various internet resources is statistically identified as significant. In another point the computed anova value 1.30 which is lesser than its tabulated value at 5% level of significance. Hence, variation among chosen designation of respondensts of Government Engineering Colleges in Tamilnadu is statistically identified as insignificant with respect to respondents' most frequent access to various Information and Communication Technology (ICT) resources.

It is clear from the above discussion that Professor respondents frequently use reference works , dictionaries /encyclopedias and model exam papers.

7. FINDINGS AND CONCLUSION

It is clearly found from this study that the Professor respondents considerably use the library daily. Majority of the respondents have above average knowledge about Information and Communication Technology (ICT). The professor respondents have average knowledge about Information and Communication Technology (ICT).

The respondents have problems of using Information and Communication Technology (ICT) in terms of lack of time to acquire computer skills to use Information and Communication Technology (ICT) resources, lack of high quality information available from Information and Communication Technology (ICT) resources and access to suitable software. A considerable number of respondents stated that average level of performance of authority and availability of Information and Communication Technology (ICT), the Professor category respondents rate it as excellent performance of tile line Information Communication Technology resources.

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USAGE OF ELECTRONIC JOURNALS THROUGH CONSORTIA BY THE STUDENTS AND MEMBERS OF FACULTY OF BANNARI AMMAN INSTITUTE OF TECHNOLOGY, TAMILNADU: A SURVEY

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Abstract

Shared subscription or consortia subscription to electronic resources through consortia of libraries is feasible strategy to increase the access to electronic resources across institutions at a lower cost. It promotes an advances teaching and learning in the institutions and facilitates improved productivity and quality of the research. Presently electronic (on-line) journals have become the largest and fastest growing areas of the digital collections for most of the libraries. This paper focused on the usage of electronic journals through consortia by the students and faculty of Bannari Amman Institute of Technology(BIT).

Keywords: *E-journals, Electronic resources, Library consortium, Library cooperation*

1. INTRODUCTION

The basic function of the library is to impart knowledge through education.The significance of a library in modern society lies in educating the community in the wider sense of term. The library network and library consortium are two common forms of implementation of the resource sharing concept. The main drive for cooperation has been the increase in the output of publications or the information explosion. The rise in the cost of publications coupled with stringest budget allocations and growth in student enrolment [1].

A library consortium is a collective activity of group of libraries towards a commom goal of sharing information resources [2]. With the availability of state-of-the art Information Technology solutions and the web revolution libraries are now better off interims of easy access to more information through meaningful cooperation among themselves. Consortium is a term with many meanings. In beginning the library worked together in the field of collection development and resource-sharing in the widest sense of the world. In the networked environment the term consortium is now widely used [3].

Electronic (on-line) journal is nothing but a journal available in electronic format using internet technology. E-journals often referred to interchangeably as "Electronic Serials", "Online journals", and "Electronic Periodicals". Lancaster defines "a journal created for the electronic medium and available only in this medium [4]. Though it has the same characteristics as the printed journal but the difference is that, the electronic journals available electronically. Electronic journals are nothingbut the serial publications available in digital format; some are distributed on CD-ROM's and some over the internet [5]. With the advent of the internet, librarians realized potential of web technologies for the effective use of resource sharing. The key advantage is that the internet can be used as the carrier network by all member libraries of a resource sharing network [6].

Tamilnadu state has 270 Engineering colleges including, Government, Aided, Unaided and University constituent colleges. The Bannari Amman Institute of Technology (BIT) is the fruit of dedicated efforts put in by Bannariamman group, a leading corporate house in South India to establish a centre of excellence in Engineering and Technology. As a symbol of social commitment, the Bannariamman group has promoted this value based technical institute established under the aegis of the Bannariamman Educational Trust in 1996 in Sathyamangalam in Erode District of Tamil Nadu [7].

The institute has 12 UnderGraduate and 12 Post-Graduate programmes in Engineering and Technology. Research activities are also undertaken in all departments in this institution. This institute is having faculty strength of over 275. The central library of BIT has 55,000 volumes of books, and subscribes 250 National and 150 International journals. The library is an institutional member in AICTE-INDEST consortium, New Delhi and subscribed for IEL on-line journals, ASCE journals and ASME journals. The central library has Digital Library with 40 PCs with internet connection.

2. SCOPE AND LIMITATION

The study is confined to the faculty members and the students of BIT, Sathyamangalam, regarding the use of electronic journals. Its aim is to study the technological development of shared subscription or consortia based subscription to electronic journals.

3. OBJECTIVES OF THE STUDY

i. To study the library cooperation and consortia
ii. To know the variety of electronic resources available in the INDEST-AICTE consortium
iii. To study the useful of electronic resources compared to printed journals
iv. To study the infrastructure available for using electronic resources in BIT library
v. To survey the purpose and utilization of electronic resources by the students and faculty of BIT
vi. To suggest suitable recommendations to improve the electronic resources for the benefit of students and faculty members

4. METHODOLOGY

Primary data regarding the usage of e-journals by the students and faculty members in BIT are collected through the questionnaire method. A questionnaire consists of 15 questions was designed to elicit the opinion of the students and faculty members. A total number of two hundred questionnaire were distributed among the electronic journal users and all questionnaires have been responded with the rate of 100%. The data collection is presented in appropriate tables and analysis is made along with observation.

5. ANALYSIS AND DISCUSSION

Table 1 Characteristics of Respondents

SL.No	Gender	No. of Users	%
1	Gents	124	62
2	Ladies	75	38
Total		**200**	**100**

The total strength of the users is 3757. The number of male users is 2258 (60%) and the number of female users is 1499 (40%). As the strength of male users is more than female, the male respondents are also higher than female respondents.

Table 2 Department-wise Respondents

SL.No.	Department	No. of Users	%
1	Civil Engineering	14	7
2	Mechanical Engineering	18	9
3	Bio-Technology	16	8
4	Electronics and Communication Engineering	20	10
5	Electrical and Electronics Engineering	24	12
6	Computer Science and Engineering	34	17
7	Information Technology	32	16
8	Textile Technology	12	6
9	Computer Application.	30	15
Total		200	100

Among all other departments, the users belonging to Computer Science and Engineering Department use the electronic journals with high rate (17%). Next to Computer Science & Engineering Department, the users of Information Technology Department (16%) get second place. Next to Information Technology Department, the users of Computer Applications Department (15%), Department of Electrical & Electronics Engineering (12%), Department of Electronics & Communication Engineering (10%), Department of Mechanical Engineering (9%), Department of Bio-Technology (8%), Department of Civil Engineering (7%) and finally the Department of Textile Technology using the electronic journals is the least one (6%).

Table 3 Frequency of Visit to the Library

Frequency	No. of Users	%
Every day	124	62
Twice a week	56	28
Once a week	18	9
Once in a Fortnight	2	1
Once a month	-	-
Total	**200**	**100**

Table 3 shows that the 62% of the respondents visit the library everyday. The users visiting the library twice a week as 28% and users visiting the library once a week as 9%. As some of the text and reference books are being issued to the students by the Institution, one percent of the respondents are visiting once in a fortnight period.

Table 4 Awareness and Useful about the INDEST Consortium

Awareness and Useful of Electronic Journals	No. of Users	%
Yes	200	100
No	-	-
Total	**200**	**100**

Table 4 shows that the 100% of the respondents are aware of the electronic Journals. As the accessing of e-journals are fast, informative and save the time, the students and faculty memebrs felt that the e-journals are very helpful.

Table 5 Useful of Electronic Journals Compared to Printed Journals

Use of Electronic Journals	No. of Users	%
Save the time of the User	50	25
Better Management of Information Resources	30	15
Get Latest Electronic Information Resources	60	30
Get variety of information Resources	34	17
Get scholarly electronic Information Resources	26	13
Total	**200**	**100**

Electronic journals are used to collect the latest electronic information resources apart from the syllabus. It is more useful for Research Scholars and PostGraduate students. The Table 5 shows that 25 % of the respondents using the electronic journals for time saving and 15% of the respondents using for better management of information resources. Most of the respondents (30%) are using online journals to get the latest electronic information resources. 17% of the respondents are using online journals to get variety of information resources and 13% of the respondents using the online journals to get scholarly electronic information resources.

Table 6 Awareness of E-journals

Awareness of E-journals	No. of Users	%
Library Staff	54	27
Instruction/notice	118	59
Colleague	14	7
Terminal in the library	14	7
Total	**200**	**100**

Table 6 shows that 27% of the respondents are aware of the existence of the electronic journals through library staff. 59% of the respondents came to aware of the existence of the online journals through instruction/ notices. Each 7% of the respondents are aware of the e-journals through colleagues and available of terminals in the library respectively.

Table 7 Learned to Use the Electronic journals

Learned to use the Electronic Journals by	No. of Users	%
Staff Assistance	120	60
Orientation programme	26	13
Some one at terminal	54	27
Total	**200**	**100**

The Table 7 shows that most of the respondents (60%) have been learned to use the electronic journals by staff assistance. Assistance by the staff is needed for the students for using the on-line journals effectively. Orientation programme helped 13 % of the respondents and someone at the terminal has helped the remaining 27 % of the respondents to learn about electronic journals.

Table 8 Purpose of Using Electronic Journals

Purpose	No. of Users	%
Bibliographic Information	8	4
Current Information	118	59
Retrospective Information	16	8
Conceptual Information	44	22
Statistical Information	14	7
Total	**200**	**100**

The Table 8 shows that 4 % of the respondents are using electronic journals for bibliographic information. Most of the respondents (59%) are searching the online journals for current information. As the Library belongs to academic institution, online journals are used to upgrade the knowledge of students and faculties. Most of the respondents use online journals to get current information. 8% of the respondents use for retrospective information and 22% of the respondents for conceptual information and 7% of the respondents have mentioned that they are searching for statistical information.

Table 9 Reason for Gathering Information from Electronic Journals

Reason	No. of Users	%
Lecture material	22	11
Writing journal Articles	10	05
Preparing Seminar/ Conference papers	40	20
Writing books	08	04
Research purpose	16	08
Course work	104	52
Total	**20**	**100**

The Table 9 shows that 11 % of the respondents are using electronic journals for lecture material. 5% of the respondents using for writing journal articles and 20% of the respondents using for preparing seminar/conference papers and only 4% of the respondents have mentioned that they are searching for writing books and 8% of the respondents using for research purpose. The most of the respondents (52%) are searching the online Journals for course work.

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Table 10 Factors Affecting the Use of Electronic Journals

Factors	No . of Users	%
Lack of time	16	08
Lack of interest	-	-
Location of library	-	-
Internet	68	34
No comments	116	58
Total	**200**	**100**

The Table 10 shows that only 8% of the respondents mentioned lack of time. 34% of the respondents mentioned internet because some of the students and faculties using(internet) search engines to collect general information apart from the curriculam. Most of the respondents (58%) have given no comments. These four factors that are not affecting the use of electronic journals .

Table 11 Resources Used for Collecting Information

Resources	No. of Users	%
Electronic Journals	138	69
Text books	10	5
Internet	44	22
Periodicals	8	4
Total	**200**	**100**

Table 11 shows that only 4% of the respondents mentioned that periodicals are used for collecting information. The most of the respondents (69%) are using electronic journals to collecting information. 5% of the respondents mentioned textbooks and 22% of the respondents mentioned internet (search engines).

Table 12 Searching of Electronic Journals by Various Access Points

Type of Access points	No. of Users	%
Basic search	14	7
Advanced search	126	63
Topic search	50	25
Publication search	10	5
Total	**200**	**100**

The Table 12 shows that 7% of the respondents mentioned for basic search. 63% of the respondents used for advanced search to upgrade the knowledge and skill and get scholarly electronic information resources. 25% of the respondents mentioned for topic search. Only 5% of the respondents have mentioned the publication search as the access point of e-journals.

Table 13 Maximum Searching Field of Electronic Journals

Type of fields	No. of Users	%
Author	22	11
Article Title	26	13
Abstract	116	58
Publication Title	12	06
Specific Subject	24	12
Total	**200**	**100**

Table 13 shows that 11% of the respondents are searching for author field and 13% of the respondents are searching the field of article title. Maximum no.of respondents (58%) are searching for abstract field to get theoretical information about particular subject for curriculam based information. Only 6% of the respondents mentioned it fot the field of publication title and 12 % of the respondents mentioned it for the field of specific subject.

Table 14 Awareness on Other Electronic Journals

Electronic Information Resources	No. of Users	%
IEEE Journals	134	67
IEE Journals	14	7
Springer Verlag	4	2
ACM Digital library	12	6
EI (Elsevier Engineering Information) Compendex	20	10
Indian Academy of Sciences	16	8
Total	**200**	**100**

Table 14 mentions the awareness on other electronic information resources apart from the AICTE-INDEST Consortium electronic journals. Most of the respondents (67%) are aware of the IEEE(Institution of Electrical and Electronics Engineers). 7% of the respondents are aware of the IEE (Institution of Electrical Engineers) and only 2% of the respondents are aware of the Springer Verlag and 6% of the respondents are aware of the ACM(Association for Computing Machinery) and 10% of the respondents are aware of the EI (Elsevier Engineering Information) Compendex and 8% of the respondents are aware of the Indian Academy of Sciences.

5. CONCLUSIONS

Consortium enables access to electronic information resources at highly discounted rates of subscription. Consortium facilitates convenience of desktop access to high quality of electronic resources to the students and researchers. Electronic resources allow rapid distribution of information at a reduced cost. It provides a unique communication medium that cannot be duplicated by the use of paper-based technology.

It is concluded that electronic journals which is subscribed by the Bannari Amman Institute of Technology through consortium is being used effectively by the students and faculty members.

Maximum number of students and faculty members used electronic journals for course work and to get latest information resources.

As more number of students and faculty members are using electronic resources, internet access speed can be increased for speedy retrieval of information.

Further, inorder to motivate the engineering students for research, e-journals like ACM Digital Library, Elsevier's Science Direct, compendex plus and INSPEC may be added in the Digital Library of Bannari Amman Institute of Technology.

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RESOURCE CONSORTIUM AMONG VETERINARY COLLEGE LIBRARIES IN KARNATAKA: A PROPOSAL

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Abstract

This paper proposes to form a consortium among veterinary college libraries of Karnataka. Also discusses major consortium initiatives of India, budget position, dissimilarities in collection development, staffing pattern, and elements of resource consortium and proposed model of consortium of veterinary college libraries.

Keywords: *Consortium, Veterinary colleges*

1. INTRODUCTION

Every college must have a good library. It occupies a prominent position in the college campus. The prime role of libraries is to organize process and provide access to information to its users at right time in convenient format. Under the present scenario, most of the libraries in the world are plagued by shortage of funds on one hand and shrinking of library budget, on the other. This problem is more pronounced in developing and under developed countries. Due to ever increasing cost of published materials, the library collections are shrinking. On the contrary, the users' demands are increasing. Libraries are at their wits' end to satisfy the needs of their clientele. The only viable solution to meet users' demands is to make optimum use of available literature. This is being done through pooling and sharing of resources like print as well as electronics by the way of consortia. However, new technology has provided great opportunities for delivery of documents and services within consortia [1].

Today, financially well supported libraries cannot acquire all the reading materials needed by the users. Moreover, the recent trend in research & development warrants the libraries to develop a special collection for their users, which becomes an added burden for the libraries. Thus, the voluminous growth of published documents in the recent past, increasing cost of information resources have put strains on the libraries, especially on academic libraries in developing countries like India. To overcome these problems, libraries are forming consortia.

2. CONCEPT OF RESOURCE CONSORTIA

The concept of "consortia" has evolved from the concept of cooperation and co-ordination. The term consortia refers to an agreement or group formed to undertake an enterprise beyond the resources of any one member.

Library consortia mean group of libraries working together for common cause. It means collaborative or coalition effort for meeting the varied needs of users. It may be defined as any kind of formal cooperative arrangement where people agree to exchange information or resources [2].

Some special libraries and organizations started resource sharing with initiatives of NISSAT (National Information System for Science and Technology) in forming CALIBNET (Calcutta Library Network) in 1986 and DELNET (Developing Library Network) in 1988 [3]. The UGC (University Grants Commission) set up INFLIBNET (Information and Library Network) in 1988 [4]. INFLIBNET has taken initiatives at national level for a change in developing adequate infrastructure in academic libraries to be a part of networked environment. Some of the important consortia pertaining to E-resources, are FORSA (Forum for Resource Sharing in Astronomy and Astrophysics), CSIR consortium, INDEST (Indian National Digital Library in Engineering Sciences & Technology) consortium, IIM consortium, MCIT library consortium (The Ministry Communication and Information Technology Library Consortium), UGC-INFONET E – Journals consortium etc [5].

3. NEED FOR THE STUDY

The standard of the veterinary college libraries in Karnataka state is not up to mark. To improve their quality and quantity of the services rendered by them, resource consortium is the only solution [6]. Library professionals are fully aware of the phenomenon of ever increasing trend in the cost of books and periodicals in the field of veterinary sciences [7]. On the other hand, library budget of all veterinary colleges have been going through a stage of stringency. As a result, all veterinary college libraries are struggling for continuation of current periodicals and purchase of new books. Hence, there is an urgent need to have resource consortia among veterinary college libraries to achieve the desired goals in the state. In this direction all veterinary college libraries in the state must unite, with changing attitudes in terms of practices, and policies to get the maximum benefit.

Veterinary college libraries are the central support deeply committed to update the collections continuously and render services to veterinary scientists, in order to reinforce and enrich the knowledge base for assisting the institutions to achieve excellence in academic research, development and continuing veterinary education programmes. With the passage of time, the quantum and quality of users and their expectations have gone up. In order to achieve these goals, the veterinary college libraries in Karnataka state need to have a resource consortium among them for providing new services to the students, faculty members, scientists and field veterinarians. In India, no effort has been made in this direction. Resource consortia are very much essential in veterinary and animal science field in Karnataka state because of following reasons:

- Ever increasing users' requirements on multidisciplinary subjects
- Shrinking of budget
- Avoiding duplication in the area of veterinary sciences
- Price escalation of books, periodicals and other non book materials
- Emergence of internet and
- Emergence of new library services

4. OBJECTIVES OF THE STUDY

i. To study the annual budget and the library resources of veterinary college libraries in Karnataka.
ii. To study the available library staff.
iii. To suggest a model for resource consortia among the veterinary college libraries of Karnataka.

5. METHODOLOGY OF THE STUDY

Survey method was adopted and structured questionnaires were distributed to all libraries of veterinary colleges in Karnataka state. Data, so collected, has been tabulated and interpreted in the forgoing paragraphs.

6. SCOPE AND LIMITATION OF THE STUDY

At present, the Karnataka Veterinary, Animal and Fisheries Sciences University is composed of four veterinary, one Dairy Science and one Fisheries Sciences Colleges and all these are imparting education in their respective discipline. In the present study, the Dairy Science and Fisheries Colleges have been excluded and the paper is limited to the study of the remaining four veterinary college libraries.

7. DATA ANALYSIS AND INTERPRETATION

Table 1 Establishment of Veterinary Colleges

Sl. No	Name of the College	Year of Establishment
1	Veterinary College, Bangalore.	1958
2	Veterinary College, Bidar.	1984
3	Veterinary College , Shivmoga	2005
4	Veterinary College, Hassan.	2007

Veterinary colleges in Bangalore and Bidar have their own libraries, whereas the veterinary college, Shimoga and Hassan have no independent library, since these colleges were very recently established. The library collection and membership of students and faculty are very less compared to other two libraries.

Finance is very essential for the development and progress of any institution. But, it is noticed that the budget provided is meager and it appears to be the main constraint in the development of veterinary college libraries in Karnataka. The purchase of books, subscription to periodicals and the services are fully dependent on the library budget.

Table 2 Annual Budgets of the Libraries

SL.No.	Years	Funding Agency	VCL, Bangalore (Rs in lakhs)	VCL, Bidar (Rs in lakhs)	VCL, Shimoga (Rs in lakhs)	VCL, Hassan (Rs in lakhs)
1	2005-06	State Govt.	3.86	3.50	----	----
		ICAR	---	0.25	----	----
2	2006-07	State Govt.	7.00	5.00	3.50	----
		ICAR	4.25	6.00	----	----
3	2007-08	State Govt.	4.00	6.00	7.00	3.00
		ICAR	16.00	6.00	----	----

It is evident from the data provided in Table 2 that veterinary college library, Bangalore had maximum grant of Rs. 35.11during the last three years. It is commendable that ICAR had also been giving grant every year for strengthening the library on par with state Government. Also it is clear from the same table that veterinary college library, Bidar, has also been getting maximum grant from state Government and ICAR of Rs 26.75 lakhs during last three years next to Bangalore college for procuring the library documents. Whereas, veterinary college libraries of Shimoga and Hassan, receive grants only from state Government as these colleges are recently established.

Table 3 Library Resources

SL.No.	Name of the College Libraries	Types of the Resources				
		Books	Back Volumes	Journals		CD-Rom Databases
				Indian	Foreign	
1	VCL. Bangalore	10,500	9,400	19	4	1. VET-CD 2. FSTA CD
2	VCL, Bidar	6,800	1400	39	9	1. VET-CD
3	VCL, Shimoga	1600	150	18	---	---
4	VCL, Hassan	300	---	10	---	---

From Table 3, it is evident that collection of books and journals of two college libraries (Bangalore and Bidar) put together are not very large and will occupy less than two GB space for resource consortium whereas other two veterinary college libraries at Shimoga and Hassan have less collection in respect of the books and journals compared to veterinary college libraries at Bangalore and Bidar. Veterinary college, Bangalore has history of 50 years and it has a collection of only 10,500 books. The average growth of the collection of veterinary college, Bangalore is 210 titles per year only whereas the collection of veterinary college library, Bidar is comparatively better with an average growth rate of collection is 297 titles per year. Table 2 and 3 considered together, brings to fore the fact that the budget being limited and prices of the information resources in science and technology disciplines always on the rise, the purchasing capacity of the libraries become totally limited. This is evident from Table 3 that the libraries have limited collection. This will have an adverse effect on the users, since the libraries will not be able to meet the demands of the users. One way to combat this situation is to share the resources by avoiding duplication in acquisition and use the financial resources in building up a judicious collection, based on the needs of the users.

To achieve this, all the veterinary college libraries should participate in library consortia and work jointly just like joint enterprise in business sector to make the consortia fully successful.

Table 4 Availability of Computer Facility

Sl. No.	Name of the College Libraries	Availability of the Computers	
		For CD-ROM Services	For office Use
1	VCL. Bangalore	3	1
2	VCL, Bidar	1	1
3	VCL, Shimoga	--	--
4	VCL, Hassan	--	--

From Table 4, it is evident that veterinary college library, Bangalore has 4 computers with latest configuration, out of which, 3 computers are being maintained in the library for providing CD-ROM services to the students and faculty members of the college and the other computer is being utilized for routine office work. Veterinary college library, Bidar has 2 computers with latest configuration, among these one computer is being maintained exclusively for providing CD-ROM services to both faculty and student members and another one is for office use. Whereas veterinary college libraries of Shimoga and Hassan, having been recently established, do not have any computers in the library.

The smooth running of any library depends on its staff. However good its physical resources, a library will be able to function as an effective dissemination centre of information to users, only if it has adequate and qualified library personnel who can interpret the library resources. Any information service is dependant on the quality of staff.

Table 5 Library Staff

Sl. No.	Library Staff	VCL. Bangalore		VCL, Bidar		VCL, Shimoga		VCL, Hassan	
		Vacant	Filled	Vacant	Filled	Vacant	Filled	Vacant	Filled
1	Librarian	The Librarian post is vacant and the successor is in-charge Librarian							
2	Deputy Librarian	1	---	---	----	---	---	---	---
3	Assistant Librarian	---	---	1	----	---	---	---	---
4	Library Assistant	1	1	1	1	1	----	1	----

Table 5 clearly indicates that, almost all the veterinary college libraries in Karnataka are under shortage of staff. Sanctioned posts are also inadequate and the staff in the libraries in almost all the libraries are Library Assistants, except one which is a Deputy Librarian.

By the foregone analysis, it is clear that the infrastructural facilities available in the veterinary college libraries in Karnataka state is not satisfactory. With meager budget and escalation of prices of the documents in the field, consortium is the only solution. Through resource consortium, the veterinary college libraries can accrue various benefits viz, the quality of the collection can be increased within the available budget, the collection can be put to more usage, wastage of budget on duplicate subscription can be minimized, services rendered to the user can be improved qualitatively and quantitatively.

Presently, personal computers that are available in each veterinary college library are not sufficient to meet the requirements of consortium activities. The authorities must provide necessary infrastructure that is essential for establishment of resource consortia.

All the college libraries are not having adequate staff. The university should make efforts to appoint qualified librarian and the existing library staff should be motivated by sending them to the training programs organized by ICAR, INFLIBNET Library Associations etc.

8. ELEMENTS OF LIBRARY CONSORTIUM

To form a library consortium, the following elements of consortium are to be considered:

8.1 Agreement for Establishment of Consortium

A concrete agreement is needed for the participating libraries to establish consortia, to achieve a common target. Then, every library will be able to work in such a way that they are mutually exclusive, but they follow the common mission of a consortium as a whole.

8.2 Administration of Library Consortium

To run the total functions of a consortium smoothly a statutory body is very much essential. This has to be formed by including all Librarians from every library and one of them will act as a chief coordinator on rotation basis. Each library has to inform about its collection, databases, user services, training of human resource for handling new equipments, etc.

8.3 Financial Control

Members of the statutory body has to take decision on the following financial points like:

- Whether a consortium fund be created to subscribe the core journals in different subjects in multiple copies at a discount rate;
- Whether the participating libraries to whom the responsibilities to negotiate with some publishers are vested with, by the managing committee will send remittance to the publishers for multiple copies from its fund and adjust it subsequently among the participating libraries.
- Amount of money to be collected from each library as contribution, and methods to manage the funds of a consortium.

8.4 Joint Work

Individual library has to prepare a list of titles for resource sharing among participating libraries keeping in view the user demand and may also initiate negotiation with different publishers for purchase of these titles. Each library will subscribe the core journals and prepare the list of titles to be covered under resource sharing programme and the member libraries may also send full content page of all issues of the title to other libraries.

8.5 Evaluation

After a certain period, the whole activities of the consortium, i.e. individual as well as cooperative, must be evaluated on the basis of the pre-determined objectives. If there is any lacuna in between the work performed and to be performed, it should be adjusted by taking corrective measures in activities in future.

9. PREREQUISITE FOR RESOURCE CONSORTIA

Affordable computer technology, rapid change in telecommunication and emerging internet infrastructure play a dominant role in formation of library consortia. Application of computer technology in libraries has resulted in creation, integration and utilization of databases of in house resources in addition to other internet based services.

Prerequisites essential to form a library consortia, are Hardware, Software, Humanware, integrated library system and coordinated acquisition policy etc. However, for real success of any consortium, the participating libraries must adopt a coordinated acquisition policy with regard to collection development of documents, based on analysis of the requirement of target users.

The participating libraries should adhere to following factors:

- It should pool its bibliographic records centrally and convert them to machine readable form.
- Each library should have a unique and common hardware and software for conversion of archival data.
- Avoid the duplication of books procurement and subscription of the journals and CD-ROMs
- Arrangement shall be made for archival of electronic journals and CD-ROM databases and
- The library should have at least two professional staff with a degree in Library and Information Science and with computer knowledge.

10. A PROPOSED MODEL FOR RESOURCE CONSORTIA

It is necessary for all the participating veterinary college libraries to make memorandum of understanding (MOU) which clearly states the mission, procedures of constitution of the consortium, mode of operation etc. There must be a governing body comprising of all librarians of participating libraries, and one of them shall act as the chief co-coordinator for operating the consortia. Being located at university head quarter, veterinary college library, Bidar can act as central node and coordinate with other libraries.

The physical structure of the resource consortium shall be a distributed model with core collection on veterinary and animal sciences. The participating libraries may specialize their collection on other branches of the subject. Further, on-line resources can be subscribed commonly.

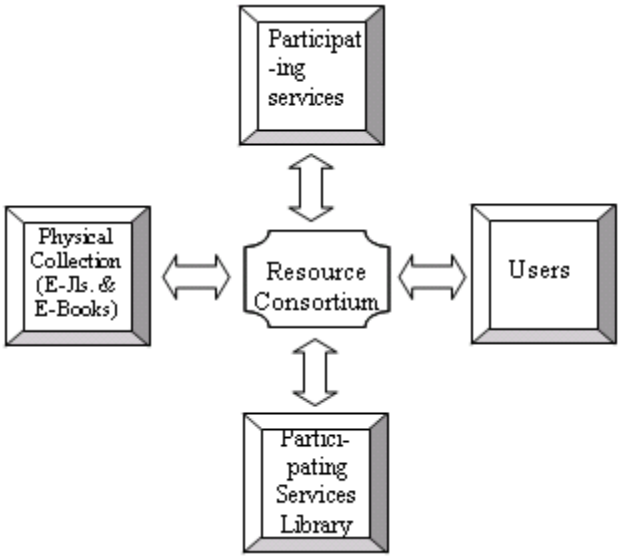

Fig.1 Merging of database

Figure 1 indicates that the databases of all individual libraries will be merged. This has a major advantage from the users' point of view; it will be easy to veterinarians as well as faculty and students, to access the required information from the centralized databases.

11. CONCLUSION

In the light of information provided by all veterinary college libraries and the discussion presented, establishment of resource consortium, integrating the resources and providing access to intellectual assets can be considered as the only viable solution to the financial crunch faced by veterinary college libraries. The veterinary college libraries should seriously think and initiate consortium activities among themselves for maximum utilization of resources at minimum cost and time.

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VETERINARY COLLEGE LIBRARIES IN INDIA: CURRENT STATUS AND PROSPECTS

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Abstract

Attempts have been made to highlight the significance of veterinary education in India for sustaining quality products of milk and poultry that involves diagnosing, treating and curing the diverse types of diseases in birds and animals in the areas of animal physiology, treatment and prevention of diseases among animals. In order to cater to the information needs of the students and teaching community in the veterinary institutes, how the Library plays important role is emphasized. The author made a survey of the existing status of Veterinary College Libraries in India with respect to collection development, organization, budget provisions made and information services offered by these Veterinary Libraries.

Keywords: *Veterinary Libraries-India, Veterinary Science- trends*

1. INTRODUCTION

The dream of the global community will become a reality when vision and task is considered. A vision suit focuses on the future prospects of veterinary education by considering education as the most potential instrument for the social change and development. Veterinary education is often not provided a high priority in the development of the country. Quality of veterinary education is comparatively low despite achievement in egg production and milk production. However, India stands number one in milk production and fourth in poultry production in the global market [1]. Sustaining the global status with quality products in the next millennium is really a challenge.

Veterinary education in Indian subcontinent is as old as human civilization, which can be traced to Salihotra of the vedic period who was considered as the "Father of Veterinary Science", an expert in treating diseases of horse, elephant and cow. He wrote "Asvayueveda Sidhayoga Samgraha (Haya Ayurveda)" which was considered a standard equine therapy books[2]. Veterinary Science is the science of diagnosing, treating and curing the diverse types of diseases in birds and animals. The subject broadly covers the study of animal physiology, treatment and prevention of diseases among animals. The basic principles of this specialized modern veterinary and animal husbandry practices, the first course on veterinary science was organized in 1821. The first civil veterinary school, the Punjab veterinary school was started in 1882 at Lahore, which subsequently was elevated to college in 1902 with amalgamation of veterinary school of Lahore and Ajmer. With due course of time other veterinary colleges i.e. at Bombay (1886), Culcutta (1893), Patna (1930), Hyderabad (1946), and Mathura (1947) came up. At present, there are seven veterinary universities, 43 veterinary colleges. Out of which 18 colleges are constituent of seven state veterinary universities and others are part of State Agricultural Universities (SAUs). The establishment of the Indian Council of Agricultural Education under the ICAR was one of the major steps undertaken by the Government of India that helped the development of agricultural education including animal science education in post- independence period [2]. The role of veterinary colleges in India is to enhance the livestock production, health improvements, milk production and strengthening the nation's wealth. Accordingly, veterinary colleges have been contributing their share in upgrading the quality of veterinary education in the country through quality improvement of academic studies, and faculty improvement programmes.

Library and Information Centers are the integral part of the veterinary colleges. Libraries are providing strong support to achieve the goals of veterinary system through ensuring quality based library and information support service to the students, faculty and staff. Libraries are deeply committed to update the collections continuously in order to reinforce and enrich the knowledge base for

assisting the institutions to achieve excellence in academic, research & development and continuing veterinary education activities. In this context, a survey has been conducted to reveal the current status and prospects of Veterinary College Libraries in India.

2. RESEARCH PROBLEM

In the Indian context, the studies on veterinary college libraries are hardly carried out to reveal the current status of Libraries in veterinary education system, although few studies have been reported of general nature as found in the Library and Information Science Abstracts (LISA). Hutchinson (1999) conducted library evaluation in Tamil Nadu Veterinary and Animal Sciences University (TANUVAS), Madras (Chennai) by means of SWOT analysis of facilities, staffing, professional development, technical services, automation, equipment and telecommunications, services, management, budgeting and networking [3]. He recommends for library improvements to increase access to and use of information technologies for providing better service and for more efficient technical operations. Similarly, Pathan (1989) suggests the need for strengthening of library collections, and need to train more staffs, and suggests for a model network at the national level for the veterinary college libraries [4]. Hence, the research problem to study the current status of Veterinary College Libraries in India is taken up.

3. OBJECTIVES OF THE STUDY

The main objectives of the study are

i. To understand the collection development policy of various information resources among veterinary college libraries in India
ii. To know the provision of financial resources to the information sources mainly books, periodicals and CD-ROM databases
iii. To understand the methods adopted for organization of information resources and
iv. To study the information services offered to the users in veterinary college libraries in India.

4. METHODOLOGY

A well designed and pre-tested questionnaire has been adopted for collecting information from the libraries of veterinary colleges in India pertaining to its collection, budget provision, organization of resources and information services. At present, there are 43 veterinary colleges in India and questionnaires have been sent to all the veterinary college libraries in India, out of which 39 libraries have responded with a response rate of 90.6 percent.

5. RESULTS AND DISCUSSION

The age of an institution / organization becomes one of the important factors to study its quality and progress, since age of an organization reflects its maturity in terms of resources and services. Table 1 shows the chronological establishments of Veterinary College libraries in India over a period of time.

Table 1 Establishment of Veterinary College Libraries in India

Sl. No.	Year of Establishment	No. of VCLs	%
1	Before 1940	4	10.26
2	1941-1945	1	2.56
3	1946-1950	4	10.26
4	1951-1955	5	12.82
5	1956-1960	4	10.26
6	1961-1965	2	5.13
7	1966-1970	1	2.56
8	1971-1975	1	2.56
9	1976-1980	---	---
10	1981-1985	4	10.26
11	1986-1990	5	12.82
12	1991-1995	1	2.56
13	1996-2000	5	12.82
14	2001-2005	---	----
15	After 2006	2	5.13
Total		**39**	**100**

It is found from the above table that, since 1980s about 17 veterinary colleges have been established which indicates the increasing awareness towards veterinary education in India. In fact, the first veterinary college of the country was established in Bombay (Maharashtra) during 1886, which was also the starting point of the first veterinary college library in India.

Library collections are measured not only in terms of number but also in terms of their value and utility by the users, the quantitative and qualitative growth in the published literature, the nature and function of the parent institutions. The heterogeneous requirements of the readers and financial stringency force the libraries to follow the principles of pick and choose. As a result, book selection and book collection becomes a major activity of the librarian and his staff.

Table 2 Collection of Books

Sl. No.	No. of Books	No. of the Libraries	%
1	Below 1000	3	7.70
2	1001 to 5000	10	25.64
3	5001 to 20,000	13	33.33
4	20,001 to 40,000	5	12.82
5	40,001 to 60,000	3	7.70
6	60,001 to 1,00,000	4	10.25
7	1,00,001 to 2,00,000	1	2.56
Total		39	100

The Table 2 reveals the collection of books in different veterinary college libraries. Out of 39 libraries, one (2.56%) has more number of collection, ranging between one lakh to two lakhs. The collection of books ranging from 1000 to 5000 is seen in 13 (33.33%) libraries. The reason for the low number of books in these libraries may be due to their recent establishment i.e. after 1980. Whereas it is seen that in 13 (33.33%) libraries the collection ranged between 5001 and 20,000; 5 (12.82%) libraries have a collection between 20,001 and 40,000, and 3 libraries (7.70%) have book collection ranging from 40,001 to 60,000 followed by 4 (10.25%) libraries with a book collection between 60,001 and 1 00,000.

It is observed from the Table 3 that maximum number of Indian periodicals i.e. between 201 and 300 are being subscribed by 5 (12.82%) libraries; whereas maximum number of foreign periodicals ranging from 151 to 250 are subscribed by 2 (5.12%) libraries. The second highest number of Indian periodicals ranging between 101 and 200 are being subscribed by 2 (5.12%) libraries, while the second highest foreign periodicals are being subscribed ranged between 101 to 150 by 3 (7.70%) libraries. This is fallowed by one (2.56%) library subscribing the Indian periodicals between 81 and 100, and similarly one (2.56%) library subscribing foreign periodicals between 81 and 100.

Table 3 Collection of Periodicals

Sl. No.	No. of Periodicals (Current)	No. of Libraries	%
INDIAN (National)			
1	Below 20	9	23.08
2	21 to 40	10	25.64
3	41 to 80	12	30.78
4	81 to 100	1	2.56
5	101 to 200	2	5.12
6	201 to 300	5	12.82
	Total	**39**	**100**
FOREIGN (International)			
1	Below 20	19	48.72
2	21 to 40	4	10.26
3	41 to 80	1	2.56
4	81 to 100	1	2.56
5	101 to 150	3	7.70
6	151 to 250	2	5.12
7	Not mentioned	9	23.08
Total		39	100

Table 4 CD- ROM Databases

Sl. No.	No. of CD- ROM Databases	No. of Libraries	%
1	Below 10	14	35.90
2	11 to 20	09	23.07
3	21 to 30	03	7.70
4	Not mentioned	13	33.33
	Total	39	100

It is observed from the Table 4 that maximum number of CD-ROM databases is subscribed by only 3 (7.70%) libraries ranging from 21 to 30. The second highest number of CD-ROM databases i.e. 11-20 is subscribed by 9 (23.07%) libraries. This is followed by 14 (35.90%) libraries subscribing less than 10 CD-ROM databases, and remaining 13 libraries have not mentioned any thing regarding the CD-ROM databases.

Table 5 Collection of Theses

Sl. No.	No. of Theses	No. of Libraries	%
1	Below 1000	12	30.78
2	1001 to 2000	10	25.64
3	2001 to 5000	4	10.25
4	5001 to 10,000	4	10.25
5	10,001 to 25,000	1	2.56
6	Not mentioned	8	20.52
Total		39	100

It is seen from the Table 5 that out of 39 libraries only 31(79.48%) libraries have theses collection, among them 12 (30.78%) have a collection below 1000 theses, whereas it is between 1001 to 2000 in 10 (25.64%) libraries. 4 (10.25%) libraries have a collection ranging between 2001 to 5000, followed by other 4 (10.25%) libraries with a collection ranging from 5001 to 10,000 theses. The maximum numbers of theses collection are available with the only one (2.56%) library i.e. ranges between 10,001 to 25,000 theses, and rest 8 (20.52%) libraries have not mentioned anything regarding theses collection.

Budget is very essential for the effective functioning of a library system like water for the production of bumper crops. If the irrigation system fails to provide sufficient water, the crops are bound to fail. Similarly, if the educational system of the country fails to provide sufficient financial resources for its libraries, library services are bound to be disrupted.

Table 6 Sources of Income (April 2006 to March 2007)

Sl. No.	Types of Sources	No. of Libraries	%
1	Library fees	8	20.52
2	State Government	33	84.62
3	ICAR	32	82.06
4	Department of Social Welfare	3	7.70

It is clear from the Table 6 that 8 (20.52%) libraries have provided the information about the library fees. This fees amount will be remitted in the account section of the university /college as receipt and this fees amount cannot be considered as an adequate source of grant. Majority of veterinary college libraries ie, 33 (84.62%) are getting financial support from their respective state government, followed by 32 (82.06%) libraries also getting financial support from ICAR (Indian Council of Agricultural Research), a central agency of the government established for the purpose of improvement and development of agricultural and animal husbandry higher education in the country. Only 3 (7.70%) libraries are receiving financial support from the state social welfare departments and same funds are being utilized for purchase of library textbooks for the benefit of the scheduled caste and scheduled tribes' students, and remaining 36 veterinary college libraries have not mentioned anything regarding source from social welfare department.

Table 7 Budget Allocation for Information Resources

Budget (In Rupees)	Books		Periodicals		CD-ROMs	
	No of Libraries	%	No of Libraries	%	No of Libraries	%
Up to Rs 50,000	4	10.26	-	-	-	-
Rs.50,001 to 1lakh	5	12.82	3	7.70	-	-
Rs.1 lakh to 5 lakhs	18	46.14	13	33.33	3	7.70
Rs.5 lakhs to 10 lakhs	3	7.70	6	15.37	9	23.08
Rs.10 lakhs to 20 lakhs	2	5.12	3	7.70	1	2.56
Rs.20 lakhs to 40 lakhs	4	10.26	3	7.70	-	-
Rs.40 lakhs to 80 lakhs	-	-	3	7.70	-	-
Not mentioned	3	7.70	-	-	26	66.66

It is seen from the Table 7 that out of 39 libraries, 4 (10.26%) libraries have allocated an amount below Rs.50,000 for purchase of books, whereas it is between Rs. 50,001 to one lakh in 5 (12.82%) libraries, the maximum number i.e. 18 (46.14%) libraries have allocated an amount ranging between Rs.1 lakh and 5 lakhs. This is followed by 3 (7.70%) libraries between Rs.5 lakhs and 10 lakhs and in 2 (5.12%) libraries an amount between Rs.10 lakhs and Rs.20 lakhs. The highest amount allocated was in 4 (10.26%) libraries ranging from Rs. 20 lakhs to 40 lakhs for purchase of books, and remaining 3 (7.70%) libraries have not provided any data regarding allocation of budget for books.

Similarly, 3 (7.70%) libraries have allocated an amount less than Rs. 1lakh for subscription of the periodicals, where as it is between Rs.1 lakh to 5 lakhs in 13 (33.33%) libraries, and 6 (15.37%) libraries have allocated an amount ranging from Rs.5 lakhs to 10 lakhs for subscription of the periodicals . This is followed by 3 (7.70%) libraries between Rs.10 lakhs to 20 lakhs and another 3 (7.70%) libraries have allocated an amount of Rs.20 lakhs to 40 lakhs. The highest amount allocated to 3 (7.70%) libraries between Rs.40 lakhs to 80 lakhs for subscription of the periodicals, and remaining 8 (20.52%) libraries not provide any data regarding allocation of budget for periodicals.

As far as budget allocation for CD-ROM databases are concerned, out of 39 libraries 3 (7.70%) libraries have allocated an amount between Rs.1 lakh to 5 lakhs for purchase of CD-ROM databases, whereas it is between Rs.5 lakhs to 10 lakhs in 9(23.08 %) libraries, and only one (2.56) library has spent maximum amount ranging from Rs.10 lakhs to 20 lakhs for purchase of CD-ROMs databases and the remaining 26 (66.66%) libraries did not provide any data regarding purchase of CD-ROM databases.

Table 8 Composition details of Book Selection Committee

Sl. No.	Recommendation	No. of Libraries	%
1	Book Selection Committee	24	61.54
2	Subject experts	35	89.74
3	Dean	23	58.97
4	Librarian	26	66.66
5	Students	21	53.84

Table 8 brings out the data regarding composition of book selection committee wherein 24 (61.54%) libraries have full-fledged book selection committee for selection of books, in 35 (89.97%) libraries books are selected only by subject experts, in 23 (58.97%) libraries whole procedures are managed by the Deans alone, wherein 26 (66.66%) libraries books are selected by the Librarian by taking consent of the concerned subject teachers and approval from higher authorities, and the rest 21 (53.84%) libraries considered students recommendations for the selection of books.

Since documents are for use, every reader must get his book that he/she needs, and the precious time of the user must be saved and therefore, the newly procured documents need to be processed. This objective is achieved by the classification and cataloguing of documents in a proper order and sequence. In order to facilitate a permanent and helpful arrangement of books, classification schemes have been developed. Thus, library chooses any one of these schemes, depending upon its need.

Table 9 Classification Schemes Used in Libraries

Sl. No.	Classification Schemes Used	No. of Libraries	%
1	Dewey Decimal Classification(D.D.C.)	25	64.10
2	Universal Decimal Classification (U.D.C.)	2	5.12
3	Colon Classification (C.C.)	3	7.70
4	Not mentioned	9	23.08
Total		39	100

It is seen from the Table 9 that the majority (64.10 %) Veterinary college libraries have been classifying according to DDC (Dewey Decimal Classification). This indicates that DDC is widely used. This is followed by 2 (5.12%) libraries adopting UDC (Universal Decimal Classification). It is also observed that CC (Colon Classification) code is used only by 3 (7.70%) libraries. It has been observed that the remaining 9 (23.08%) libraries have not mentioned about the classification followed by them as they have small collection and follow their own method of organization.

Library catalogue serves as an index to a library. It is a list of books and other reading materials and kindred materials available in the library. It is a basic tool in the hands of users to help them to make efficient and effective use of the library resources.

Table 10 Catalogue Code Used in Libraries

Sl. No.	Catalogue Code Used	No. of Libraries	%
1	Anglo American Catalogue Rules (AACR-2)	25	64.10
2	CCC	5	12.82
3	Not mentioned	9	23.08
Total		39	100

As indicated from the Table 10, 25 (64.1 %) veterinary college libraries have been using AACR -2 (Anglo American Catalogue Rules-2) Code, and 5 (12.82%) libraries have been using CCC (Classified Catalogue Code). It is also note worthy that 9 libraries have remained silent about the codes they practice. It has been found that these 9 libraries have small collection and as such, they do not feel the need for cataloguing. But importance of catalogue in the location and retrieval of books should not be overlooked. A library, however small it is but, exists to serve its users. Therefore, whatever means can be provided for easy location and retrieval of books, should be provided

The prime users of veterinary college libraries are teachers, students, and researchers. At the same time information produced is vast and users are finding it difficult to retrieve the relevant information at the right time as the time of users is utter importance. With the increasing collection, growth in the number of readers, the libraries will have to render services to cater to varying

Table 11 Information Services

Sl. No.	Services	No. of Libraries	%
1	Reference Service	39	100.00
2	Bibliographic Service	27	69.24
3	Reprographic Service	27	69.24
4	C A S	20	51.28
5	S D I	20	51.28
6	On-line database services	11	28.20
7	E- Journal Services	11	28.20
8	Inter Library Loan	17	43.58
9	CD-Rom Services	11	28.20

The Table 11 reveals that all libraries are providing reference services to its users, this work is done by librarian and library staff. 27 (69.24%) libraries are providing bibliographic and reprographic services, whereas 20 (51.28%) libraries are providing Current Awareness (CAS), Selective Dissemination (SDI) Services. However, both the services keep the users informed about the latest information appearing in their area of interest. In 11 (28.20%) libraries online, E-journals and CD-ROM database services are rendered to the students and faculty members of the colleges. Libraries having these electronic facilities provide CD-ROM database searches, computerized database searches from their PCs and through computers on local area network, regional network and Internet services. This is followed by 17 (43.58%) libraries providing Inter Library Loan (ILL) services, and these libraries borrow from each other on loan those publications which are not available in their holdings and thus fulfill information needs of their users.

6. CONCLUSION

The Veterinary College Libraries are emerging centres of excellence in the country, catering to the information needs of veterinarians and user community with its rich collections, organization and information services. Although, these libraries are having fair collections and budgetary provisions, but there is a need to look for comprehensive collection of information resources and sufficient budget needs to be earmarked for print and also e-resources. Information services rendered are of basic in nature and due to impact of

Information Technology, the study suggests for incorporating IT ventured libraries to tune with nascent needs of the academicians and veterinarians in veterinary institutions in the country.

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A BIBLIOMETRIC ANALYSIS OF INDIAN JOURNAL OF ENTOMOLOGY (2000-2004)

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Abstract

The paper presents a bibliometric analysis of Indian Journal of Entomology and all the volumes of the journals published during the period 2000-2004. The study analyses year-wise and volume-wise distribution of articles, authourship patterns, etc. Lotka's law was employed to study the author's productivity pattern, state-wise and institution-wise distribution of contributions. There is a need to provide more infrastructural facilities in the Entomology Science research institutions in India by considering the efficiency of the Entomology scientists.

Keywords: *Bibliometric analysis, Entomology*

1. INTRODUCTION

Bibliometrics is a type of research method used in Library and Information Science [1]. It is a quantitative study of various aspects of literature on a topic and is used to identify the pattern of publication, authorship and secondary journal coverage with the objective of getting an insight into the dynamics of growth of knowledge in the areas under consideration [2]. This consequently leads to the better organization of information resources that is essential for its most effective and efficient use [3]. Bibliometrics today has attained sophistication and complexity having national, international and interdisciplinary character [4]. The present study focuses attention on the bibliometric analysis of Indian Journal of Entomology.

2. OBJECTIVES

The following are the objectives of the study:

i. To find out volume-wise distribution of contributions and the average number of contributions per volume.
ii. To analyse the authorship pattern of contributions and examine the extent of research collaboration.
iii. To test the applicability of Lotka's Law of Entomology research productivity of authors.
iv. To study the state-wise distribution of contributions.
v. To study the institutions-wise distribution of contributions.

3. HYPOTHESES

The following hypotheses have been formulated with a view to test the above framed objectives:

i. There has been an increasing trend in collaborative Entomology research in recent years.
ii. The implication of Lotka's Law is related to author's productivity.

4. SOURCE JOURNAL

The Indian Journal of Entomology has been selected as the source journal. It is a research journal in the field of Agricultural Science. All the volumes of the journal published during the period 2000-2004 (i.e. 5 years) have been taken up for the study.

5. METHODOLOGY

The entries of the Indian Journal of Entomology covering the contribution and their citations from 2000 to 2004 have been taken for this analysis. All the contributions and citations were entered in to a computer using 'Foxpro' and grouped as two databases. Two different files are created to enter one about contributions data and the other about their citations.

6. DATA ANALYSIS AND INTERPRETATION

Table 1 Volume-wise Distribution of Contributions

Sl. No	Year	Volume Number	Number of Issues	Overall Distribution of Contributions				Total Number of Contribution	%
				1	2	3	4		
1	2000	62	4	14	18	15	23	70	16.24
2	2001	63	4	15	17	28	25	85	19.72
3	2002	64	4	16	18	18	24	76	17.63
4	2003	65	4	25	25	24	24	98	22.73
5	2004	66	4	25	24	28	25	102	23.66
	Total			**95**	**102**	**113**	**121**	**431**	**100**

Table 1 indicates that overall distribution pattern of the contribution to the Indian Journal of Entomology during the period 2000-2004. Among the total period of five years of study, the total number of contributions in 20 issues of 5 volumes is 431 articles. Out of 5 volumes, the volume number 66 has the highest number of contributions viz., 102 (23.66%) and volume number 62 has the lowest number of contributions viz., 70 (16.24%). The average number of contributions per volume is 86 articles. Hence, it can be inferred from the data that most of the volumes have the average number of contributions expect the volume numbers 65 and 66.

Table 2 Overall Authorship Pattern of Contributions

Sl. No.	Number of Authors	Number of Articles	%	Cumulative Total	Cumulative %
1	One	56	12.99	56	12.99
2	Two	109	25.29	165	37.28
3	Three	125	29.00	290	66.28
4	Four and more	141	32.71	431	100
Total		**431**	**100**		

Table 2 indicates that the overall authorship pattern of contributions in the Indian Journal of Entomology. Among the 431 contributions, a maximum number of 141 (32.71%) articles were contributed by four and more authors. There were 125 (29.00%) articles contributed by three authors. There were 109 (25.29%) articles contributed by two authors. The remaining 56 (12.99 %) articles have been contributed by single authors.

Table 3 Single Vs Multiple Authors Contribution

Sl. No	Year	Single Author		Multiple Author		Total
		Number of Output	%	Number of Output	%	
1	2000 to 2002	37	66.07	194	51.73	231
2	2003 to 2004	19	33.93	181	48.27	200
	Total	**56**	**12.99**	**375**	**87.01**	**431**

Table 3 shows the distribution of single Versus multiple authored papers published in the field of Entomology. For the purpose of this analysis, the researcher has classified the study period into two phases viz., first phase 2000-2002 and second phase 2003-2004. It is clear from the table that during the first phases of the study period, the single authored contribution shares 66.07 %, which has decreased to 33.93% during the second phase of the study period. The multi-authored contributions during the first phase is 51.73 % and during the second phase of the study period is 48.27 %. On the whole, the single authored contributed papers only 12.99% and the remaining are covered by multi-authored contribution at 87.01%.

Table 4 Productivity of Author Based on Lotka's Law

No. of Contribution	Observed Number of Authors with 'n' Publication (a^n) or (f)	Observed Percentage of Authors $100Xan/a_1$	Expected Number of Authors ($a^n=a^n/n^2$) or (P)	Expected Percentage of Authors Predicted by Lotka's 100/n	$(F-P)^2/p$
1	148	100	148	100	0
2	45	30.41	37	25	1.73
3	14	9.46	16	11.11	0.25
4	12	8.11	9	6.25	0.06
5	8	5.41	5	4.10	1.8
6	7	4.73	4	2.77	2.25
7	3	2.03	3	2.04	0

Table 4 shows the Lotka's law of author productivity. Lotka's law explained that the number of persons making two contributions is about one fourth of those contributing one. It explains that the number of authors making 'n' contributions is about $1/n^2$ of those making a single contribution and the proportion of contribution that makes a single contribution is about nearly 63%. In other words, for every 100 authors making one contribution each. There would be 25 authors contributing 25 articles each ($100/2^2=25$) and about 11 contributing three articles each ($100/3^2=11.1$) and about 6 contributing four articles each ($100/4^2=6.25$).

In the present study the productivity of authors is examined. At the first observation the analysed data validate Lotka's findings that the proportion of all contributions that make a single contribution is more than 60%.

Table 5 State-wise Distribution of Contributions

Sl. No	Name of States	Number of Articles	%
1	Andhra Pradesh	36	8.35
2	Assam	5	1.16
3	Bihar	13	3.01
4	Gujarat	30	6.96
5	Haryana	123	28.53
6	Himachal Pradesh	8	1.85
7	Jarkhand	5	1.16
8	Karnataka	6	1.39
9	Madhya Pradesh	6	1.39
10	Maharastra	5	1.16
11	Manipur	4	0.92
12	Megalaya	12	2.78
13	Orissa	13	3.01
14	Punjab	7	1.62
15	Rajasthan	23	5.33
16	Tamil Nadu	19	4.40
17	Uttara Pradesh	57	13.22
18	Uttaranchal	28	6.49
19	West-Bengal	10	2.32
20	Other Countries	21	4.87
	Total	**431**	**100**

Table 5 indicates the state-wise distribution of contributions. Among 431 articles, a maximum number of 123 (28.53%) articles were produced by Haryana state and a minimum number of 4 (0.92%) articles produced by Manipur. There were 57 (13.22%) articles produced by Uttar Pradesh which holds second position. The Andhra Pradesh contribute 36 (8.35%) articles placed in the third position. There were 30 (6.96%) articles produced by Gujarat and 28 (6.49%) articles produced by Uttaranchal which occupies the fourth and fifth positions respectively. There were 21 (4.87%) articles contributed by the other countries.

It could be seen clearly from the above discussion that among the total number of 431 articles, a maximum contribution is from Haryana state, the reason behind may be the India Journal of Entomology published from Haryana state.

Table 6 Institution-wise Distribution of Contributions

SL.No	Name of the Institutions	Number of Contributions	%	Cumulative Number of Contributions	Cumulative %
1	University Departments	79	18.32	79	18.32
2	Colleges	61	14.15	140	32.47
3	Research Institutions	113	26.21	253	58.68
4	Central & State Govt. Organisation	131	30.39	384	89.07
5	Foreign Universities	21	4.87	405	93.94
6	Other Institutions	26	6.03	431	100
Total		**431**	**100**		

Table 6 shows that the institution-wise distribution of contributions. Among the total of 431 articles, a maximum number of 131 (30.39%) articles produced by Central and State Government organizations and a minimum of 26 (6.03%) articles contributed by other institutions. There were 113 (26.21%) articles produced by Research Institutions and 79 (18.32%) articles produced by University Departments. There were 61 (14.15%) articles contributed by Colleges and 21 (4.87%) articles produced by Foreign Universities.

It could be seen clearly from the above discussion, that the maximum number of 131 (30.39%) articles were contributed by Central and State Government organization followed by Research Institutions.

7. FINDINGS

The present study comes out with the following remarkable findings.

The average number of contributions per volume is 86 articles, most of the volumes have the average number of contributions except the volume numbers 65 and 66.

The collaborative research works were increased in recent years when compared with individual research work.

On the whole study period, the single authored contributions are only 12.99% and multi authored contribution at 87.01%.

A maximum contribution is from Haryana state and a minimum number of contribution is from Manipur state.

The maximum number of 131 (30.39%) articles were contributed by Central and State Government organizations followed by Research Institutions.

8. CONCLUSION

The output of Indian Entomology Scientists is not up to the mark. In this connection, the Government of India should allocate more fund on Entomology Science research and development. There is a need to provide more infrastructural facilities in the Entomology Science research institutions by considering the efficiency of the Entomology scientists. There is a need to provide

incentives and awards to the eminent and outstanding Entomology scientists depending on their level of contribution to the growth and development of the discipline. In order to improve the quality of research, the Entomology scientists should be deputed to foreign countries to undergo training programme with a view to increase the skill and efficiency of the Entomology scientists.

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