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## Indian Journal of Information Science and Service

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# *Indian Journal of Information Science and Services*

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# Library and Information Science Papers in Web of Science: A Bibliometric Analysis

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**Abstract**

*In this article, we present a bibliometric study of 908 Library and Information science papers published from 1989 to 2016 and indexed in Web of Science analysed on Library and information science title only selected from the web of science core collection citation indexes analyze the quantity of these publications according to Year-wise, document types, languages, research areas, countries, & source titles. In total, there are ten distinct document types with the most frequent ones being "Article Paper" (over 62%). Web of Science is almost exclusively focused on sources published in English reach above 89%. "Information Science Library science" is the most prolific topic with nearly 96% of papers Published in the research area. The USA with 45% of Library and information science papers published. As far as the publication sources are concerned the most papers appeared in the Journal of Education for Library and Information Science.*

***Keywords:*** *Bibliometrics, Library and Information Scienc, Web of science.*

## 1. INTRODUCTION

In Library and Information Science (LIS), while there is an awareness of the variety of journal literature, we do not have a number on the percentage of the collection that qualifies as research. A content analysis of the LIS literature available at the Web of science is currently in progress. Research is pre-defined and a collection method for a content analysis is planned. The entirety of the collection of articles available in the web of science from 1989 to 2016 will be analyzed and classified as per: 1) the Research area of each article, and 2) the percentage of a paper published in document type,3)Countries/Territories and Publication source compared to. Further, it will provide a sense of the state of LIS literature for the sample year to be compared to previous studies. The purpose of this study is to determine what percentage of the Library and Information Science (LIS) literature available to Web of science qualifies as research.

## 2. OBJECTIVES OF THE STUDY

- To find out the status of literature Published on LIS during 1989-2016.
- To identify the distribution of research area in LIS.
- To find out the Document Type.
- Language -wise distribution.
- To access the distribution by countries.
- To analyze characteristic of LIS publication Source type.

## 3. METHODOLOGY

The bibliographic data for these studies obtained from the web of science database. The term library and information science basic search used in title only from the year 1989 to 2016.citation report for 908 results from the web of science core collection displayed. The data collected at the time of October 2017.

Results and Discussion

### 3.1 Year -wise Growth of Publications

A total of 908 records were retrieved from the web of science using the query discussed in the methodology. A total of 908 publications were published during 1989-2016, which received 4407 citations during the period. The highest numbers of publications (45) were in 1990 &1992. The average number of publications published per year was 33. Table 1 gives the year-wise growth of publications and Percentage. The lowest numbers of

publications (16) were in 2000.An exponential growth of publications on Library and information science was observed.

**Table 1 Year-wise Growth of Publications**

| Sl.No. | Publication Years | Records | % OF 908 |
|---|---|---|---|
| 1 | 1989 | 29 | 3.194 |
| 2 | 1990 | 45 | 4.956 |
| 3 | 1991 | 36 | 3.965 |
| 4 | 1992 | 45 | 4.956 |
| 5 | 1993 | 39 | 4.295 |
| 6 | 1994 | 34 | 3.744 |
| 7 | 1995 | 26 | 2.863 |
| 8 | 1996 | 33 | 3.634 |
| 9 | 1997 | 20 | 2.203 |
| 10 | 1998 | 25 | 2.753 |
| 11 | 1999 | 25 | 2.753 |
| 12 | 2000 | 16 | 1.762 |
| 13 | 2001 | 22 | 2.423 |
| 14 | 2002 | 20 | 2.203 |
| 15 | 2003 | 28 | 3.084 |
| 16 | 2004 | 27 | 2.974 |
| 17 | 2005 | 20 | 2.203 |
| 18 | 2006 | 21 | 2.313 |
| 19 | 2007 | 35 | 3.855 |
| 20 | 2008 | 35 | 3.855 |
| 21 | 2009 | 26 | 2.863 |
| 22 | 2010 | 39 | 4.295 |
| 23 | 2011 | 34 | 3.744 |
| 24 | 2012 | 27 | 2.974 |
| 25 | 2013 | 40 | 4.405 |
| 26 | 2014 | 30 | 3.304 |
| 27 | 2015 | 73 | 8.04 |
| 28 | 2016 | 58 | 6.388 |

### 3.2 Document Types

Table 2 shows the distribution of document types in our data collection as defined by Web of Science. In total, there are ten distinct document types with the most frequent ones being “Article Paper” (over 62%), The other document types have negligible shares, with the exception of “Book Review” (25%), which can be considered as a special sort of journal articles, and “Editorial Material “ (nearly 7%). The type “Proceedings Paper” is somewhat (4%) of papers However, journal articles account for more than 62% of all 4407 citations received by the 908 documents under study.

**Table 2 Document Types**

| Sl. No. | Document Types | Records | % OF 908 |
|---|---|---|---|
| 1 | ARTICLE | 563 | 62.004 |
| 2 | BOOK REVIEW | 224 | 24.67 |
| 3 | EDITORIAL MATERIAL | 59 | 6.498 |
| 4 | PROCEEDINGS PAPER | 32 | 3.524 |
| 5 | REVIEW | 22 | 2.423 |
| 6 | MEETING ABSTRACT | 15 | 1.652 |
| 7 | NOTE | 9 | 0.991 |
| 8 | NEWS ITEM | 5 | 0.551 |
| 9 | CORRECTION ADDITION | 3 | 0.33 |
| 10 | LETTER | 2 | 0.22 |

### 3.3 Languages Used

The situation is quite clear as far as the usage of languages is concerned. It is well known that Web of Science is almost exclusively focused on sources published in English and this is documented in Table 3 where the share of papers written in English reach above 89 %. In fact, German (5%) and Spanish (3%) papers.

### 3.4 Research Areas of Library and Information Science

Library and Information science in Web of Science is categorized into ten non-exclusive thematic groups whose shares in the total amount of papers are shown in Table-4 “Information Science Library Science” is the most prolific topic with nearly 96% of papers and The second and the third most abundant categories are “Computer science” and “Education and Educational research” Three research areas are outside display.

### 3.5 Countries

The primary source of Library and Information Science publications USA with 45% of all papers, followed by Canada (6%), the England (5.%), Spain (4%) Germany, China and Australia (3%), India, South Africa and Denmark (2%) as shown in Table 4. There were also other Countries /Territories not shown in Table 4, which Were mistakenly included in the core data set. Their number was 36, i.e., less than 1% of all records. 78 records do not contain data in the field being analyzed.

**Table 3 Language-wise Distribution of Papers**

| Sl.No. | Languages | Records | % OF 908 |
|---|---|---|---|
| 1 | ENGLISH | 807 | 88.877 |
| 2 | GERMAN | 41 | 4.515 |
| 3 | SPANISH | 31 | 3.414 |
| 4 | PORTUGUESE | 10 | 1.101 |
| 5 | JAPANESE | 8 | 0.881 |
| 6 | RUSSIAN | 3 | 0.330 |
| 7 | FRENCH | 2 | 0.220 |

**Table 4 Research Areas of Library and Information Science**

| Sl.No. | Research Areas | Records | % OF 908 |
|---|---|---|---|
| 1 | Information Science Library Science | 870 | 95.815 |
| 2 | Computer Science | 192 | 21.145 |
| 3 | Education Educational Research | 86 | 9.471 |
| 4 | History Philosophy Of Science | 9 | 0.991 |
| 5 | Social Sciences Other Topics | 4 | 0.441 |
| 6 | History | 4 | 0.441 |
| 7 | Engineering | 3 | 0.33 |
| 8 | Arts Humanities Other Topics | 3 | 0.33 |
| 9 | Agriculture | 3 | 0.33 |
| 10 | Philosophy | 2 | 0.22 |

**Table 5 Most Productive of Top 10 Countries and their Papers**

| Sl. No. | Countries / Territories | Records | % Of 908 |
|---|---|---|---|
| 1 | USA | 407 | 44.824 |
| 2 | CANADA | 54 | 5.947 |
| 3 | ENGLAND | 44 | 4.846 |
| 4 | SPAIN | 40 | 4.405 |
| 5 | GERMANY | 30 | 3.304 |
| 6 | PEOPLES R CHINA | 28 | 3.084 |
| 7 | AUSTRALIA | 24 | 2.643 |
| 8 | INDIA | 20 | 2.203 |
| 9 | SOUTH AFRICA | 16 | 1.762 |
| 10 | DENMARK | 16 | 1.762 |

### 3.6 Publication Sources

As far as the publication sources are concerned (see Table 6), the most papers appeared in the Journal of Education for Library and Information Science with about 8%all papers published, followed by the respected journals Library Information Science Research (7%), Library quarterly (6%) Information Research An International Electronic Journal (5%) rest of other is below 4%. There were also other Countries /Territories not shown in Table-6, there were 69 Publication source titles their values is 1 outside display options. 0.000% records do not contain data in the field being analyzed.

**Table 6 Publication Sources**

| Sl. No. | Source Titles | Records | % OF 908 |
|---|---|---|---|
| 1 | Journal Of Education For Library And Information Science | 59 | 6.498 |
| 2 | Library Information Science Research | 58 | 6.388 |
| 3 | Library Quarterly | 49 | 5.396 |
| 4 | Information Research An International Electronic Journal | 39 | 4.295 |
| 5 | Journal Of Academic Librarianship | 36 | 3.965 |
| 6 | Library Trends | 35 | 3.855 |
| 7 | Journal Of Documentation | 32 | 3.524 |
| 8 | College Research Libraries | 31 | 3.414 |
| 9 | Scientometrics | 24 | 2.643 |
| 10 | Journal Of The American Society For Information Science And Technology | 23 | 2.533 |

## 4. CONCLUSIONS

Library and information science are one of the research fields indexed in the Web of Science database by Thomson Reuters. Thus, it is possible to carry out bibliometric studies of Library and information science based on the data from Web of Science and this is precisely what we do in the present analysis. As per the Web of Science database, a total of 908 publications were published on Library and information science, which received 4407 citations during 1989-2016.

We acquired the data in October 2017 and used them for the following main contributions: We inspected the number of papers and according to document types, languages, Library and information science Research area, countries, and publication sources. The average number of publications per year was 33. The research records were peaked in 1990 1992 with 908 publications.

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# Bibliometric Study on Central University of Tamilnadu

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## Abstract

*This paper tags the ranking of Authors from Central University of Tamilnadu with highly cited paper, Source title etc. through Scopus database. From this analysis, the University has publications of 252 from various domains respectively. Author Kavitha L has highest publication of 38. Regarding to Highly cited paper author Ganeshpandian, M has highest citations of 49. Chemistry subject has highest records in the subject domain. Journal articles hold the first place in the document wise distribution, Royal society of Chemistry ranks first in source-wise.*

*Keywords: Citation score, Highly cited paper, h-index, Keywords, Scopus.*

## 1. INTRODUCTION

Research plays the vibrant role in the development of the country. Portrait of faculty members of any institution will uplift the institutions/ research organization for the welfare of the country which in turn provides funding for the further development of the research. Through this article the researcher can be sentient of their citations, h-index, highly cited papers and so on to add value to their publications. Here Scopus database is used to download the publications/ records for study.

## 2. METHODOLOGY

The study is focused on highly cited authors from Central University of Tamilnadu; the data were downloaded from the database Scopus (bibliographic database) for the study period 2009 to 2017. It also gives status about h-index, citation score for the author mentioned.

### 2.1 Year-wise Distribution of Publications

Table 1 show the year wise distribution of publications for the study period 2009 to 2017. Year 2016 has highest publications with 65 followed by 2015 with 50 records and 2014 has 48 records. Remaining years has below 50 publications.

**Table 1 Year-wise distribution of Publications**

| Year | Records | Year | Records |
|---|---|---|---|
| 2017 | 27 (10.71) | 2012 | 26 (10.32) |
| 2016 | **65 (25.79)** | 2011 | 3 (1.19) |
| 2015 | 50 (19.84) | 2010 | 1 (0.40) |
| 2014 | 48 (19.04) | 2009 | 1 (0.40) |
| 2013 | 31 (12.30) | **Total** | **252** |

### 2.2 Ranking of Authors based Publications

In this analytical period, authors have produced 252 paper contributions scattered over different source titles. In accordance to this the researcher has given the ranks according to their highest publications with minimum of 10 Publications from Central University of Tamilnadu and the table also depicts the total publications of the individual authors. The research shows the highest citation score, h-index and i10 index. Kavitha, L is the most productive author who published 38 papers with highest citation of 30 Scores; followed by Gopi, D has 36 publications with highest citation of 30, Ganeshpandian, M has 4 publications with highest citation of 49. Within four years scientist Kavitha Louis from Department of Physics (Central University of Tamilnadu) produced 38 papers.

**Table 2 Ranking of Authors**

| Author | Total Publications | Citation | h-index | Central University of TamilNadu | | | |
|---|---|---|---|---|---|---|---|
| | | | | Publications | Highest Citation | h-index | i10 - index |
| Kavitha, L. | 108 | 1436 | 24 | 38 | 30 | 8 | 7 |
| Gopi, D. | 110 | 1330 | 23 | 36 | 30 | 8 | 7 |
| Palaniandavar, M. | 136 | 4990 | 39 | 16 | 49 | 8 | 8 |
| Porsezian, K. | 69 | 487 | 12 | 15 | 15 | 6 | 5 |
| Nithyanandan, K. | 40 | 120 | 7 | 13 | 15 | 5 | 4 |
| Raja, R.V.J. | 56 | 267 | 11 | 12 | 15 | 6 | 5 |
| Rajeswari, D. | 15 | 178 | 8 | 12 | 30 | 8 | 4 |
| Madhurima, V. | 29 | 143 | 7 | 11 | 8 | 3 | - |
| Roy, P. | 67 | 346 | 11 | 11 | 16 | 3 | 1 |
| Pereira, M. | 53 | 462 | 12 | 10 | 2 | 2 | - |

## 2.3 Subject Domain-wise Distribution of Publications

Table 3 shows that among the different Subject domain categories top ten were shown in the below table. Chemistry tops first with 78 publications followed by Material Science, Physics and Astronomy with more than 50 articles respectively.

## 2.4 Document-wise Distribution

Table 4 shows that Total publications were scattered among 8 types of documents namely; Journal Article take hold of 232 publications; Conference Paper with 21, Review with 8, Book Chapter with 4, Article in Press and Letter with 2 each, Note and Short survey covers 1 article each.

**Table 3 Subject Domain-wise Distribution**

| Subject | Publications | Subject | Publications |
|---|---|---|---|
| Agricultural and Biological Sciences | 19 | Engineering | 39 |
| Arts and Humanities | 4 | Environmental Science | 11 |
| Biochemistry, Genetics and Molecular Biology | 31 | Immunology and Microbiology | 12 |
| Business, Management and Accounting | 3 | Materials Science | **72** |
| Chemical Engineering | 47 | Mathematics | 16 |
| Chemistry | **78** | Medicine | 22 |
| Computer Science | 6 | Multidisciplinary | 6 |
| Decision Sciences | 3 | Neuroscience | 1 |
| Dentistry | 3 | Pharmacology, Toxicology and Pharmaceutics | 13 |
| Earth and Planetary Sciences | 1 | Physics and Astronomy | **64** |
| Economics, Econometrics and Finance | 4 | Social Sciences | 5 |
| Energy | 7 | Veterinary | 14 |

### 2.5 Source Title-wise Distribution of Publications

Table 5 shows that among the sources-wise distribution Royal Society of Chemistry comes first with 18 records; and journal cite score value is 3.06. New Journal of Chemistry with 7 records (cite score 3.08) and Dalton Transactions with 6 records (3.85). Remaining source covers below five records.

**Table 4 Document-wise Distribution of Publications**

| Document Type | Publications | % |
|---|---|---|
| Article | 213 | 84.5 |
| Conference Paper | 21 | 8.3 |
| Review | 8 | 3.1 |
| Book Chapter | 4 | 1.5 |
| Article in Press | 2 | 0.79 |
| Letter | 2 | 0.79 |
| Note | 1 | 0.39 |
| Short Survey | 1 | 0.39 |

### 2.6 Keyword-wise Distribution of Publications

Table 6 shows that Publications convey precisely the thought contents of the papers. The potency of information concentrated on the titles of the papers is more than the rest of the section of the papers. Therefore, if a word occurs more frequently than expected it to occur, then it reflects the emphasis given by the authors about the research field of their interest. The important words called 'Key Word' are one of the best indicators to understand and grasp instantaneously the thought content of the papers, methodologies used and areas of research addressed to the high frequency keywords were "X Ray Diffraction" is topped with 26 publications, next "Scanning Electron Microscopy" with 25 publications. Table 6 shows that a list of high frequency keywords which appeared more times.

**Table 5 Source-wise Collaboration**

| Source Title | Publications | Cite Score | Impact Factor |
|---|---|---|---|
| RSC Advances | 18 | 3.06 | 3.29 |
| New Journal of Chemistry | 7 | 3.08 | 3.27 |
| Dalton Transactions | 6 | 3.85 | 4.18 |
| Indian Veterinary Journal | 6 | 0.02 | 0.03 |
| Applied Surface Science | 5 | 3.37 | 3.15 |
| Industrial And Engineering Chemistry Research | 4 | 3.10 | 2.58 |
| Journal of Inorganic Biochemistry | 4 | 3.12 | 3.44 |
| Spectrochimica Acta Part A Molecular And Biomolecular Spectroscopy | 4 | 2.47 | 2.10 |
| International Conference On Fiber Optics And Photonics Photonics 2012 | 3 | - | - |
| AIP Conference Proceedings | 3 | 0.21 | - |

**Table 6 Keyword Appeared in the Publications**

| Keyword | Publications |
|---|---|
| Nonhuman | 26 |
| X Ray Diffraction | 26 |
| Scanning Electron Microscopy | 25 |
| Animals | 22 |
| Human | 22 |
| Hydroxyapatite | 22 |
| Chemistry | 20 |
| Controlled Study | 20 |
| Animal | 19 |
| Unclassified Drug | 19 |

### 2.7 Institution-wise Distribution of Publications

Table 7 depicts the institution-wise collaboration, Periyar University has 46 publications. Tamil Nadu Veterinary and Animal Sciences University holds second place with 23 publications, followed by Pondicherry University, University of Madras and Bharathidasan University and so on.

### 2.8 Country-wise Collaboration

Table 8 indicates that, among the country-wise distribution of Central University of Tamilnadu covered by the study tops Portugal with 18 (7.1%) publications followed by Italy and Saudi Arabia with 14 (5.5%) each respectively.

**Table 7 Institutions-wise Collaboration**

| Institution | Publications |
|---|---|
| Periyar University | 46 |
| Tamil Nadu Veterinary and Animal Sciences University | 23 |
| Pondicherry University | 19 |
| University of Madras | 17 |
| Bharathidasan University | 17 |
| Abdus Salam International Centre for Theoretical Physics | 14 |
| King Saud University | 11 |
| University of Hyderabad | 11 |
| SASTRA University | 10 |
| Universidade do Minho | 10 |

**Table 8 Country-wise Distribution**

| Country | Publications |
|---|---|
| Portugal | 18 |
| Italy | 14 |
| Saudi Arabia | 14 |
| United States | 13 |
| Germany | 12 |
| Norway | 8 |
| China | 7 |
| South Korea | 7 |
| South Africa | 5 |
| Egypt | 4 |

## 2.9 Highly Cited Papers

Among the 252 papers, Ganeshpandian has received 49 co-authors: M. Loganathan, R. Suresh, E., (...), Akbarsha, M.A. Palaniandavar, M. for New ruthenium(II) Arene complexes of anthracenyl-appended diazacycloalkanes: Effect of Ligand intercalation and hydrophobicity on DNA and protein binding and cleavage and cytotoxicity followed by Dinakar, C., Bartels, D. with 45 citations for the paper Desiccation tolerance in resurrection plants: New insights from transcriptome, proteome, and metabolome analysis and so on.

**Table 9 shows Highly Cited Papers**

| Document title | Authors | Year | Source | Cited by |
|---|---|---|---|---|
| New ruthenium(II) arene complexes of anthracenyl-appended diazacycloalkanes: Effect of ligand intercalation and hydrophobicity on DNA and protein binding and cleavage and cytotoxicity | Ganeshpandian, M.,Loganathan, R., Suresh, E., (...), Akbarsha, M.A.,Palaniandavar, M. | 2014 | Dalton Transactions 43(3), pp. 1203-1219 | 49 |
| Desiccation tolerance in resurrection plants: New insights from transcriptome, proteome, and metabolome analysis | Dinakar, C., Bartels, D. | 2013 | Frontiers in Plant Science 4(NOV),482 Open Access | 45 |
| Interaction of mixed ligand copper(II) complexes with CT DNA and BSA: Effect of primary ligand hydrophobicity on DNA and protein binding and cleavage and anticancer activities | Ganeshpandian, M.,Loganathan, R.,Ramakrishnan, S., (...),Akbarsha, M.A.,Palaniandavar, M. | 2013 | Polyhedron 52, pp. 924-938 | 43 |
| Copper(ii) complexes with 2NO and 3N donor ligands: Synthesis, structures and chemical nuclease and anticancer activities | Rajarajeswari, C.,Loganathan, R.,Palaniandavar, M., (...),Riyasdeen, A., Akbarsha, M.A. | 2013 | Dalton Transactions 42(23), pp. 8347-8363 | 42 |
| A comparative study on the morphological features of highly ordered MgO:AgO nanocube arrays prepared via a hydrothermal method | Kaviyarasu, K.,Manikandan, E.,Kennedy, J., Maaza, M. | 2015 | RSC Advances 5(100), pp. 82421-82428 | 37 |
| Effects of nano size mischmetal and its oxide on improving the hydrogen sorption behaviour of MgH2 | Sadhasivam, T., Sterlin Leo Hudson, M.,Pandey, S.K., (...),Gurunathan, K.,Srivastava, O.N. | 2013 | International Journal of Hydrogen Energy 38(18), pp. 7353-7362 | 36 |

| | | | | |
|---|---|---|---|---|
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| The hyperaccumulator Sedum plumbizincicola harbors metal-resistant endophytic bacteria that improve its phytoextraction capacity in multi-metal contaminated soil | Ma, Y., Oliveira, R.S.,Nai, F., (...), Rocha, I.,Freitas, H. | 2015 | Journal of Environmental Management 156, pp. 62-69 | 29 |

## 3. FINDINGS AND CONCLUSION

Through this analysis the following findings were drawn

- The Study found that scientist Kavitha Louis and D. Gopi are most productive authors and they have published articles in high impact journals with the range of impact factor from (1- 4).
- The study found that the ranges of citations are 2-49.
- The study found that 165 papers Received citations and remaining 106 papers doesn't have citations
- This paper gives the publication of Central University of Tamilnadu Scientists/ Researcher using Scopus database. Through this study the researcher can know about their research and in what way they can exploit in a better way than the previous research.

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# A Study on User Attitude towards Library Facilities and Services with Special Reference to M.G. University, Kerala

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**Abstract**

*The present study was intended to examine the nature of user's attitude and library resources with reference to Mahatma Gandhi University (MG University) Kerala. The problem of the present study is styled as, "A study on user Attitude Towards Library Facilities and Services with Reference to Mahatma Gandhi University, Kerala". After giving a brief profile about the university and the districts covered by the University, objectives for the study have been framed. A sample of 1200 respondents have been selected on the basis of stratified random sampling method. Respondents are drawn from both students and staff of different faculties of study. For the study both primary and secondary sources of information were collected. For the collection of primary data, a structured, close ended questionnaire was used. For analysis and interpretation, statistical tools such as averages, percentage, ANOVA analysis, chi-square test, and Regression coefficient were used. The outcome of the study have been summarized under findings of the study. Wherever possible suggestions have been offered.*

***Keywords:*** *Attitude, Chi-Square, ANOVA, Regression Coefficient, Psychological.*

## 1. INTRODUCTION

'Use' is the key purpose and 'user' is the key and dynamic component of any library and information system. 'user' is a person who uses a library. The users are the ultimate recipients of information in the communication cycle. The user is an important part in an information system. The individual as a user may vary in relation to attitudes, behavior, communication, experience, habit and cultural background. User attitude towards information varies according to the intended use, although the users in particular working environment may have common view points and often share the same priorities in the value of information. Use is whatever individual actually uses. A use may be a satisfied demand, or it may be the result of borrowing or a chance. Individuals can use only what is available in library and information service.

## 2. ATTITUDE

Attitude is a tendency to act or react in a certain manner when confronted with certain stimuli. It is an object or a person who is in a state of readiness to think, feel about and act towards the object in a certain way. It denotes the inter-feelings of a person towards a particular psychological object. Hence, the belief, feeling and response tendencies packed up in an individual constitute his or her attitude towards a particular object.

Thurstone and Chave define attitude as a generalized reaction for or against a specific psychological object. The object may be a person or a group, a kind of object or living things, concepts or values, events or situations, institutions or system. Attitudes have three components namely cognitive, affective and behavioural-cognitive. Component refers to the individual's knowledge of the attitude with varying degree of attitude about what is true or false, desirable or the undesirable. Affective or feeling component is central to the attitude, because under suitable conditions, the belief is capable of arousing feeling of varying intensity around the object of belief or other objects taking a positive or negative position with respect to the object of belief. Behavioral component includes all the behavioural readiness associated with the attitude. If an individual holds a favourable attitude towards a given object he will be disposed to support the object, act favorably towards it.

## 3. STATEMENT OF THE PROBLEM

Libraries are organized information centers as they have limited resources with which they have to satisfy the information needs of the users and attitudes towards seeking their needs. Therefore, libraries have to build up

their collections and facilities to meet user's satisfaction. The present study was intended to examine the nature of user's attitude and the library resources with reference to Mahatma Gandhi University, Kerala. The problem of the present study is styled as "A Study on User Attitude Towards Library Facilities and Services with Reference to Mahatma Gandhi University, Kerala".

## 4. M.G. UNIVERSITY - A PROFILE

Mahatma Gandhi University, one of the four affiliating Universities in Kerala, is the premier educational institution that strives to fulfill the higher educational needs of the people of central Kerala. The university was established on 2nd October 1983 and has jurisdiction over the revenue districts of Kottayam,Ernakulam, Idukki and Parts of Pathanamthitta and Alappuzha. This university conducts a range of Progammes at the undergraduate, post graduate, MPhil and doctoral level programmes through its 18 university departments, 82 aided affiliated colleges, 230 unaided affiliated colleges and 27 recognized research institutes.

The Mahatma Gandhi University Library is situated in the main campus of the University at Athirampuzha, on the top of the Priyadarshini Hill, 14 km away from Kottayam town. The M.G. University was one of the first fifty universities to come under the UGC- Infonet Programme. Through UGC- Infornet Programme. Through UGC-Infornet E-Journals, consortium, the library has access to more than 7500 e-journals and databases. The library also has access to major online databases such as EBSCO, Proquest Dissertations and Theses, Oxford Scholarship Online, IEEE All Society Periodicals Package etc.

## 5. REVIEW OF RELATED LITERATURE

- Balasubramanian, P. et.al. (2014) in their article studied all about the use an attitude towards electronic resources among librarians of colleges affiliated to Manonmaniam Sundaranar University, Tirunelveli. The article results that the most of the librarians use e-sources for the purpose of collaboraton in research projects that obtain the first rank. It is used for academic purpose, e-mailing, chatting, entertainment and purchasing of goods which obtain second, third, fourth, fifth and sixth rank respectively.
- Kirubaharan (2012) studied about "The user attitude towards the resources and the services of the University libraries in southern part of TamilNadu". The study reveals the following facts. It is identified that the library users are found more monthly users compared with other users. It is found that the PG Students and faculty members are seen more among the monthly users of all the Universities.
- Tahir *et.al*. (2009) conducted a study on "How Humanities use Libraries-A Survey of Art and Humanity Faculty at University of the Punjab, Lahore & Pakistan" shows that most of the university faculties who used the library feel themselves good in library and they frequently visit the library for reference materials using the reference materials and to search some specific information.
- Prabhavathi, D.(2008) conducted a study on post graduate students to identify the actual strength and weakness of the library resources and services and also the levels and kinds of user needs in Sri. Venkateswara University and M.S. University, Tirunelveli. Her study reveals that the main purpose of visiting the library is to prepare for general and competitive examinations and dissertations work. The PG students do not use the library frequently due to the unavailability of enough number and latest editions of books.
- Creaser (2006) made a study of user survey in academic libraries. The survey was to improve the services provided to users. The study recorded that high overall satisfaction level are good for publicity and may persuade institutional management that all are well with the library, but they should not lead to complacency with in the service.
- Thanuskodi and Ravi (2011) made a study about the use of digital resources by faculty and research scholars of M.S. University, Tirunelveli. The study was conducted using a questionnaire. The study comprised of faculty members and research scholars of the various departments of Manonmaniam Sundaranar University. The investigator analysed the data for 140 questionnaires. The result showed that the purpose of using digital resources by faculty members and research scholars is 64.28 percent of the faculty members and research scholars indicated that the digital resources were used for research purpose, 56.42 percent for publishing article/books, 46.42 percent to teaching purpose, 45.71 percent for keeping up-to-date in subject area., 34.28 percent for getting relevant information in the area of specialization and 32.85 percent of the faculties and research scholars use digital resources for getting current information. A large majority of the

respondents are of the opinion that the digital resources can never replace the printed resources.

## 6. SCOPE OF THE STUDY

The target of the study includes library users and library professionals of the Mahatma Gandhi University, Kottayam, Kerala. The geographical area of this study is confined to M.G. University, Kottayam District, Pathanamthitta District, Ernakulam District and Idukki District.

## 7. OBJECTIVES OF THE STUDY

The following are the main objectives of the present study

- To study the opinion of the library users with regard to the adequacy of the resources available in the libraries.
- To examine the differences in user attitude towards library sources on the basis of gender and subject specialization
- To identify the attitude of the library users towards the importance of information and library
- To study the association between various independent factors and the importance of information and library
- To evaluate the level of satisfaction among the library users towards various services rendered by the libraries.

## 8. HYPOTHESES

The following Null hypotheses and alternative hypotheses formulated and tested based on the objectives of the study.

- H0: There is no significant variation among the attitude of the respondents towards library sources based on the subject specialization.
  HI: There is a significant variation among the attitude of the respondents towards library sources based on the subject specialization.
- H0: There is no significant variation among he attitude of the respondent towards the library sources based on gender.
  H1: There is significant variation among the attitude of the respondents towards the library sources based on the gender
- H0: There is no significant association between the students and the staff and their level of satisfaction towards the services of libraries.
  H1: There is a significant association between the students and the staff and their level of satisfaction towards the services of libraries.
- H0: Satisfaction level of library services is independent of gender.
  H1: Satisfaction level of library services is associated to gender.

## 9. SAMPLING TECHNIQUE

The M.G. University has jurisdiction over the revenue districts of Kottayam, Ernakulam, Idukki and parts of Pathanamthitta and Alappuzha. Hence, the users belong to these districts constituted the population of the study. However for uniformity purpose a sample of 1200 users have been identified and selected for study. These respondents are selected at the rate of 300 per revenue district from the colleges affiliated to M.G. University, Kottayam.

## 10. TOOLS USED FOR COLLECTION OF DATA

For the present study, both primary and secondary data have been collected. For the collection of primary information, a structured, close-ended questionnaire was used. In addition, informal talk with knowledgeable persons and interview techniques with the library professionals were also made. Out of 1300 questionnaires distributed, only 1200 questionnaires were received back with complete information.

## 11. DATA ANALYSIS

The collected information were tabulated and analyzed according to the objectives and hypotheses stated. The entire statistical analysis is done using "Statistical Package for Social Science (SPSS)" software release 19.0 on window platform. SPSS provides a statistical analysis and data management system in a graphical environment.

To test the hypothesis, Chi-square test and ANOVA analysis and one way model are applied. In order to measure the user attitude, likert's five point scale is applied. The diagramatic and graphical representations of the data are also made wherever required.

## 12. LIMITATIONS OF THE STUDY

The present study is intended to cover only the faculty and students who are users of library from the Mahatma

Gandhi University area. The major limitation is that the investigator has limited the study by selecting samples from the four districts. The study is only an attempt to elicit and analyse the attitudes of the users. No attempt has been made to conduct the study on common public of the districts.

## 13. ANALYSIS AND INTERPRETATION

The data collected have been analysed mainly with reference to the objectives of the study, inferences have been made and suggestions have been offered for increasing the facilities and services of the library to enhance the level of satisfaction of the library users.

### 13.1 Gender-wise Respondents

Gender is one of the important independent variable of the user in a library. It determines the usage of the users and associates with the expectations of the development of libraries.

Table 1 shows that 839 (70%) of the respondents are male and 361(30%) are female users of library. It is inferred that more male students use library than the females.

**Table 1 Gender-wise Respondents**

| Sl. No | Gender | No. of Respondents | % |
|---|---|---|---|
| 1 | Male | 839 | 70% |
| 2 | Female | 361 | 30% |
| | Total | 1200 | 100 |

Source: Primary Data

### 13.2 Marital Status

Marital status is one of the important independent variables of the users in a library. Users are categorized on the basis of marital status either as married or as unmarred.

Table 2 shows the details of the respondents on the basis of marital status. About 143(12%) out of 1200 respondents are married and 1057 (88%) are unmarried. The married respondents are mostly staff members and research scholars.

**Table 2 Marital Status of Respondents**

| Sl. No | Marital Status | No. of Respondents | % |
|---|---|---|---|
| 1 | Married | 143 | 12% |
| 2 | Unmarried | 1057 | 88% |
| | Total | 1200 | 100 |

Source: calculated form primary data

### 13.3 Subject-wise Respondents

The respondents belong to different disciplines of study such as Physical Science, Biological Science, Mathematics, Commerce, English, History and Malayalam (Regional Language). The details are shown in table 3.

Table 3 gives details of the respondents according to the subjects they are specializing. About 325 (27%) are students of Physical Science, 332 (28%) are students of Biological Science, 158(13%) are from Mathematics faculty, 113(09%) from Commerce faculty. About 138 (11%) are from the department of English language and Literature and another 56(05%) from Malayalam Language and literature and 78 (07%) from the faculties of History and Economics. It is inferred that a majority of library utilisers are from physical and biological sciences.

**Table 3 Subject-wise Respondents**

| Sl. No. | Subject | No. of Respondents | % |
|---|---|---|---|
| 1 | Physical Science | 325 | 27 |
| 2 | Biological Science | 332 | 28 |
| 3 | Mathematics | 158 | 13 |
| 4 | Commerce | 113 | 09 |
| 5 | English Literature | 138 | 11 |
| 6 | Malayalam Literature | 56 | 05 |
| 7 | History & Economics | 78 | 07 |
| | Total | 1200 | 100 |

Source: Calculated from Primary Data

### 13.4 Adequacy of Sources Available

Library collections are very important for the effective use of the information resources by the respondents. Users know certain sources of information which is able to weight up and communicate. The researcher is interested to see the opinion of library sources among different subject specializations.

About 135 respondents overall attitude about the physical science subject is good and another 143 respondent's attitude is very good. With regard to Biological science, the overall attitude of 185 is good and that of 90 it is very good. With regard to maths the overall attitude of the 85 respondents is good and another 48 is very good. With regard to commerce, the overall attitude for 78 it is good and for 18 it is very good. About 56 respondents overall attitude from English Language and Literature is good and for another 76 it is very good. For Malayalam language and literature, the overall attitude for 25 is good and for another 31 it is very good. For Economics and History faculty respondents, the overall attitude is good for 37 and for another 36 it is very good. It is inferred that the overall attitude 601 out of 1200 constituting 50% of the respondents is good.

**Table 4 Subject and Overall Attitude of Users about all Library Sources**

| Subject Specialization | Overall opinion of respondents | | | | |
|---|---|---|---|---|---|
| | Fair | Good | Very Good | Excellent | Total |
| Physical Science | 47 | 135 | 143 | 0 | 325 |
| Biological Science | 38 | 185 | 90 | 19 | 332 |
| Mathematics | 20 | 85 | 48 | 05 | 158 |
| Commerce | 17 | 78 | 18 | 0 | 113 |
| English (L &L) | 06 | 56 | 76 | 0 | 138 |
| Malayalam (L &L) | -0- | 25 | 31 | 0 | 56 |
| History & Economics | 02 | 37 | 36 | 03 | 78 |
| Total | 130 | 601 | 442 | 27 | 1200 |

Source: Computed from Primary Data

### 13.5 Subject and Overall Attitude about all Library Sources- One way ANOVA

Table 5 indicates whether group means are same (combined between group effects) The table indicates that there is a probability of 0.000 that the F-ratio of 8.558 would have occurred by chance. Here, the observed significance value is less than .05. There is a significant variation among attitude of the respondents towards the library sources based on the subject specialization.

**Table 5 Subject and Overall Attitude about all Library Sources- One way ANOVA**

| Overall Opinion About All Library Sources | Some of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between groups | 23.453 | 6 | 3.909 | 8.558 | 0.000 |
| Within group | 544.917 | 1193 | 0.457 | | |
| Total | 568.370 | 1199 | | | |

Source: Calculated from Primary Data

### 13.6 Importance of Information and Library, Gender –wise

Table 6 shows the Gender-wise preference towards the importance of information and library. About 16 males and 29 females fall under the category of disagree. About 246 males and 584 females come under the category of undecided. About 99 males an 224 female respondents agree the importance of information and library. Only 2 female respondents have strongly agreed the importance of information and library. A total of 830 respondents stated "undecided".

### Testing of Hypothesis

H0: Importance of the information and library is independent of gender

H1: Importance of information and library is associated of gender

**Table 6 Importance of Information and Library, Gender-wise**

| Opinion | Gender | | Total |
|---|---|---|---|
| | Male | Female | |
| Disagree | 16 | 29 | 45 |
| Undecided | 246 | 584 | 830 |
| Agree | 99 | 224 | 323 |
| Strongly Agree | 0 | 2 | 2 |
| Total | 361 | 839 | 1200 |

Source: Computed from Primary Data

### 13.7 Gender and Importance of Information and Library: Chi-square test

It has been inferred from table 7 that the calculated chi-square value (1.629) is less than the table value (7.82), the null hypothesis is rejected. Hence it is concluded that there is no association between gender information and library.

**Table 7 Gender and Importance of Information and Library: Chi-square test**

| Calculated Value of | Value | Df | Asymp. Sig 2 – sided |
|---|---|---|---|
| Pearson chi-square | 1.629 | 3 | 0.653 |
| No of valid cases | 1200 | - | -- |

Source: Computed from Primary Data

### 13.8 District and Overall Satisfaction of Library Services

Library services are to cover searching and retrieval, dissemination, notification, translation and document reproduction. It covers user services such as circulation, inter-library loan, reference, current awareness service, photocopy, translation, document reservation and bibliographical. Table 8 shows the district-wise classification and overall satisfaction of all the library services.

Table 8 gives the details of respondents overall satisfaction district-wise. About 106 respondents stated excellent, 642 stated very good, 429 stated 'Good' and only 23 stated fair. It is inferred that the overall satisfaction is very good.

### 13.9 District Overall Satisfaction of Library Services- Chi-square Tests

Table 9 shows that the calculated value (61.121) is more than the table value (16.92), the null hypothesis is rejected and alternative hypothesis is accepted. It is concluded that there is an association between the district and the overall satisfaction on library services.

**Table 8 District and Overall Satisfaction of Library Services**

| Overall Satisfaction | District-wise Respondents | | | | Total |
|---|---|---|---|---|---|
| | Kottayam | Ernakulam | Idukki | Pathanamthitta | |
| Fair | 9 | 4 | 10 | 0 | 23 |
| Good | 171 | 132 | 86 | 40 | 429 |
| Very Good | 231 | 153 | 114 | 144 | 642 |
| Excellent | 51 | 33 | 18 | 04 | 106 |
| Total | 462 | 322 | 228 | 188 | 1200 |

Source: Computed from Primary Data

**Table 9 District Overall Satisfaction of Library Services- Chi-square Tests**

| | Value | Df | Asymp. Sig. 2 – sided |
|---|---|---|---|
| Pearson chi-square | 61.121 | 9 | 0.000 |
| No of Valid Cases | 1200 | - | - |

### 13.10 Opinion of Individual Library Services and Opinion of Overall Library Services

Table 10 shows the Regression Coefficient. Here, the unstandardised coefficients and stadardised coefficients are calculated. The standardized coefficients or betas are an attempt to make the regression coefficient more comparable as often the independent variables are measured in different units. We transform the data to z scores prior to our regression analysis, we would get the beta coefficient for unstandardised co-efficients are the co-efficients of the estimated regression model. Here, the estimated model is;

Overall opinion of Library Service = 0.073+ 0.147. Reference Service+0.175 current Awareness service +0.177 Book Lending Service+0.154, Reprographic service+0.143, Information display on notice board+0.201 Bibliographic Services.

The higher the Coefficients is the greater its influence o the opinion regarding overall library sources. So, here, e-journals, text books and reference books are the most important sources of library. The significance values for all the independent variables are 0.000. from this it can be inferred that all the library services influences the overall opinion about library services.

**Table 10 Opinion of Individual Library Services and Opinion of Overall Library Services: Regression Coefficient**

| Model | Un Standardized Coefficient | | Standardized Coefficient | t | Sig. |
|---|---|---|---|---|---|
| | B | Std Error | Beta | | |
| Constant | 0.073 | 0.056 | - | 1.291 | 0.197 |
| Reference service | 0.147 | 0.012 | 0.173 | 12.650 | 0.000 |
| Current awareness service | 0.175 | 0.010 | 0.237 | 17.761 | 0.000 |
| Books lending service | 0.177 | 0.10 | 0.250 | 17.953 | 0.000 |
| Reprographic service | 0.154 | 0.008 | 0.247 | 18.849 | 0.000 |
| Information display on notice board | 0.143 | 0.008 | 0.246 | 17.264 | 0.000 |
| Bibliography services | 0.201 | 0.008 | 0.360 | 26.172 | 0.000 |
| a. Dependent variable: overall satisfaction of library service. | | | | | |

## 14. FINDINGS OF THE STUDY

The following are some of the findings of the study;

- The result shows that subject specialization and overall attitude about all library sources. About 47 respondents overall attitude about the physical science subject is fair, 38 respondents attitude about biological subject is fair, 17 respondents overall attitude about commerce is fair. About 135 respondents overall about Physical Science, 185 of the biological subject, 85 of the Mathematics subject, 78 of the Commerce subject, 56 respondents from English, 25 respondents from Malayalam language and Literature and 37 respondents from History & Economics overall attitude about their subject is good. Only a total of 27 respondents consisting of 19 from Biological Science, 5 from Mathematics and another from history, overall attitude is excellent.
- The respondents of the study consisted of students and staff form the faculties of Physical Science, Biological science, Mathematics, Commerce, English Language and Literature, Malayalam Language and Literature and Humanities such as History and Economics. It is inferred that a majority of library utilisers are from Physical and Biological Science.
- It is inferred from the study that the overall attitude with regard to adequacy of sources available in the libraries is good as 601 out of 1200 constituting 50% of the respondents opined as good.
- The ANOVA analysis revealed that there is a significant variation among attitude of the respondents towards library sources based on the subject specialization.
- It is inferred from the Chi-square test that the calculated Chi-square value (1.629) is less than the table value (7.82) , the null hypothesis is accepted and it is concluded that there is no association between gender, information and library.
- With regard to overall satisfaction of library services, district- wise 231 respondents from Kottayam district, 153 from Ernakulam district, 114 from Idukki District and 144 from Pathanamthitta District stated very good. Since more than 50% of the respondents stated very good it is inferred that the overall satisfaction is very good.

- The analysis of Chi-square test shows that there is an association between the district and the overall satisfaction of library services.
- The regression Co-efficient analysis also reveals that all the library services influences the overall opinion about library services.

## 15. SUGGESTIONS

Based on the findings of the study the following suggestions are put forward to improve the usage of library sources among the users of Mahatma Gandhi University Library, Kottayam.

- Library needs to add new books and reference resources in various subjects, disciplines, increase the number of journals and add more electronic databases.
- Library needs more computers with speed internet access for the use of the students.
- Library needs to automate all the library operations by using integrated library software packages.
- A factor comparison of the attitudes towards information sources and service of users in Kerala with respect to select variables such as sex, gender, age, types of library etc.
- Studies of library attitude towards information sources and services in relation with certain psychological and institutional variables of the users such as encourage the users and utilize the facilities.
- The users should be adequately encouraged to use the library resources
- Attitude of users can be changed through user educational programmes, workshop on the use of library sources and services in the library.

## 16. CONCLUSION

The modern society is based on the availability of information and its resources. The results will be helpful for the librarian in understanding the user's background, attitude with libraries and information facilities. The results of the study will be useful not only to the stakeholders but also to the librarians. The results of the study will be helpful t the librarians to understand the shortcoming of the library stated by the users and they may try to provide all the resources and satisfy the users in future.

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# An Assessment of Service Quality and Library User Satisfaction in Academic Library: An Empirical Study of GIMS, Library, Gunupur (Odisha)

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**Abstract**

*User satisfaction and the quality being received by user are most imperative issue for library these days. Every library must understand the user's need and satisfy accordingly in orders to remain competitive in this digital environment. Service quality plays very significant in every library, because it heads towards higher customer satisfaction, user loyalty and retention. Thus it is very important to the libraries to come out with a solution to understand the user's need and satisfy them. The main purpose of this article is to describe how users perceive service quality of GIMS, Library and whether they are satisfy with the service offered to them. In this study, SERVQUAL model is used to assess the user perceived service and the present service offered to them in GIMS, Library.*

***Keywords:*** *Data Interpretation, Rater, SERVQUAL*

## 1. INTRODUCTION

An academic library is considered as the heart of the learning center, which provides a place for faculties, students, and research scholars to perform research and acquire knowledge. With the advent of information technology, most of the scholar shifted towards e-resource and virtual information. There is an urgent need for academic library to assess the quality of its services. Further, service quality of customer is highly essential for every organization to strive towards improving the service quality and the recognition of suitable criteria. In this digital era, Academic libraries play vital role to catering their library users, providing essential quality service to attract the users towards library. In the past, library quality was known as the collection size, an assessment occurred what the library has rather than what the library offer service. Quality is considered as one of the most multi faceted concept; one library can be approached form different perspectives. Parasuraman, Zeithaml and Berry define quality as the extent to which a product or service meets and or exceeds a customer's expectations. This definition grew out of the services marketing literature wherein researchers argued that a "conformance-to-specifications" definition of quality failed to address the unique characteristics of services. It is very essential for all libraries to know how well their performance by getting feedback from users because it is the factor for libraries to succeed in service performance.

SERVQUAL model has been applied in this study to examine the library service quality of GIMS, Gunupur and find out the gap between user expectation and service quality of GIMS, Library has been discussed.

## 2. ABOUT GIMS, GUNUPUR

Gandhi Institute of Management studies is one of the premier B school situated in the south east odisha the city called as Gunupur. GIMS has a separate library with more than 3600 sqft built area. The Library has around 12500 volume and 1989 titles, 33 e-journals and print journal are available. Apart from that the library has subscribe various e- resource to cater its users need. The library is fully Air-condition, automation with Koha open source software and also provides Digital repository using Dspace software.

## 3. LITERATURE REVIEW

Musyoka, 2010 Surveyed using SERVEQUAL to determine library user expectations and perceptions levels among universities in Kenya, to determine the levels of service quality in libraries among universities in Kenya and to examine whether there exist any relationship between service quality and library user satisfaction among universities in Kenya. Kiran, 2010 in his paper describes the results of a study examine the perception of academic staff on the quality of academic library services. It also attempts to assess the impact of library

services on their work and their perceived level of satisfaction towards university library services. Cullen, 2001 examines in his paper how user surveys have been employed in a number of previously published data sets. Thus he set a model which demonstrates how satisfaction can be seen as both a micro-level response to individual transactions and at the macro-level as an outcome of service quality is proposed. Rusuli,2013 deployed in his article Structural Equation Modeling approach (SEM) to evaluate the significant relationship between factors/ variables selected. Nimsomboon, 2003 examines the overall service quality of Thammasat University Library System from users' perspectives, as well as s the dimensions that determine the customers' evaluation of service quality. Bamidele, 2013 investigate the use, effectiveness and satisfaction with library services. He applied descriptive research design in his study.

## 4. SERVEQUAL MODEL

SERVEQUAL is a service quality measurement tool developed by Zeithmai, Parasuram and Bery in the mid of 80s. It is widely used within service industries to recognize the perception of service quality by target customer and to provide measurement of the service quality of an organization. It is also known as Gap Analysis because, it is used for Gap analysis of an organization's service quality performance against the service quality needs of its customers. The main aspect of service quality is RATER.

## 5. RATER

**RATER** is a service quality measurement aspect of SERVEQUAL. It uses multidimensional approach to identify limitation of service quality, which helps to identify a problem why it happens and how to avoid them.

- Reliability: Provides promised service consistently, accurately, and on a timely basis?
- Assurance: Staffs are knowledgeable, skills, and credibility to inspire trust and confidence?
- Tangible: Physical aspects of the service (offices, equipment, or employees) appealing?
- Empathy: Good relationship between employees and customers?
- Responsiveness: Organisation provides fast, high-quality service to customers?

## 6. RESEARCH OBJECTIVE

The objective of the study was carried out an assessment of library user's perceived service quality and the service quality offered by GIMS, library by using SERVQUAL model. It also measures the service quality and user satisfaction to understand its applicability. Further, it is to know both the expectations and perceptions of user and also measure them from their perspective in order to identify gaps in delivering service quality and to ensure user satisfaction. Hence, this study would like to answer the following two research questions.

• How do users perceive service quality in Library?
• Do the users satisfied with the service quality offered by GIMS, Gunupur?

## 7. LIMITATION OF THE STUDY

This study is confined to GIMS, Gunupur, Odisha to understand how the different user expected the library service quality and the quality of library service offered to them by GIMS, Library. The approx population of the college is about 360 students, out of which more than 156 students regularly visit the library. Thus, 156 students were the population of the study.

## 8. METHODOLOGY

The paper was carried out a quantitative study and the research design is cross sectional design in which data has been collected from respondents using self completion questionnaires to make the study very fruitful. This study was not compared to any other library service, rather trying to measure service quality of user satisfaction from the user's perspective. By using this methodology all the questions of the research are full filled. This survey was based on the SERVEQUAL model which is basically designed to measure the service quality of any organization. This model enables to obtain answers from users about their perceptions and the study assumes the phenomena, service quality and user satisfaction. The population of this study is students, both undergraduate and post graduate of GIMS, Gunupur, who visit the library continuously. Data have been collected from the user personally and analysed it using SPSS-24 software. Different test like Cronbach's alpha , Gap Score and Reliability test have been applied to finding out better conclusion.

## 9. ANALYSIS AND RESULTS OF THE STUDY

156 questionnaires were distributed personally to the regular users of GIMS,Library. Out of 156, 25 questionnaires were rejected, and remain 131 users given their perception and the response rate was around 83.97%. From the beginning of data analysis, reliability test has been conducted based on 5. Likerts scale using cronbbach's alphas to check the internal consistency and reliability of the 5 dimensions of SERVQUAL model. Further, Gap Score applied to measure between user's perceived quality service and expectation of library service. and Descriptive analysis is deployed to measure each dimension of SERVEQUAL model. The above test computed through using SPSS-24 package.

### 9.1 Demographic Profile of the Users

The demographic profile of the users were used in this survey to know the gender, category and usage of Library service by the respondents.Table-1 defines (99,76%) males accounted the highest respondent followed by female (32,24%). Regarding their education (88, 76%) of respondents are postgraduate and rest of (43, 24%) were post graduate students. In connection with using library service, the most (70, 33.17%) student were using 11-15 hours per week, followed by ( 48,22.74%) using 6-10 hours,( 41,19.43%), 0-5 hours, ( 38 ,18%) 15-12 hours and very least (14, 6.63%) were using for more than 20 hours per week.

**Table 1 Demographic Profile**

| Gender | Percentage |
|---|---|
| Male | 99(76%) |
| Female | 32 (24%) |
| **Education** | |
| Post graduate | 88 (67%) |
| Graduate | 43 (23%) |
| **Spending in Digital Library per Week** | **Frequency** |
| 0-5 hours | 41(19.43%) |
| 6-10 hours | 48(22.74%) |
| 11-15 hours | 70(33.17%) |
| 15-20 hours | 38 (18%) |
| More than 20 hours | 14 (6.63%) |

### 9.2 Reliability Coefficient of Perceive Service Quality

To understand, how the different variables are closely related and to check the internal consistency of the questionnaire Cornbach's alpha is deployed in this study. The values above 70 indicate that the questionnaires are consistent and need further analysis.

Reliability Coefficients

N of Cases = 50.0 N of Items = 22
Alpha = .8728

Table 2 clearly shows that the reliability coefficients of all dimension is .8728, indicates an overall reliability and the questionnaire is accepted for further analysis because the threshold of cronbach alfa is above 70.

### 9.3 Summary of Customer Expectation and Gap Score

Both expectation and perception were measured using 5.likert scale whereby it signifies the higher number, the higher level of expectation or perception. Generally the user's expectation is more than perception: which signifies that there is always need for improvement.

Table 3 clearly depicts the highest mean were found from perception variables of reliability dimension (R-3, 4.53 and R-4.50) rest are in below 4.50. Similarly of expectation variable the highest mean is from same reliability dimension (R-5, 4.878) followed by (4.824, A, 6 & Rs3 from assurance and responsiveness respectively.

Gap score=expectation- perception and these gap scores measure service quality and customer satisfaction. The highest gap score is loaded, (-1.28, A-1) from assurance, followed by -0.81, r2, -0.78, r5), rest all are below -.75, which signify that there is a need to improve those variable loaded in negative. Further it shows that some of the gap score loaded positive i.e 0.512, t-2, 0.309, r-3, 0.055,a-2, which clearly indicates that the expectation level of the user met with the service offered by the GIMS, Library.

**Table 2 Reliability Analysis - Scale (Alpha)**

| Item-total Statistics | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item Total Correlation | Alpha if Item Deleted |
|---|---|---|---|---|
| R1 | 87.0600 | 78.4249 | .3127 | .8718 |
| R2 | 87.6000 | 80.5306 | .2410 | .8729 |
| R3 | 87.0200 | 81.0404 | .1648 | .8749 |
| R4 | 87.5400 | 73.5596 | .5719 | .8634 |
| R5 | 87.5400 | 73.6820 | .5180 | .8654 |
| A1 | 88.2400 | 76.5535 | .3325 | .8727 |
| A2 | 87.6400 | 76.8882 | .2815 | .8756 |
| A3 | 87.2000 | 80.1633 | .2195 | .8739 |
| A4 | 87.1400 | 735106 | .6745 | .8604 |
| A5 | 87.4600 | 72.6208 | .7321 | .8584 |
| A6 | 87.3000 | 76.7857 | .3794 | .8701 |
| T1 | 87.3000 | 79.0306 | .3799 | .8698 |
| T2 | 87.6000 | 79.8367 | .3399 | .8708 |
| T3 | 87.5600 | 73.5167 | .5352 | .8647 |
| T4 | 87.1400 | 73.5106 | .6745 | .8604 |
| Ei | 87.5400 | 73.5596 | .5719 | .8634 |
| E2 | 87.5400 | 73.5596 | .5719 | .8634 |
| E3 | 87.1200 | 73.4547 | .6777 | .8603 |
| RS1 | 87.4600 | 72.6208 | .7321 | .8584 |
| RS2 | 87.2800 | 76.7363 | .3801 | .8701 |
| RS3 | 87.3000 | 79.0306 | .3799 | .8698 |
| RS4 | 87.6000 | 79.8367 | .3399 | .8708 |

**Table 3 Customer Expectation and Gap Score**

| Dimension | Statement | Mean Perception | Mean Expectation | Gap Sore |
|---|---|---|---|---|
| Reliability | R1 | 4.50 | 4.672 | -0.17 |
| | R2 | 3.99 | 4.802 | -0.81 |
| | R3 | 4.53 | 4.221 | 0.309 |
| | R4 | 4.11 | 4.702 | -0.59 |
| | R5 | 4.10 | 4.878 | -0.78 |
| Assurance | A1 | 3.34 | 4.618 | -1.28 |
| | A2 | 3.94 | 3.886 | 0.055 |
| | A3 | 4.36 | 4.58 | -0.22 |
| | A4 | 4.44 | 4.672 | -0.23 |
| | A5 | 4.10 | 4.275 | -0.17 |
| | A6 | 4.24 | 4.824 | -0.58 |
| Tangible | T1 | 4.27 | 4.741 | -0.47 |
| | T2 | 3.97 | 3.458 | 0.512 |
| | T3 | 4.12 | 4.237 | -0.12 |
| | T4 | 4.44 | 4.496 | -0.06 |
| Empathy | E1 | 4.12 | 4.756 | -0.64 |
| | E2 | 4.12 | 4.573 | -0.45 |
| | E3 | 4.44 | 4.641 | -0.2 |
| Responsiveness | Rs1 | 4.10 | 4.351 | -0.25 |
| | Rs2 | 4.26 | 4.084 | 0.176 |
| | Rs3 | 4.27 | 4.824 | -0.55 |
| | Rs4 | 3.98 | 4.771 | -0.79 |
| Overall gap score for all 5 dimension | | | | -0.33 |

### 9.4 Gap Score Analysis

Gap score analysis helps to find out how the user perceive service quality of the Library and also try to identify, with which dimensions of service quality the users are most satisfied. Thus descriptive statistics have been deployed in this connection.

**Table 4.1 Descriptive Statistics for the Five Dimensions**

| Dimension | Mean | Std. Deviation | Skewness | Std Error of Skewness | Kurtosis | Std Eror Of Kurtosis | Sum |
|---|---|---|---|---|---|---|---|
| Average gape score of reliability | -.4082 | .4754 | 1.009 | .913 | -.311 | 2.000 | -2.04 |
| Average gap score of assurance | -.4042 | .4750 | -1.557 | .845 | 2.539 | 1.741 | -2.42 |
| Average gap score of tangibles | -.0345 | .4067 | .792 | 1.014 | 1.753 | 2.619 | -14 |
| Average gap score of empathy | -.4300 | .2207 | .404 | 1.225 | . | . | -1.29 |
| Average gap score of Responsiveness | -.3535 | .4164 | .543 | 1.014 | -.584 | 2.619 | -1.41 |

### 9.5 Overall Perceived Service Quality

**Table 4.2 Overall Gap Score of Five Domination**

| Overall Gap Score of Five Domination | |
|---|---|
| Mean | -0.332181818 |
| Standard Error | 0.088158668 |
| Median | -0.24 |
| Mode | -0.17 |
| Standard Deviation | 0.413500807 |
| Sample Variance | 0.170982918 |
| Kurtosis | 0.289841242 |
| Skewness | -0.092146745 |
| Range | 1.792 |
| Minimum | -1.28 |
| Maximum | 0.512 |
| Sum | -7.308 |
| Count | 22 |
| Confidence Level (95.0%) | 0.183335987 |

It depicts from table 4.1 & 4.2 that the overall gap score's mean of the 5 dimensions are negative with -0.3321. The highest mean gaps of individual dimension are (-.4300, empathy), (-.4082, reliability, -.4042, assurance and very little -.0345 is from tangible. This indicates, the expectation go above from the perceptions in library service of GIMS Gunupur.The standard deviation of the overall gap scores are not constant and loaded as 0.4135 which is less than of only one dimensions .2207 from empathy, little slightly upper from responsiveness with 0.4164 and higher then Reliability .4754, Assurance, .4750 and respectively, clearly suggests that there is no homogeneity and narrow opinion among the respondent.

### 10. Summary of Finding and Suggestion

In this paper the difference between user's expectation on library service and the service quality offered by GIMS library, Gunupur was assessed using the SERVQUAL model. The overall expectations gap score is -0.33, this implies the user's expectation is high from the actual library service provided by GIMS, Gunupur. Looking at the individual dimensions, it indicates that the user expects a lot from empathy dimension with a score of -.4300 followed by -.4082 reliability , -4042, assurance, -.3535 and responsiveness respectively. Only one dimension, tangible loaded positively with -.0345 which is lower than the overall gap score.

Similarly as per the gap score analysis, It is also found that there is no user's satisfaction in library service of GIMS, Gunupur . Although the overall service quality is low as perceived by user's but there is some positive score found from variables of some individual dimension, i.e from reliability(r- 0.309) assurance (a-2-0.055) Tangible (T-2, 0.512) and responsiveness rs-2, 0.176) respectively.

It is suggested that there is some level of satisfaction is presumed in the above variables and rest of all have not met user's expectation. It is evident from the study

that the library has to improve some of the performance found below expectation in order to maintain a high level of competitiveness.

The library has to look after the quality and different variables of individual dimension which loaded below of the overall gap score. For example : the library has to pay attention towards the staff, train them who to deal with the user, keep patient while meeting with the users need. Further the library staffs should attend various workshop training pogramme in-order to keep update with the new technology, which will help them to provides the to provides various resources systematically to the user. The library has to improve and provides some service i.e open access facility, RFID facility, user awareness service, web discover service, setting up library app, remote access facility, etc.

## 11. CONCLUSION

They survey has conducted to know how the SERVQUAL model using it's all dimensions to assess service quality of GIMS, Library, Gunupur. In concluding, to know how users perceive service quality and being able to measure service quality should helpful to provide reliability data to the management , which further helpful to improve the service quality of GIMS, library. It also enables the management to understand the various dimensions and how they are affected in service quality and user satisfaction. This leads to make necessary improve by identifying strengths and weakness of various library service providing in GIMS, Gunupur.

The top management of the institutions should go through all the variables of service quality and try to improve them in order to give better performance, which leads to the library service quality is to higher perceived service quality and user satisfaction.

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# Global Analysis of Repositories in 'Library and Information Science' in OPENDOAR

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**Abstract**

*This paper discusses the availability of the Repositories for subject 'Library and Information Science' in the World which are registered in OpenDOAR. And it further deals about the repositories by continents, organisation by continent, type, content and languages and various software. totally 126 repositories available which consists of 60 in Europe, 26 in Asia, 19 in North America, 6 from South America,10 from Africa, 4 from Australia and one repository in Caribbean. And also the minimum numbers of repositories are in 'Governmental' type repository. 55 repositories are used DSpace and 23 repositories are used EPrints software. Among the repositories, 30 repositories are having nearly 50000 numbers of records.*

**Keywords**: Content, Growth, Library and Information Science, Languages, Repositories, Software.

## 1. INTRODUCTION

Institutional Repositories are main digital collections for higher educational institutions and research organizations. These repositories are assembled in a directory called The Directory of Open Access Repositories – OpenDOAR. These repositories are open access resources and voluntarily participate in the directory. The contents of the directory are the collections of theses and dissertations and institute publications like journals and magazines and other publications reports, etc. This type of contents are very helpful to the researchers, aspirant researchers and scholars. OpenDOAR has also been identified as a key resource for the Open Access community and identified as the leader in repository directories in a study by Johns Hopkins University. OpenDOAR was one of the services which contributed to SHERPA being awarded the 2007 SPARC Europe Award for Outstanding Achievements in Scholarly Communications.

## 2. INSTITUTIONAL REPOSITORIES

An institutional repository is an online locus for collecting, preserving, and disseminating - in digital form - the intellectual output of an institution, particularly a research institution. Institutional repositories are contents which are created by the institutions. It is otherwise called institutions knowledge, power and information. Some of the reports of the institutions, developments of various sections, laboratories, new inventions, patents, publications of institute members, etc. The main contents of the institutional repositories are journal articles either pre-printed or author acceptance copies, institutionally developed e-learning materials, course materials, course contents, etc. The Repositories are in many shapes and size dependents up on the collection nature it may be small special collection, departmental collection, or every day work diary of the faculty members. Higher Education Institutions, at departmental or institutional level, which implies a certain level of commitment and intention to embed repository use and management into everyday work.

Many institutional repositories initially focused on research outputs and some still limit their collections to this type of content. Others have started to widen the original remit to include learning and teaching materials. The mission of an IR is to be "institutionally defined, scholarly, cumulative and perpetual, open and interoperable" 'A digital repository is one where digital content, assets, are stored and can be searched and retrieved for later use'. 'An institutional repository is the collective intellectual output of an institution recorded in a form that can be preserved and exploited. The use of repositories for research materials is now quite common 'as much of the Institutional Repository work to date has concentrated on research outputs'. According to Clifford Lynch (2005), "a university-based institutional repository is a set of services that a University offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the

stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and access or distribution."

## 3. REVIEW OF LITERATURE

Crow (2002) identified an institutional repository with four major qualities: institutionally defined, scholarly, cumulative and perpetual, and open and interoperable. Khan and Kumar Das (2008) stated that "A digital repository is one where digital content, assets, are stored and can be searched and retrieved for later use."According to Yeates (2003), "An institutional repository is the collective intellectual output of an institution recorded in a form that can be preserved and exploited." Dhanavandan (2014) found the recent trends and growth of Institutional Repository (IR) in south Asian countries. It found that the South Asian countries like India, Pakistan, Nepal, Bangladesh and Sri Lanka have institutional repositories in their respective libraries but Bhutan and Maldives are not having any repositories. Among the five countries, India 62(82.67%), Bangladesh 7(9.33%), Pakistan 3(4.00%), Sri Lanka 2(2.67%) and Nepal 1(1.33%) have developed respectively. Dhanavandan (2014) analysed the repositories for library and information science in the world.In this study the United States has 17 (14.17%) repositories for LIS, followed by the United Kingdom (12, 10.00%), and Germany (9, 7.50%). India is in the fifth position with 5 (4.17%) repositories on Library and Information Science subject. Nirmal Singh (2014) studied the role of Brazil, Russian Federation, India, China, and South Africa (BRICS) in open access movement with respect to DOAJ and OpenDOAR. Brazil and India are the leading Nations in BRICS in the open access movement in DOAJ. Similarly, these two countries are ahead of the rest with respect to the contribution of open access repositories to OpenDOAR.

## 4. OBJECTIVES OF THE STUDY

The following objectives are framed

- To find out continent repositories in library and information science
- To identify country wise repositories in library and information science
- To identify the various languages using in repositories
- To find out types of repositories
- To identify software were used in repositories

## 5. METHODOLOGY AND LIMITATION OF THE STUDY

This study is to find out the Institutional repositories available in subject of in library and information science edicine. The relevant data were collected form DOAR. There are twenty nine subject categories are available in the DOAR. But this study confined the only the repositories available in the subject of in library and information science. For this the required data has been collected from the open access directory from http:// www.opendoar.org/ on 25th July, 2017. It was analyzed by using diagrammatical and tabular presentation.

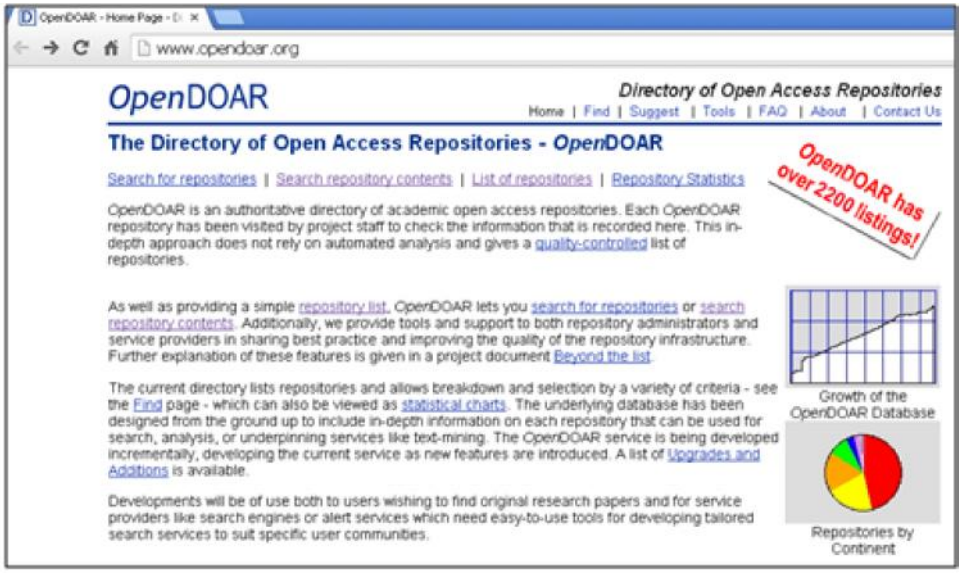


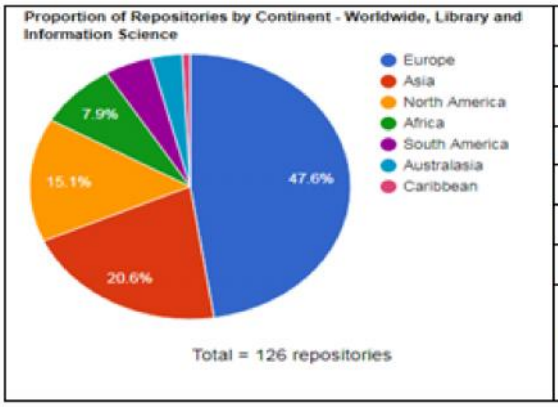

Fig. 1 Home of Directory of Open Access Repositories

## 6. ANALYSIS AND INTERPRETATION

This study is based on Repositories in the subject of Library and Information Science which are registered in the DOAR. The relevant sources are collected from OpenDOAR directory. The strength of the continent wise repositories were discussed in the table 1.

Table 1 shows the continent wise distribution repositories which are available in the subject of Library and Information Science at the global level. As per the respective sources totally 126 repositories available e which consists of 60 in Europe, 26 in Asia, 19 in North America, 6 from South America,10 from Africa, 4 from Australia and one repository in Caribbean. It reveals from the table, the highest numbers of repositories in Library and Information Science is available in Europe continent.

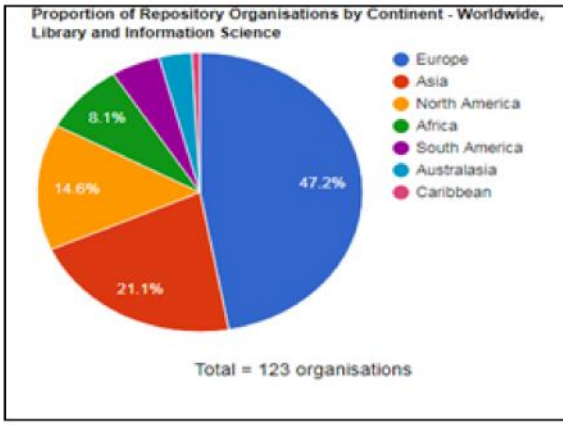
**Table 1 Continent-wise Repositories in Library and Information Science**




| Continent | No. of IRs | % |
|---|---|---|
| Europe | 60 | 47.6 |
| Asia | 26 | 20.6 |
| North America | 19 | 15.1 |
| Africa | 10 | 7.9 |
| South America | 6 | 4.8 |
| Australia | 4 | 3.2 |
| Caribbean | 1 | 0.8 |

Table 2 shows 2 the continent wise distribution repositories organisation which are available in the subject of Library and Information Science at the global level. As per the sources totally 123 repositories organisation available which consists of 58 in Europe, 26 in Asia, 18 in North America, 6 from South America, 10 from Africa, 4 from Australia and one repository Caribbean continent. It reveals from the table, the maximum number of repositories organisation available in Europe only.

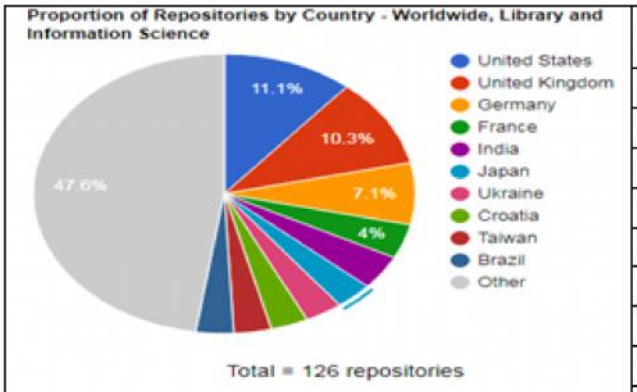
**Table 2 Repositories Organisations by Continent in Library and Information Science**




| Organisations by Continent | No. of IRs | % |
|---|---|---|
| Europe | 58 | 47.2 |
| Asia | 26 | 21.1 |
| North America | 18 | 14.6 |
| Africa | 10 | 8.1 |
| South America | 6 | 4.9 |
| Australia | 4 | 3.3 |
| Caribbean | 1 | 0.8 |

Table 3 states that the country wise distribution repositories which are available in the subject of Library and Information Science. Among the 126 repositories, 14 from United States, 13 from United Kingdom, 9 from Germany, 5 equally from France & India, 4 repositories equally from Japa, Ukraine, Croatia, Taiwan & Brazil and 60 from others countries. It is highlighted from the table; only 5 repositories are available in India.

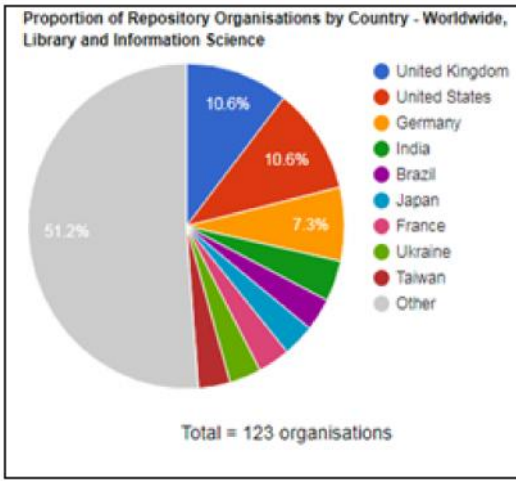
**Table 3 County-wise Repositories in Library and Information Science**




| Country | No. of IRs | % |
|---|---|---|
| United States | 14 | 11.1 |
| United Kingdom | 13 | 10.3 |
| Germany | 9 | 7.1 |
| France | 5 | 4 |
| India | 5 | 4 |
| Japan | 4 | 3.2 |
| Ukraine | 4 | 3.2 |
| Croatia | 4 | 3.2 |
| Taiwan | 4 | 3.2 |
| Brazil | 4 | 3.2 |
| Others | 60 | 47.6 |

Table 4 shows the country-wise distribution of repositories organisation which is available in the subject of Library and Information Science in DOAR at the global level. Among 123 organisation 13 from United States & United Kingdom, 9 from Germany, 5 from India, 4 repositories equally from Brazil, Japan, France, Ukraine & Taiwan and 66 from other countries. It is highlighted from the table, the highest number of repositories organisation are available in United States and United Kingdom.

**Table 4 County-wise Repositories by Organisations in Library and Information Science**




| Organisations by Country | No. of IRs | % |
|---|---|---|
| United Kingdom | 13 | 10.6 |
| United States | 13 | 10.6 |
| Germany | 9 | 7.3 |
| India | 5 | 4.1 |
| Brazil | 4 | 3.3 |
| Japan | 4 | 3.3 |
| France | 4 | 3.3 |
| Ukraine | 4 | 3.3 |
| Taiwan | 4 | 3.3 |
| Others | 66 | 53.65 |

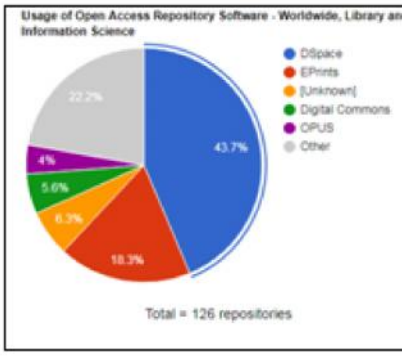
The table 5 shows that the software wise distribution repositories available in the subject of Library and Information Science which is registered in the DOAR. Among the 126 repositories, 55 repositories are used DSpace, 23 repositories are used EPRints, 4 repositories are used Digital Commons, 5 repositories are used OPUS and 28 repositories are used other software. It is pointed out that the 8 repositories do not mentioned their software in the respective sources.

The table 6 indicates that the types of open access repositories in the subject of Library and Information Science which are available in the DOAR. Among the 126 repositories, 104 repositories are 'Institutional', 15 repositories are 'Disciplinary', 3 repositories are 'Aggregating' and 9 repositories are Governmental. It is pointed out that the minimum number of repositories 'Governmental' type repository.

Further the types of repositories are categorised as follows:

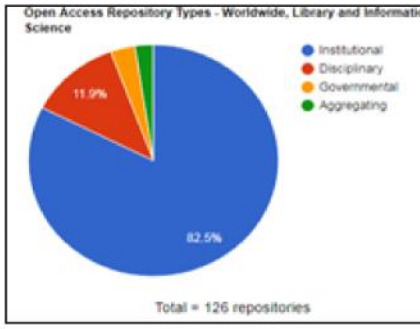
- **Undetermined:** A Repository whose type has not yet been assessed
- **Institutional:** An institutional or departmental
- **Disciplinary :** A Cross institutional subject repository
- **Aggregating:** An archive aggregating data from several subsidiary repositories
- **Governmental:** A repository for governmental data

**Table 5 Software-wise Repositories in Library and Information Science**




| Software | No. of IRs | % |
|---|---|---|
| Dspace | 55 | 43.7 |
| EPrints | 23 | 18.3 |
| Unknown | 8 | 6.3 |
| Digital Commons | 7 | 5.6 |
| OPUS | 5 | 4 |
| Other | 28 | 22.22 |

**Table 6 Types Open Access Repositories in Library and Information Science**



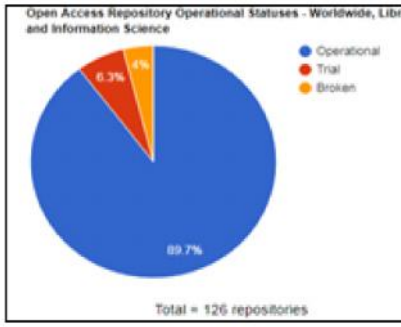

| Types of Repository | No. of IRs | % |
|---|---|---|
| Institutional | 104 | 82.5% |
| Disciplinary | 15 | 11.9% |
| Aggregating | 3 | 2.4% |
| Governmental | 4 | 3.2% |

The table 7 shows that the operational status-wise open access repositories for the subject of on Library and Information Science. Out of the 126 repositories, 113 repositories are 'Operational', 8 repositories are in 'Trial' and 5 repositories are in 'Broken' type of the operational status of the repositories. It is pointed out that the maximum number of repositories 'Operational' status of the repository.

Further the explanation of Operational Status of the repositories are categorised as follows

- **Undetermined:** Undetermined
- **Operational:** Fully functional
- **Trial :** Trial repository
- **Broken:** Technically malfunctioning
- **Closed:** Not accepting depositions

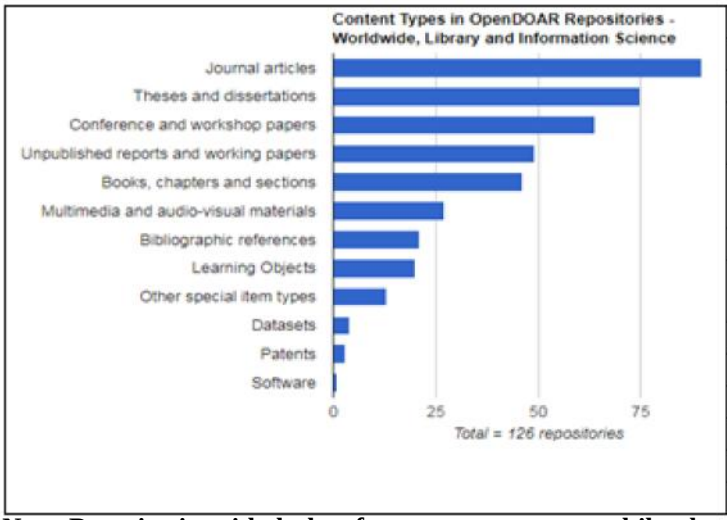
**Table 7 Operational Status-wise Repositories in Library and Information Science**




| Operational Status | No. of IRs | % |
|---|---|---|
| Operational | 113 | 89.7 |
| Trial | 8 | 6.3 |
| Broken | 5 | 4 |

The table 8 shows that the content type-wise open access repositories available for the subject of Library and Information Science. Among the 126 repositories, 90 repositories are provides Journal Article', and 75 repositories are provides 'Theses and dissertations'. Followed by 64 repositories are provides 'Conference and workshop papers', and 45 repositories are provides Books, chapters and sections'. It noted from the table, only three repositories provides the 'Patents' content.

**Table 8 Content Types-wise Repositories Available in Library and Information Science**




| Type of Contents | No. of IRs |
|---|---|
| Journal articles | 90 |
| Theses and dissertations | 75 |
| Conference and workshop papers | 64 |
| Unpublished reports and working papers | 49 |
| Books, chapters and sections | 46 |
| Multimedia and audio-visual materials | 27 |
| Bibliographic references | 21 |
| Learning Objects | 20 |
| Other special item types | 13 |
| Datasets | 4 |
| Patents | 3 |
| Software | 1 |

**Note: Repositories with the less-frequent content are multilevel**

The table 9 indicate languages-wise open access repositories available for the subject in Library and Information Science. Among the 126 repositories, 95 repositories are in 'English', 9 repositories in 'German' and 8 repositories in 'Spanish' language. Followed by equally two repositories are avalibale in the languages of like; Persian, Malay, Dutch & Russian. It noted from the table, only one repository is equally available in the languages of like; Welsh, Polish, Irish, Korean, Greek, Finnish, Turkish, Latin, Hindi, Czech, Swahili, Icelandic, Basque, Bulgarian, Serbian, Lithuanian, Hindi, Czech, Romanian, Hungarian and Kannada.

The table 10 states the growth of the Repositories *Open*DOAR Database for the subject of Library and Information Science. This graph shows the changing size of the *Open*DOAR Database over time to time. The shape of the chart in 2006 reflects the work of *Open*DOAR rather than the growth of the number of actual repositories. A backlog of new records built up while the database was being redeveloped during mid-2006, and clearing this backlog created the step in the graph. At the end of December 2006, totally 56 repositories are available. And followed by the repositories growth in each and every end the years like 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016 and July 2017 the number of repositories were 57,59,63,76,91,103,127,119,119,126 and 126 in the openDOAR. Finally at the end July 2017 there are 126 repositories are available in the subject of 'Library and Information Science' as per the data available the sources.

The table 11 shows the numbers of records are available in the subject of 'Library and Information Science' repositories' which are registered in OpenDOAR. The availability of numbers of recodres may categorised under sevel levels such as 500, 501-1000, 1001-2000, 2001-5000, 5001-10000, 10001-50000 and Above 50000. Among the 126, 32 repositories are having below 500, 11 repositories are in 501-1000, 14 repositories are equally having 1001-2000 & 2001-5000, 15 repositories are having 5001-10000, 30 repositories are having 10001-50000 and 9 repositories are having more than 50000 records. It noted from the table, 30 repositories are having nearly 50000 records.

**Table 9 Language-wise Repositories in Library and Information Science**

| Sl.No. | Languages | No. of Repositories | Sl.No. | Languages | No. of Repositories |
|---|---|---|---|---|---|
| 1 | English | 95 | 19 | Korean | 1 |
| 2 | German | 9 | 20 | Greek | 1 |
| 3 | Spanish | 8 | 21 | Finnish | 1 |
| 4 | Chinese | 6 | 22 | Turkish | 1 |
| 5 | French | 6 | 23 | Latin | 1 |
| 6 | Portuguese | 5 | 24 | Hindi | 1 |
| 7 | Ukrainian | 4 | 25 | Czech | 1 |
| 8 | Croatian | 3 | 26 | Swahili | 1 |
| 9 | Italian | 3 | 27 | Icelandic | 1 |
| 10 | Japanese | 3 | 28 | Basque | 1 |
| 11 | Arabic | 3 | 29 | Bulgarian | 1 |
| 12 | Persian | 2 | 30 | Serbian | 1 |
| 13 | Malay | 2 | 31 | Lithuanian | 1 |
| 14 | Dutch | 2 | 32 | Hindi | 1 |
| 15 | Russian | 2 | 33 | Czech | 1 |
| 16 | Welsh | 1 | 34 | Romanian | 1 |
| 17 | Polish | 1 | 35 | Hungarian | 1 |
| 18 | Irish | 1 | 36 | Kannada | 1 |

***Note: repositories with the less-frequent languages are multi-lingual.***

**Table 10 Growth of the Repositories*Open*DOAR Database**

| Sl. No. | Year | No. of Repositories | Total |
|---|---|---|---|
| 1 | Dec-2006 | 57 | 57 |
| 2 | Dec-2007 | - | 57 |
| 3 | Dec-2008 | 2 | 59 |
| 4 | Dec-2009 | 4 | 63 |
| 5 | Dec-2010 | 13 | 76 |
| 6 | Dec-2011 | 15 | 91 |
| 7 | Dec-2012 | 12 | 103 |
| 8 | Dec-2013 | 24 | 127 |
| 9 | Dec-2014 | - | 119 |
| 10 | Dec-2015 | - | 119 |
| 11 | Dec-2016 | 7 | 126 |
| 12 | July-2017 | 7 | 126 |

**Table 11 Number of Records in Library and Information Science Respositories**

| No. of Records | No. of IRs |
|---|---|
| 500 | 32 |
| 501-1000 | 11 |
| 1001-2000 | 14 |
| 2001-5000 | 14 |
| 5001-10000 | 15 |
| 10001-50000 | 30 |
| Above 50000 | 9 |
| Total | 126 |

## 7. CONCLUSION

The OpenDOAR is provides variety of academic contents to the user communities. The users are permited to searchable by locale, content and other measures. In the library and Information Science subject has good number of repositories as well as records. Now the entire academic world has in the transition period from paper to digital. In this scenario, the library professionals play the major role among the academic communities to create the knowledge and awareness of digital information sources as well repositories and it sources. And also the academic communities and researchers must utilise the resources available in the OpenDOAR in the global level then only able to survive the professions.

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# Factors Influencing the Contribution in Institutional Repository System among the Faculty Members, Coimbatore: A Study

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**Abstract**

*The study aimed to study the perception on various factors of academic parameters to deposit in the Institutional Repositories System. Majorities of the institutions had institutional repositories and three fourth of the respondents were depositing their works in their institutional repositories. The study aimed to analysis the factors influencing the contribution of Institutional Repository systems by the faculty members in the Coimbatore. The Study examined the vaiours factors such advocacy, accessibility, Altruistic intention Positive impact of self-archiving, Professional recognition, Pre-print culture, University or department action, Grant awarding body, Influence of other actors, Preservation, Publishers' policies prohibiting self-archiving, Support (Additional time & effort) and Monetary incentive for their contribution in the Institutional Repositories.*

***Keywords:*** *Institutional Repository, IR.*

## 1. INTRODUCTION

Libraries play a fundamental role, making easier for the students, teachers and researchers to access the means and resources to discover and build knowledge. In the same way, the professional staffs of these libraries acquire the function of a guide, in the sense of supporting the development of those competences that allow an effective and significant use of information and knowledge. The Institutional Repository (IR) is understood as an information system that collects, preserves, disseminates and provides access to the intellectual and academic output of the academic community. Nowadays, the IR is a key tool of the scientific and academic policy of the institution. On the other hand, access to the full text of the digital learning objects makes the repository become a fundamental support tool for teaching and research, whilst at the same time multiplying the institution's visibility in the international community. Within this scenario, it is the university libraries that must lead the implementation of the IRs to enhance the university's educational competitiveness, because of their experience in information management in all its forms and contact with knowledge.

### 1.1 Definition of IR

**According to Mark Ware, *Pathfinder Research on Web-based Repositories*** An institutional repository (IR) is defined to be a web-based database (repository) of scholarly material which is institutionally defined (as opposed to a subject-based repository); cumulative and perpetual (a collection of record); open and interoperable (e.g. using OAI-compliant software); and thus collects, stores and disseminates (is part of the process of scholarly communication). In addition, most would include long-term preservation of digital materials as a key function of IRs.

## 2. REVIEW OF LITERATURE

**Abdelrahman, Omer Hassan (2017)** indicated that, in order to enhance the usage of the repository by graduate students, there is a need for more awareness raising and advocacy programmes to be carried out by the library about the repository and its benefits to the academic community of the university. **Bates, Melanie (2016)** explored the rights and rewards associated with the deposit of materials into such repositories. The findings suggested what could be considered to be an 'ideal' repository from the contributors' perspective and also outline many of the concerns expressed by respondents in the survey.

**Sandy, H M (2016)** conducted study among U.S.-based repository administrators from the OpenDOAR initiative were surveyed to understand aspects of the quality and creation of their metadata, and how their metadata could improve. The discussion argues that increased strategic staffing will alleviate many perceived

issues with metadata quality. **Tiemo, Pereware Aghwotu (2016)** revealed that lecturers' awareness of institutional repository was high and most of the lecturers agreed that if the repository was established in the university it will enable them to deposit their work but this will violate the copy right law. It is recommended that librarians should create more awareness of IR and educate lecturers on the dangers of giving out the copy right of their work out to commercial publishers.

**Xia, Jingfeng (2016)** stated that when people were happy with the success of mandate policies in digital repositories, it was equally important to carry out quality control over repository content by setting up guidelines for self-archiving and understand how scholars perform self-archiving in and what expectations readers have for a repository and to establish IRs since the lecturers have positive attitudes towards the establishment.

**Gross, Julia (2015)** argued that OA publishing will continue to transform scholarship within the arts and humanities, especially through the role of institutional repositories. However, the ongoing training of university researchers and personnel is required to bring into balance their understandings of OA publisher and the demands of the broader Australian and international research environment. **Lee, Jongwook (2015)** confirmed the contribution of the IR in making papers available and accessible. The results also reveal some impediments to the success of OA: including impediments linked to contractual arrangements between authors and publishers, impediments linked to policies, practices, and technologies governing the IR itself, and the low level of faculty participation in the IR. **Ogbomo, Esoswo Francisca (2015)** concluded that universities should encourage promotional activities geared towards creating awareness of IR which will in turn enhance positive attitude towards IR establishment in universities. **Safdar, Muhammad (2015)** revealed that one third of the respondents came to know about PRR through library staff. The current study is first one in Pakistan of its type in terms of topic as no study has been conducted yet on this national program i.e. PRR. The study focuses on the importance of PRR from the users' point of view. Problems and users' satisfaction level with PRR are also discussed in the study.

## 3. AIM AND OBJECTIVES OF THE STUDY

The study attempted to study the factors influencing the contribution faculty members towards in the Institutional Repositories System. The study aimed to study the perception on various factors of academic parameters to deposit in the Institutional Repositories System.

## 4. METHODOLOGY

This study is a descriptive study in which the sample was elected by means of random sampling. A survey was used as a method of collecting the data. The data analysis is descriptive in nature. A structured questionnaire designed to collect the data from the Arts & Science and Engineering College faculty members working in Coimbatore of South India. Questions were designed to analysis perception on willing towards depositing the works in Institutional repository system in the areas of advocacy, accessibility, Altruistic intention Positive impact of self-archiving, Professional recognition, Pre-print culture, University or department action, Grant awarding body, Influence of other actors, Preservation, Publishers' policies prohibiting self-archiving, Support (Additional time & effort) and Monetary incentive. 90 samples were collected from faculty members.

## 5. ANALYSIS AND INTERPRETATION

Table 1 shows the gender wise distribution of the respondents. It is inferred that majorities (74%) of the respondents were male and 26% of the respondents were female.

**Table 1 Distribution of the Respondents by Gender**

| Sl. No. | Gender | No. of Respondents | % |
|---|---|---|---|
| 1 | Male | 67 | 74.4 |
| 2 | Female | 23 | 25.6 |
| | Total | 90 | 100 |

Table 2 shows the distribution of the respondents by their age. It is clear from the table that majorities (30%) of the respondents were in the age group o f 41-45. Around 26% of the respondents were in the age group of 36-40 and 21% of the respondents were in the age group of 31-35. 10% of the respondents were below 25 age. A 7% of the respondents were above 45 age and another 7% of the respondents were in the age group of 26-30.

**Table 2 Distribution of the Respondents by Age**

| Sl. No. | Age Group | No. of Respondents | % |
|---|---|---|---|
| 1 | Below 25 | 9 | 10 |
| 2 | 26-30 | 6 | 6.7 |
| 3 | 31-35 | 19 | 21.1 |
| 4 | 36-40 | 23 | 25.6 |
| 5 | 41-45 | 27 | 30 |
| 6 | Above 45 | 6 | 6.7 |
| | Total | 90 | 100 |

Table 3 shows the distribution of the respondents by their designation. It is clear from the table that majorities (67%) of the respondents were Assistant Professors. Around 26% of the respondents were Associate Professor and 8% of the respondents were Professors.

**Table 3 Distributions of the Respondents by Designation**

| Sl. No | Designation | No. of Respondents | % |
|---|---|---|---|
| 1 | Assistant Professor | 60 | 66.7 |
| 2 | Associate Professor | 23 | 25.6 |
| 3 | Professor | 7 | 7.8 |
| | Total | 90 | 100 |

Table 4 shows the type of institution where the respondents working. It is clear from the table that majorities (53%) of the respondents were working in Arts and Science colleges and 47% of the respondents were working in the Engineering Colleges.

**Table 4 Distribution of the Respondents by Type of Institution**

| Sl. No. | Type of Institution | No. of Respondents | % |
|---|---|---|---|
| 1 | Arts and Science | 48 | 53.3 |
| 2 | Engineering | 42 | 46.7 |
| | Total | 90 | 100 |

Table 5 shows the experience of the respondents. It is clear that majorities (24%) of the respondents had experience of 2-4 years and around 21% of the respondents had 5-6 years of experience. Around 20% of the respondents had below 2 years of experience and 13% of the respondents had above 10 years of experience. 11% of the respondents had 7-8 years of experience and 10% of the respondents had 9-10 years of experience.

**Table 5 Distributions of the Respondents by Experience**

| Sl. No. | Experience | No. of Respondents | % |
|---|---|---|---|
| 1 | Below 2 | 18 | 20 |
| 2 | 2-4 | 22 | 24.4 |
| 3 | 5-6 | 19 | 21.1 |
| 4 | 7-8 | 10 | 11.1 |
| 5 | 9-10 | 9 | 10 |
| 6 | Above 10 | 12 | 13.3 |
| | Total | 90 | 100 |

Table 6 shows the educational qualification of the respondents. It is clear that majorities of the respondents had PhD and 23% of the respondents had PG with MPhil. Around 19% of the respondents were pursing PhD and 11% of the respondents had PG degree.

**Table 6 Distribution of the Respondents by Educational Qualification**

| Sl. No | Educational Qualification | No. of Respondents | % |
|---|---|---|---|
| 1 | PG | 10 | 11.1 |
| 2 | PG with MPhil | 21 | 23.3 |
| 3 | Phd. | 42 | 46.7 |
| 4 | Pursing Phd | 17 | 18.9 |
| | Total | 90 | 100 |

Table 7 shows the Availability of institutional repositories in their respective institutions. It is noticed that majorities (79%) of the respondents' institutions had institutional repositories and remaining 21% of the respondents' institutions not having institutional repositories.

**Table 7 Availability of Institutional Repositories**

| Sl.No. | Availability of Institutional Repositories | No. of Respondents | % |
|---|---|---|---|
| 1 | Yes | 71 | 78.9 |
| 2 | No | 19 | 21.1 |
| | Total | 90 | 100 |

Table 8 shows the depositing the materials in the institutional repositories. It is noticed that majorities (73%) of the respondents were depositing their works in their institutional repositories and 27% of the respondents were not depositing their works in their institutional repositories.

**Table 8 Depositing the in the Institutional Repositories**

| Sl. No | Opinion | No. of Respondents | % |
|---|---|---|---|
| 1 | Yes | 52 | 73.2 |
| 2 | No | 19 | 26.8 |
| | Total | 71 | 100 |

Table 9 shows the various sources to know about institutional repositories. It is noticed that majorities (38%) of the respondents were aware of institutional repositories from other Librarians and Library Staff. 29% of the respondents were aware of institutional repositories through internet. 19% of the respondents were aware of institutional repositories from colleagues and their friends and 14% of the respondents were aware of institutional repositories from their faculty.

**Table 9 Sources to Know About Institutional Repositories**

| Sl. No. | Sources | No. of Respondents | % |
|---|---|---|---|
| 1 | Librarian/ Library Staff | 34 | 37.8 |
| 2 | From colleagues /friends | 17 | 18.9 |
| 3 | From faculty | 13 | 14.4 |
| 4 | Through Internet | 26 | 28.9 |
| | Total | 90 | 100 |

Table 10 shows the type of material are currently / willing in college's digital Repository. It is noticed that majorities (74%) of the respondents were depositing the research articles in their repository and 73% of the respondents were depositing the Full text thesis. 57% of the respondents were depositing books/books chapters. 43% of the respondents were depositing technical reports and 42% of the respondents were depositing.

**Table 10 Types of Material are Currently / Willing in College's Digital Repository**

| Sl. No. | Type of Materials | No. of Respondents | % |
|---|---|---|---|
| 1 | Thesis (Full Text) | 66 | 73.3 |
| 2 | Thesis (Abstract) | 36 | 40 |
| 3 | Research articles (Abstract) | 31 | 34.4 |
| 4 | Research Articles | 67 | 74.4 |
| 5 | Dissertations (Full text) | 38 | 42.2 |
| 6 | Books/Book Chapters | 51 | 56.7 |
| 7 | Video, Audio, Images | 27 | 30 |
| 8 | Technical Reports | 39 | 43.3 |
| 9 | Software's | 20 | 22.2 |

Table 11 shows the awareness level about the Institutional Repositories. It is clear from the table that majorities (36%) of the respondents were extremely aware about the institutional repositories and 34% of the respondents were moderately aware on institutional repositories. Around 21% of the respondents had somewhat aware about institutional repositories. 4% of the respondents had slightly aware and another 4% of the respondents not at all aware about institutional repositories.

**Table 11 The Awareness Level about the Institutional Repositories**

| Sl. No. | Level of Awareness | No. of Respondents | % |
|---|---|---|---|
| 1 | Extremely aware | 32 | 35.6 |
| 2 | Moderately aware | 31 | 34.4 |
| 3 | Somewhat aware | 19 | 21.1 |
| 4 | Slightly aware | 4 | 4.4 |
| 5 | Not at all aware | 4 | 4.4 |
| | Total | 90 | 100 |

Table 12 shows the advocacy factors of willingness to deposit the works in IR. It is inferred that majorities (60%) of the respondents were depositing in the IR for supporting the principles of open access and majorities (44%) of the respondents was depositing in the IR for involvement with innovative technology.

Table 13 shows the factors of willingness factor of accessibility to deposit their work in IR. It is inferred that among the accessibility factors, majorities (47%) of the respondents were depositing in the IR for making their work available to anyone from anywhere. majorities (56%) of the respondents were willing to deposit in the IR for making their work available to other students and majorities (42%) of the respondents were depositing their working IR for making their work available to others institution.

Table 14 shows altruistic intention factors to deposit the works in IR. It is inferred that among the altruistic intention factors, majorities (60%) of the respondents were willing to deposit in IR, due to giving good way of disseminating the work to the research community and beyond. majorities (32%) of the respondents were depositing their work for sharing materials with other research collaborators.

**Table 12 Advocacy Factor to Deposit the Work in IR**

| Sl. No. | Factors | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Supporting the Principle of Open Access | N | 23 | 31 | 15 | 12 | 9 | 90 | 2.48 | 1.28 |
| | | % | 25.56 | 34.44 | 16.67 | 13.33 | 10.00 | 100 | | |
| 2 | Involvement with Innovative Technology | N | 22 | 18 | 22 | 16 | 12 | 90 | 2.76 | 1.36 |
| | | % | 24.44 | 20.00 | 24.44 | 17.78 | 13.33 | 100 | | |

**Table 13 Accessibility Factor to Deposit the Work in IR**

| Sl. No. | Factors | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Making the Work Available to Anyone From Anywhere | N | 25 | 17 | 27 | 15 | 6 | 90 | 2.56 | 1.25 |
| | | % | 27.78 | 18.89 | 30.00 | 16.67 | 6.67 | 100 | | |
| 2 | Making the Work Available to Other Students | N | 26 | 24 | 22 | 12 | 6 | 90 | 2.42 | 1.23 |
| | | % | 28.89 | 26.67 | 24.44 | 13.33 | 6.67 | 100 | | |
| 3 | Making the Work Available to Others In the Institution | N | 13 | 25 | 32 | 13 | 7 | 90 | 2.73 | 1.12 |
| | | % | 14.44 | 27.78 | 35.56 | 14.44 | 7.78 | 100 | | |

**Table 14 Altruistic Intention Factor to Deposit the Work in IR**

| Sl. No. | Factors | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Good way of Disseminating the Work to the Research Community And Beyond | N | 13 | 41 | 18 | 12 | 6 | 90 | 2.52 | 1.10 |
| | | % | 14.44 | 45.56 | 20.00 | 13.33 | 6.67 | 100 | | |
| 2 | Sharing Material with Research Collaborators | N | 10 | 19 | 36 | 19 | 6 | 90 | 2.91 | 1.07 |
| | | % | 11.11 | 21.11 | 40.00 | 21.11 | 6.67 | 100 | | |

Table 15 shows the positive impact of self-archiving factor of willingness to deposit the works in IR. It is inferred that among the positive impact of self-archiving factor, majorities (50%) of the respondents were willing to submit IR which helpful for gathering information about the work for career purpose. Majorities (60%) of respondents were depositing for getting advantages of added services such as download counts, helpful for collecting and organising their work through IR and cross-searching. Majorities (39%) of the respondents were depositing in IR which able to publish supplementary material such as data sets, video clips or sound files. Majorities (35%) of the respondents were depositing for information about the benefits of doing so more. Majorities (65%) of the respondents were depositing in IR which helpful for collecting and organising their work.

Table 16 shows the professional recognition factor of depositing the works in IR. It is inferred that among the professional recognition factors, Majorities (36%) of the respondents were depositing in IR which help to establish priority or prove their ownership of their ideas. Majorities (46%) of the respondents were depositing in IR for retaining their IPR for their works.

**Table 15 Positive Impact of Self-Archiving Factor to Deposit the Work in IR**

| Sl. No. | Factors | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Helpful for Gathering Information about the Work for Career Purposes | N | 17 | 28 | 27 | 12 | 6 | 90 | 2.58 | 1.14 |
| | | % | 18.89 | 31.11 | 30.00 | 13.33 | 6.67 | 100 | | |
| 2 | Advantage of Added Services Such As Download Counts and Cross-Searching | N | 19 | 35 | 24 | 8 | 4 | 90 | 2.37 | 1.05 |
| | | % | 21.11 | 38.89 | 26.67 | 8.89 | 4.44 | 100 | | |
| 3 | Able to Publish Supplementary Material Such As Data Sets, Video Clips or Sound Files | N | 12 | 23 | 36 | 15 | 4 | 90 | 2.73 | 1.04 |
| | | % | 13.33 | 25.56 | 40.00 | 16.67 | 4.44 | 100 | | |
| 4 | Information about the Benefits of Doing So | N | 14 | 17 | 47 | 8 | 4 | 90 | 2.68 | 0.99 |
| | | % | 15.56 | 18.89 | 52.22 | 8.89 | 4.44 | 100 | | |
| 5 | Helpful for Collecting and Organizing My Work | N | 19 | 39 | 20 | 8 | 4 | 90 | 2.32 | 1.05 |
| | | % | 21.11 | 43.33 | 22.22 | 8.89 | 4.44 | 100 | | |

**Table 16 Professional Recognition Factor to Deposit the Work in IR**

| Sl. No | Factors | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Help to Establish Priority or Prove Ownership of Ideas | N | - | 32 | 38 | - | 20 | 90 | 3.09 | 1.12 |
| | | % | 0.00 | 35.56 | 42.22 | 0.00 | 22.22 | 100 | | |
| 2 | Retain the IPR for their Work | N | 25 | 16 | 21 | 19 | 9 | 90 | 2.68 | 1.35 |
| | | % | 27.78 | 17.78 | 23.33 | 21.11 | 10.00 | 100 | | |

Table 17 shows the pre-print culture factors of depositing in IR. It is inferred that among pre-print culture factors, Majorities (46%) of the respondents were depositing their work for getting feedback or commentary from others. Majorities (36%) of the respondents were depositing their work in IR for enable to publish their work very quickly. It is noticed that Majorities ( 24%) of the respondents were submitting their works in IR for practice for getting published elsewhere.

Table 18 shows University or department action of depositing their works in the IR. It is inferred that among the university or department factors, Majorities (39%) of the respondents were willing to deposit their works in IR for the encouragement of the library professionals. Majorities (36%) of the respondents were depositing their work for encouragement from their department and 31% of the respondents were depositing in the IR for the encouragement of their research supervisor and other faculty members.

Table 19 shows the grant awarding body and Influence of other factors to deposit the work in IR. It is inferred that among the grant awarding body and Influence of other factors to deposit, it is wondered that all the respondents were depositing their work in the IR for the encouragement to do so more works by the research funders. Majorities (61%) of the respondents were depositing their work for the encouragement from their co-authors to do more works. Majorities (36%) of the

respondents were depositing their works for the following the examples of many others. Majorities (57%) of the respondents were depositing their works in the IR for the encouragement from the fellow students to do more works.

**Table 17 Pre-print Culture Factor to Deposit the Work in IR**

| Sl. No | Factors | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Get Feedback or Commentary from Others | N | - | 41 | - | 40 | 9 | 90 | 3.19 | 1.13 |
| | | % | 0.00 | 45.56 | 0.00 | 44.44 | 10.00 | 100 | | |
| 2 | Enable to Publish the Work Very Quickly | N | 25 | 7 | 19 | 19 | 20 | 90 | 3.02 | 1.52 |
| | | % | 27.78 | 7.78 | 21.11 | 21.11 | 22.22 | 100 | | |
| 3 | Practice for Getting Published Elsewhere | N | 22 | - | 19 | 38 | 11 | 90 | 3.18 | 1.37 |
| | | % | 24.44 | 0.00 | 21.11 | 42.22 | 12.22 | 100 | | |

**Table 18 University or Department Action Factor to Deposit the Work in IR**

| Sl. No | Factors | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Encouragement of the Library | N | 9 | 26 | 36 | 19 | | 90 | 2.72 | 0.91 |
| | | % | 10.00 | 28.89 | 40.00 | 21.11 | | 100 | | |
| 2 | Encouragement of Department | N | 10 | 22 | 9 | 29 | 20 | 90 | 3.30 | 1.35 |
| | | % | 11.11 | 24.44 | 10.00 | 32.22 | 22.22 | 100 | | |
| 3 | Encouragement of Research Supervisor and Others | N | | 28 | 32 | 30 | | 90 | 3.02 | 0.81 |
| | | % | | 31.11 | 35.56 | 33.33 | | 100 | | |

**Table 19 Grant Awarding Body and Influence of Other Factors to Deposit the Work in IR**

| Sl. No | Factors | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Encouragement to do so by Research Funders | N | 9 | 81 | - | - | - | 90 | 1.90 | 0.30 |
| | | % | 10.00 | 90.00 | - | - | - | 100 | | |
| 2 | Encouragement to do so by co-Authors | N | - | 55 | 26 | 9 | - | 90 | 2.49 | 0.67 |
| | | % | - | 61.11 | 28.89 | 10.00 | - | 100 | | |
| 3 | Following the Example of Many Others | N | 6 | 26 | 38 | 20 | - | 90 | 2.80 | 0.86 |
| | | % | 6.67 | 28.89 | 42.22 | 22.22 | - | 100 | | |
| 4 | Encouragement to do so by Fellow Students | N | 6 | 45 | 39 | - | - | 90 | 2.37 | 0.61 |
| | | % | 6.67 | 50.00 | 43.33 | 0.00 | - | 100 | | |

Table 20 shows the preservation and publishers' policies prohibiting self-archiving factors to deposit the work in IR. It is inferred that among the preservation and publishers' policies prohibiting self-archiving factors, Majorities (57%) of the respondents were depositing their works in IR for getting an idea of work being permanently available and like to maintain the multiple versions of the works. Majorities (38%) of the respondents were depositing their work in IR for like someone else to take responsibility for preserving the work. Majorities (50%) of the respondents were depositing in IR for the publishers would not have exclusive rights over their works.

**Table 20 Preservation and Publishers' Policies Prohibiting Self-Archiving Factors to Deposit the Work in IR**

| Sl. No | Factors | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Idea of Work Being Permanently Available | N | 6 | 45 | 29 | 10 | - | 90 | 2.48 | 0.78 |
| | | % | 6.67 | 50.00 | 32.22 | 11.11 | - | 100 | | |
| 2 | Like to Maintain Multiple Versions Of The Work | N | 13 | 37 | 19 | 21 | - | 90 | 2.53 | 1.01 |
| | | % | 14.44 | 41.11 | 21.11 | 23.33 | - | 100 | | |
| 3 | Like Someone Else To Take Responsibility For Preserving The Work | N | - | 34 | 27 | 29 | - | 90 | 2.94 | 0.84 |
| | | % | 0.00 | 37.78 | 30.00 | 32.22 | - | 100 | | |
| 4 | Publishers Would Not Have Exclusive Rights Over The Work | N | 17 | 28 | 16 | 29 | - | 90 | 2.63 | 1.13 |
| | | % | 18.89 | 31.11 | 17.78 | 32.22 | - | 100 | | |

Table 21 shows the support (Additional time & effort) and monetary incentive factors to deposit the work in IR. It is inferred that among the support (Additional time & effort) and monetary incentive factors, Majorities (48%) of the respondents were depositing their work for the benefit of given training on how to do so and 46% of the respondents were depositing for paid to do so in IR. Majorities (46%) of the respondents were depositing for providing with step by step instructions online. Majorities (67%) of the respondents were depositing for the nominated as repository representative in their department which could go for advice.

**Table 21 Support (Additional time & effort) and Monetary Incentive Factors to Deposit the Work in IR**

| Sl. No | Factors | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Given Training on how to do so | N | | 43 | 7 | 29 | 11 | 90 | 3.09 | 1.14 |
| | | % | 0.00 | 47.78 | 7.78 | 32.22 | 12.22 | 100 | | |
| 2 | Provided with Step By Step Instructions Online | N | 7 | 34 | 19 | 19 | 11 | 90 | 2.92 | 1.18 |
| | | % | 7.78 | 37.78 | 21.11 | 21.11 | 12.22 | 100 | | |
| 3 | Nominated as Repository Representative in their Department Which Could Go for Advice | N | 22 | 38 | 30 | | | 90 | 2.09 | 0.76 |
| | | % | 24.44 | 42.22 | 33.33 | 0.00 | 0.00 | 100 | | |
| 4 | Paid to do so in IR | N | | 41 | 29 | 9 | 11 | 90 | 2.89 | 1.02 |
| | | % | 0.00 | 45.56 | 32.22 | 10.00 | 12.22 | 100 | | |

## 5. FINDINGS

- It is noticed that majorities (79%) of the respondents' institutions had institutional repositories and remaining 21% of the respondents' institutions not having institutional repositories.
- The study indicated that majorities (73%) of the respondents were depositing their works in their institutional repositories and 27% of the respondents were not depositing their works in their institutional repositories.

- It is noticed that majorities (38%) of the respondents were aware of institutional repositories from other Librarians and Library Staff. 29% of the respondents were aware of institutional repositories through internet.
- It is noticed that majorities (74%) of the respondents were depositing the research articles in their repository and 73% of the respondents were depositing the Full text thesis. 57% of the respondents were depositing books/books chapters.
- It is clear that majorities (36%) of the respondents were extremely aware about the institutional repositories and 34% of the respondents were moderately aware on institutional repositories.
- It is clear that majorities (34%) of the respondents agreed and 26% of the respondents were strongly agreed to support the principles of open access.
- It is noticed that majorities (24%) of the respondents were strongly agreed and 20% of the respondents were agreed about involvement of innovative technology of IR.
- It is inferred that majorities (60%) of the respondents were depositing in the IR for supporting the principles of open access and majorities (44%) of the respondents was depositing in the IR for involvement with innovative technology.
- It is inferred that among the accessibility factors, majorities (47%) of the respondents were depositing in the IR for making their work available to anyone from anywhere. majorities (56%) of the respondents were willing to deposit in the IR for making their work available to other students and majorities (42%) of the respondents were depositing their working IR for making their work available to others institution.
- It is inferred that among the altruistic intention factors, majorities (60%) of the respondents were willing to deposit in IR, due to giving good way of disseminating the work to the research community and beyond. majorities (32%) of the respondents were depositing their work for sharing materials with other research collaborators.
- It is inferred that among the positive impact of self-archiving factor, majorities (50%) of the respondents were willing to submit IR which helpful for gathering information about the work for career purpose. Majorities (60%) of respondents were depositing for getting advantages of added services such as download counts, helpful for collecting and organising their work through IR and cross-searching. Majorities (39%) of the respondents were depositing in IR which able to publish supplementary material such as data sets, video clips or sound files. Majorities (35%) of the respondents were depositing for information about the benefits of doing so more. Majorities (65%) of the respondents were depositing in IR which helpful for collecting and organising their work.
- It is inferred that among the professional recognition factors, Majorities (36%) of the respondents were depositing in IR which help to establish priority or prove their ownership of their ideas. Majorities (46%) of the respondents were depositing in IR for retaining their IPR for their works.
- It is inferred that among pre-print culture factors, Majorities (46%) of the respondents were depositing their work for getting feedback or commentary from others. Majorities (36%) of the respondents were depositing their work in IR for enable to publish their work very quickly. It is noticed that Majorities ( 24%) of the respondents were submitting their works in IR for practice for getting published elsewhere.
- It is inferred that among the university or department factors, Majorities (39%) of the respondents were willing to deposit their works in IR for the encouragement of the library professionals. Majorities (36%) of the respondents were depositing their work for encouragement from their department and 31% of the respondents were depositing in the IR for the encouragement of their research supervisor and other faculty members.
- It is inferred that among the grant awarding body and Influence of other factors to deposit, it is wondered that all the respondents were depositing their work in the IR for the encouragement to do so more works by the research funders. Majorities (61%) of the respondents were depositing their work for the encouragement from their co-authors to do more works. Majorities (36%) of the respondents were depositing their works for the following the examples of many others. Majorities (57%) of the respondents were depositing their works in the IR for the encouragement from the fellow students to do more works.
- It is inferred that among the preservation and publishers' policies prohibiting self-archiving factors, Majorities (57%) of the respondents were depositing their works in IR for getting an idea of work being permanently available and like to maintain the multiple versions of the works. Majorities (38%) of the respondents were depositing their work in IR for like someone else to take responsibility for preserving the work. Majorities (50%) of the respondents were

depositing in IR for the publishers would not have exclusive rights over their works.

- It is inferred that among the support (Additional time & effort) and monetary incentive factors, Majorities (48%) of the respondents were depositing their work for the benefit of given training on how to do so and 46% of the respondents were depositing for paid to do so in IR. Majorities (46%) of the respondents were depositing for providing with step by step instructions online. Majorities (67%) of the respondents were depositing for the nominated as repository representative in their department which could go for advice.

## 6. CONCLUSION

In any event, new technologies such as those designed to create IRs can be utilized in far more creative ways to enhance the research endeavour. The scientific contribution of the faculty members of education institutions produce need a new type of management to describe and analyse them, organise and present them. These environments could strengthen research and learning development and increase the effective work time, visibility of science which lead to motivate the students in an intrinsic and extrinsic way. Institutional repositories help to explore the knowledge of the faculty members. On the other hand it processes their positive attitude for depositing their working in the institutional repositories for various purposes. Institutional repositories (IRs) are increasingly deployed in academic institutions to manage a variety of digital content including educational, research, and archival materials. The benefits of IRs have been touted by many authors and include increased knowledge sharing.

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# ICT Skills Among Women Library Professionals at the Government Aided Colleges of Chennai Region

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**Abstract**

*This article is based on part of a survey that investigated the ICT knowledge and skills of Women librarians at the Government Colleges of Chennai Region. The study population of 19 library professionals, in the Government College libraries of the Chennai, were surveyed by means of a mailed questionnaire to establish in what ways women librarians were using ICTs, what the level of ICT knowledge and skill was amongst the women librarians, what problems the subject librarians faced in the use of ICTs and what their ICT training needs. Interpretation of the results revealed a low level of ICT knowledge and skill amongst subject librarians and a general lack of formal training for ICTs amongst the women librarians Chennai Region..*

## 1. INTRODUCTION

Colleges form the vital role of higher education and libraries in colleges are the primary sources of information for all the learning activities. The academy of general education occupies the most important place in spreading education for the public. Education institutions are the logical extension of the academy of general education in the dome of education. Women Librarians have always realized that the essential tool for development is education, they should lot of interest in founding and managing educational institutions. When public communities were deprived of education, it was the institutions who established educational institutions throughout Chennai which opened the gates of their colleges for the downtrodden.

The innovations in Information and Communication Technology have influenced libraries to serve better and adapt the changes. The libraries also changed drastically with service provision, collection of books from various fields, human resource planning and training. The LIS professionals also changed their mind set towards service and the management of libraries.
ICT skills is ability to use digital technology, communications tools and network to access, manage, integrate evaluate and create information in order to function give knowledge to the society.

## 2. STATEMENT OF PROBLEM

The study attempts to investigate ICT skills among the Women Library Professionals, Chennai under the Government college library professionals and analyze the need of training and orientation in ICT based services.

## 3. OBJECTIVES

- To find the skills of the library professionals
- To identify the awareness of the staffs various ICT based resources and services.
- To find out their confidence level in handling various ICT tasks
- To Find out the methods and the library professionals acquire ICT skills and training and orientation

## 4. SCOPE AND METHODOLOGY

The study is limited to the ICT skills among the Women Library Professionals, Chennai under the Government college library professionals and analyze the need of training and orientation in ICT based services, Which is include librarian and assistant librarian, technical assistants working in academy of general education colleges. The study of population comprised of 19 library professionals working in the academy of general education institution library. The library professionals were classified according to their designation in to three categories. Librarian, library assistant, and technical

assistants. The questionnaire was designed and distributed among these library professionals.

## 5. LIST OF COLLEGES

- Dr. MGR-Janaki College of Arts and Science for Women
- Bharathi Women's College
- Quaid-e-Millath Government College for Women
- Stella Maris College
- Queen Mary's College

## 6. DATA ANALYSIS

A study conducted to analyze the ICT skills among library professionals. Study populations of 19 library professionals were surveyed under study to assess the ICT skills among the library professionals. The data and its interpretation is presented below in the form of tables and graphs & figures.

### 6.1 Designation-wise Response

The data collected table shows the designation-wise response of library professionals all the library professionals working under the academy of general education colleges.

**Table 1 Designation-wise Response**

| | |
|---|---|
| Librarian | 6 |
| Library Assistant | 9 |
| Technical Assistant | 4 |
| Total | 19 |

## 7. ICT BASED TOOLS AND DEVICES

In the ICT challenges in 21st century and to meet the ever changing demand and rising needs of the users. Library professionals should get acquainted with the use of ICT based tools and devices to provide ICT based services in the library. Hence to investigate the ICT based tools and devices among library professionals the question was asked to indicate the current literary of ICT based tools and devices such as computer technology, storage devices, printing and scanning technology audio visual technology and communication media technology among library professionals.

All 19 library professionals i.e 100% professional have the skills using desktop computer, mobile, television, email and wi-fi. Since desktop computers have become an essential part of their daily work, mobiles and wi-fi as an essential devices for communication their literacy is obvious, and television is also every day watching. One could also find majority of the library professional skills in using printing and scanning technology, audio visual technology and also some of the communication media technology. Whereas when it comes to the computer technology such as smart phones, printing and scanning technology such as barcode reader, CD/DVD player and e-book reader, communication media technology such as voice mail teleconferencing, and Bluetooth technology, it is not satisfactory. It can be extracted here that majority of library professionals were well versed with the computer technology, storage devices, printing and scanning technology, audio visual technology and communication media technology, hence the skills about these emerging ICT technologies was found high among majority of library professionals.

**Table 2 ICT Based Tools and Devices**

| **Literacy of Computer Technology** | | | **Literacy of Audio Visual Technology** | | |
|---|---|---|---|---|---|
| Desktop Computer | 19 | 100 | Television | 19 | 100 |
| Laptop | 13 | 68.43 | CD/DVD Player | 15 | 78.94 |
| Mobile | 19 | 100 | Overhead Projector | 4 | 21.05 |
| Smart Phone | 7 | 36.84 | LCD Projector | 6 | 31.57 |
| Web Camera | 9 | 47.36 | Digital Cameras | 2 | 10.52 |
| **Literacy of storage** | | | **Literacy of Communication Media Technology** | | |
| USB Modem | 10 | 52.53 | Fax | 4 | 21.05 |
| Pen Drive | 11 | 57.89 | E-mail | 19 | 100 |
| CD/DVD | 14 | 73.68 | Internet | | |
| Portable Hard Disk | 8 | 42.10 | Telex | 1 | 00.05 |
| SD CARD | 8 | 42.10 | Intranet | 5 | 26.31 |

| Literacy of Printing and Scanning Technology | | | Voice Mail | 2 | 10.52 |
|---|---|---|---|---|---|
| Laser Printer | 17 | 89.47 | Bluetooth | 8 | 42.10 |
| Barcode Printer | 9 | 47.36 | Wi-Fi | 19 | 100 |
| Photocopy Machine | 13 | 68.42 | Tele conference | 6 | 31.57 |
| Scanner | 17 | 89.47 | | | |
| RFID Technology | 15 | 78.94 | | | |
| Barcode Reader | 4 | 21.05 | | | |
| E-book Reader | 5 | 26.31 | | | |

## 8. SKILLS OF INSTITUTIONAL REPOSITORY

Greenstone, Dspace, E-print and Fedora are most used for developing the institutional repository and digital library.

Data analyse figure 1 in that majority of respondents 7(36.84%) library professionals were found literate of Greenstone 4(21.05%) were skills of Dspace,2( 10.52%) were found to be literate of e-print and nobody has found library professional Fedora. It can be stated that the institutional repository and digital library software's was found low among library professions.

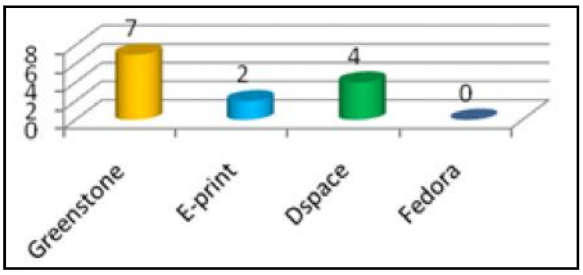


Fig.1 Skills of Institutional Repository

## 9. SKILLS OF ELECTRONIC RESOURCES AND SOCIAL MEDIA

The data collected and tabulated in clearly indicates that social media highest library professionals are skills of email/instant messaging/chat followed by 17(89.47%) audio/video sharing/webcasting (Flicker, skype, youtube, etc) and social networking (orkut, facebook, whatsapp etc) followed by 13(68.42%) library professionals literate of e-journals and e-newspapers. It can be observed that maximum library professionals are well literate of different electronic resources. It can accumulate that library professionals actively participating in social media and through this participation they keep themselves update with the new developments in libraries.

## 10. ICT Based Library Services

In the figure 3 Library professionals are respondents highest 20 of literate of internet services followed by 17(87.47%) literates of reprographic services 12(63.15%) CAS, 11(57.89%) OPAC, 10(52.63%) of SDI services. It can be summed up that, maximum library professionals are literates of internet services, reprographic services, OPAC, CD-ROM services, Digital library and archives services as they use these services as a part of their day to day working schedule were as other services like indexing services abstracting services SDI Bibliographic services and institutional repository etc. are being preferred for research purpose hence the literacy of these services is low among library professionals as compared to other services.

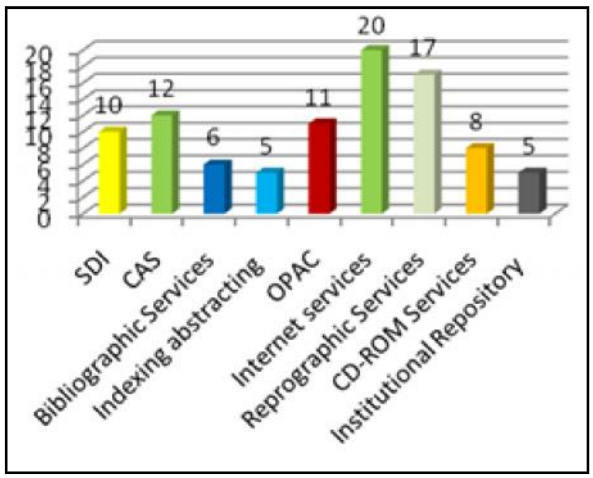


Fig.2 Skills of electronic resources and social media

## 11. LIBRARY AUTOMATED SOFTWARE

Library automation software are being more preferred by library professionals to automate the library services and activities, the library professionals were asked to indicate their current literacy of different library automations.

In figure 3 shows maximum 19(100%) library professionals are skill Easylib automation software, followed by 5 (26.31%) skills of Libsys , 4(21.05%) skills of soul and CDS/ISIS 3(15.78%) skills of E-granthalaya and Newgenlib is nobody. It can be extracted that maximum library professionals are literates of Easylib software as it has been installed in the all library services and activities.

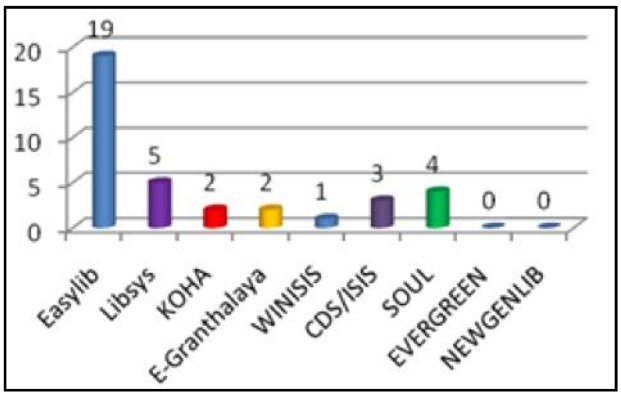


**Fig. 3 Library automated software**

## 12. FINDINGS

- Most of library professionals are skills of ICT based services, whereas other services like indexing services, Abstracting services are being preferred research purpose of these services is low among library professional as compared to their services.
- Majority of library professionals are skills of Esylib software as it has been installed in the College Library in Chennai. Few of the aware of CDS/ISIS, SOUL, Libsys library software whereas the digital library and intuitional repository software among library professionals is very low.
- Library professionals need training and orientation in ICT based resources, services and tools as maximum library professionals have indicated the need for training in digital library and intuitional repository software and ICT based resources and services.

## 13. CONCLUSION

The LIS professionals must possess sufficient knowledge of new ICT skills developing and maintaining digital libraries and institutional repositories, based library services etc. The present study reveals that ICT skills among library professionals working in Academy of General Education institution libraries is satisfactory and majority of library professionals have acquired considerable basic ICT skills to manage the library. But still there is enough scope to enhance their ICT skills and to implement these skills in libraries to provide new ICT based library services to users.

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# Dengue Research: A Bibliometric Analysis of Indian Publications during 1989- 2016

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**Abstract**

*The main objective of this study is to analyze the growth of publications in Dengue. The bibliometric analytical technique was used to examine this topic for a period of 1989-2016.Dengue is a mosquito-borne infectious tropical disease that has a particularly adverse impact on India. This study disclosed that India has one of the most prominent records in the world in terms of output of dengue articles and citations to them. Studying research productivity is a critical task that is important for understanding how science evolves and crucial for government to formulate policy. Bibliometric analysis of research output is important in universities and government agencies for research evaluation as it provides vital inputs for policy makers.The current study aimed to quantitatively analyze and compare the research publications productivity in Dengue between 1989and 2016 and indexed by Web of Science online Database. From the analysis of the study's findings, the highest numbers of papers were published during the year 2016. It also revealed that the least number of papers was recorded during 1989 with 2 records. Overall, 4872 authors contributed in 437 journals with 1541 records of the publications from 1800 number of institutions that were located in 108 numbers of countries.*

***Keywords**: Analysis, Bibliometrics, Dengue, Publications, Research*

## 1. INTRODUCTION

Dengue is an important emerging and re-emerging infection that poses major threat to global population. However, there was no significant information available on the bibliometric trend and pattern of research. The purpose of this study is to provide a bibliometric analysis of dengue from 1989 to 2016 in India. The standardized search approach based on the use of the keyword "dengue"in the title, abstract, and keyword field was used to get research output related to dengue. All data related to dengue were collected from 1989 to 2016.

This paper surveys the literature to evaluate the authorship pattern, growth of publication,etc. from 1989 to 2016. Bibliometric analysis is applied to examine this topic in Web of Science Index documents.

## 2. REVIEW OF LITERATURE

The scientific output of a country is measured by evaluating institutions or individual scientists. Two important parameters are examined, including over- all production and impact of scientific publications (Bornmann 2011; Cronin 1984; Franceschini et al.2007). The following three approaches are applied to evaluate these parameters using bibliometric indicators: i) counting the publication number; ii) counting the citation number; or iii) combining the first two counts to create hybrid indicators. Publication and citation counts are traditionally employed to indicate the influence or impact an author has within the research community (Adams 1990; Abramo&D'Angelo 2011, Wildegaard 2015).

Dengue viruses have spread rapidly within countries and across regions in the past few decades, resulting in an increased frequency of epidemics and severe dengue disease, hyperendemicity of multiple dengue virus serotypes in many tropical countries, and autochthonous transmission in Europe and the USA. Today, dengue is regarded as the most prevalent and rapidly spreading mosquito-borne viral disease of human beings (MG Guzman, E Harris2015).Sa'ed H. Zyoud. (2016) reveals that the leading countries in dengue research were the USA (4,709; 24.05 %), India (1,942; 9.92 %), Brazil (1,530; 7.81 %), Thailand (1,260; 6.43 %), the UK (1,129; 5.77 %), and France (1,087; 5.55 %).

## 3. OBJECTIVE

The main objective of this study is to analyze the growth of the research in Dengue that has arisen over the last few decades. The study also aims to evaluate the publication trend and authorship pattern.

## 4. DESIGN / METHODOLOGY

We have analyzed publications of journals between published between 1989 and 216. Furthermore, we have analyzed the relationship with the authorship pattern to detect the published journals. We have applied RGR and Doubling Time in this study 1989 and 2016, with an analysis from the perspective of both quantity and quality.

## 5. TIME FRAME AND INDICATORS

The 1989-2016 time periods was analyzed. In the geographic distribution we worked at the micro level with India. The data, for the study details such as Citation Score, Title, Authorship pattern, Total documents etc., retrieved from Web of Science online Database were downloaded and analyzed usingHistcite and Microsoft Excel.

## 6. ANALYSIS AND INTERPRETATION

This study has observed a total of 1541 publications in Dengue research over a period of twenty eight years from 1989 to 2016 and indexed by Web of Science online Database indicates that the publication output in India. The highest numbers of papers were published during the year 2016 with 283 records and the following year 2015 with 237 records. The least number of papers was recorded during 1989 with 2 records. Overall, 4872 authors contributed in 437 journals with 1541 records of the publications from 1800 numberof institutions that were located in 108 numbers of countries.

### 6.1 Year-Wise Distribution of the Publications

To analyze the year-wise publication of research on Mapping of Research Output in Dengue: A Bibliometric Study the data has been presented in Table-1. The table depicts the research output in India. From the below table, we could clearly see that during the period 1989-2016, a total of 1541 publications were published.

It is evident that a significant growth in terms of publications is registered from the year 2008. The year 2016 has the highest number of publications of 283(18.4%) with 115 TLCS and 916 TGCS values were scaled and ranked of top position among the 28 years output. .A less number of global citations for the year 1989 is 21.

Table 2 clearly shows that doubling time in number of publication was observed during the period 1989-2016, a total of 1541 publications, were published inIndia. Highest publication in the year 2016 with 283 records and the following year 2015 with237 records. The least publication in the year 1989 with 2 records and doubling time in number of publication was observed.

Table 3 shows that top10 ranking of journals according to their productivity. A total number of 437 journals from the articles published. These 437 journals are arranged in the decreasing order of productivity.

PARASITOLOGY RESEARCH ranked first in order published 88(5.7%) articles. INDIAN JOURNAL OF MEDICAL RESEARCH occupied second in order published 75(4.9%) articles during the period of study. JOURNAL OF VECTOR BORNE DISEASES third in order published 53(3.4%) articles. INDIAN JOURNAL OF PEDIATRICS ranked fourth in order published 35(2.3%) articles during the period of study the remaining journals ranked as to their published articles.

Table 4 The highest productivity of publications output (17.46%) from four authors. This is followed by two authors' contribution (17.33%).

### 6.2 Ranking Journals

Journals, one of the primary sources of information are the vehicles of current output of knowledge. The number of journals of articles can be a measure of the growth in the field of knowledge.

Table 5 shows that ranking of journals according to their productivity. The total number of 437 journals published 1541 articles. These 437 journals are arranged in the decreasing order of productivity.

**Table 1 Year-Wise Distribution of the Publications**

| Sl. No. | Publication Year | Recs | Percent | TLCS | TGCS |
|---|---|---|---|---|---|
| 1 | 1989 | 2 | 0.1 | 16 | 21 |
| 2 | 1990 | 7 | 0.5 | 71 | 122 |
| 3 | 1991 | 9 | 0.6 | 108 | 226 |
| 4 | 1992 | 6 | 0.4 | 57 | 98 |
| 5 | 1993 | 10 | 0.6 | 50 | 89 |
| 6 | 1994 | 5 | 0.3 | 46 | 70 |
| 7 | 1995 | 7 | 0.5 | 29 | 153 |
| 8 | 1996 | 10 | 0.6 | 68 | 198 |
| 9 | 1997 | 8 | 0.5 | 27 | 76 |
| 10 | 1998 | 13 | 0.8 | 81 | 306 |
| 11 | 1999 | 12 | 0.8 | 160 | 463 |
| 12 | 2000 | 12 | 0.8 | 94 | 407 |
| 13 | 2001 | 8 | 0.5 | 47 | 217 |
| 14 | 2002 | 9 | 0.6 | 65 | 263 |
| 15 | 2003 | 12 | 0.8 | 40 | 254 |
| 16 | 2004 | 21 | 1.4 | 128 | 421 |
| 17 | 2005 | 31 | 2.0 | 134 | 772 |
| 18 | 2006 | 47 | 3.0 | 278 | 1478 |
| 19 | 2007 | 36 | 2.3 | 134 | 570 |
| 20 | 2008 | 81 | 5.3 | 295 | 1507 |
| 21 | 2009 | 71 | 4.6 | 121 | 881 |
| 22 | 2010 | 84 | 5.5 | 258 | 1239 |
| 23 | 2011 | 100 | 6.5 | 225 | 1094 |
| 24 | 2012 | 134 | 8.7 | 326 | 1510 |
| 25 | 2013 | 133 | 8.6 | 128 | 895 |
| 26 | 2014 | 153 | 9.9 | 143 | 929 |
| 27 | 2015 | 237 | 15.4 | 279 | 1673 |
| 28 | 2016 | 283 | 18.4 | 115 | 916 |
| **Total** | | **1541** | | | |

***TLCS – Total Local Citation Score ** TGCS – Total Global Citation Score**

**Table 2 Doubling Time in Number of Publication was Observed During 1989-2016**

| Sl.No. | Publication Year | No. of Publications | Cumulative Total | LogeW1 | LogeW2 | R(a) | D |
|---|---|---|---|---|---|---|---|
| 1 | 1989 | 2 | 2 | | 0.69 | | |
| 2 | 1990 | 7 | 9 | 0.69 | 1.95 | 1.26 | 0.55 |
| 3 | 1991 | 9 | 18 | 1.95 | 2.20 | 0.25 | 2.77 |
| 4 | 1992 | 6 | 24 | 2.20 | 1.79 | 0.41 | 1.69 |
| 5 | 1993 | 10 | 34 | 1.79 | 2.30 | 0.51 | 1.36 |
| 6 | 1994 | 5 | 39 | 2.30 | 1.61 | 0.69 | 1.00 |
| 7 | 1995 | 7 | 46 | 1.61 | 1.95 | 0.34 | 2.04 |
| 8 | 1996 | 10 | 56 | 1.95 | 2.30 | 0.35 | 1.98 |
| 9 | 1997 | 8 | 64 | 2.30 | 2.08 | 0.22 | 3.15 |
| 10 | 1998 | 13 | 77 | 2.08 | 2.56 | 0.48 | 1.44 |
| 11 | 1999 | 12 | 89 | 2.56 | 2.48 | 0.08 | 8.66 |
| 12 | 2000 | 12 | 101 | 2.48 | 2.48 | 0 | 0.00 |
| 13 | 2001 | 8 | 109 | 2.48 | 2.08 | -0.4 | 1.73 |
| 14 | 2002 | 9 | 118 | 2.08 | 2.20 | 0.12 | 5.77 |
| 15 | 2003 | 12 | 130 | 2.20 | 2.48 | 0.28 | 2.48 |
| 16 | 2004 | 21 | 151 | 2.48 | 3.04 | 0.56 | 1.24 |
| 17 | 2005 | 31 | 182 | 3.04 | 3.43 | 0.39 | 1.78 |
| 18 | 2006 | 47 | 229 | 3.43 | 3.85 | 0.42 | 1.65 |
| 19 | 2007 | 36 | 265 | 3.85 | 3.58 | 0.27 | 2.57 |
| 20 | 2008 | 81 | 346 | 3.58 | 4.39 | 0.81 | 0.86 |
| 21 | 2009 | 71 | 417 | 4.39 | 4.26 | 0.13 | 5.33 |
| 22 | 2010 | 84 | 501 | 4.26 | 4.43 | 0.17 | 4.08 |
| 23 | 2011 | 100 | 601 | 4.43 | 4.61 | 0.18 | 3.85 |
| 24 | 2012 | 134 | 735 | 4.61 | 4.90 | 0.29 | 2.39 |
| 25 | 2013 | 133 | 868 | 4.90 | 4.89 | 0.01 | 69.30 |
| 26 | 2014 | 153 | 1021 | 4.89 | 5.03 | 0.14 | 4.95 |
| 27 | 2015 | 237 | 1258 | 5.03 | 5.47 | 0.44 | 1.58 |
| 28 | 2016 | 283 | 1541 | 5.47 | 5.65 | 0.18 | 3.85 |
| | **Total** | **1541** | | **5.65** | **7.34** | **1.69** | **0.41** |

**Table 3 Journal-wise Distributions of the Publications**

| Sl.No. | Journal | Records | % | TLCS | TGCS |
|---|---|---|---|---|---|
| 1 | Parasitology Research | 88 | 5.7 | 477 | 199.99 |
| 2 | Indian Journal Of Medical Research | 75 | 4.9 | 325 | 35.69 |
| 3 | Journal Of Vector Borne Diseases | 53 | 3.4 | 63 | 13.92 |
| 4 | Indian Journal Of Pediatrics | 35 | 2.3 | 22 | 4.9 |
| 5 | International Journal Of Infectious Diseases | 34 | 2.2 | 22 | 3.16 |
| 6 | Journal Of Evolution Of Medical And Dental Sciences-Jemds | 28 | 1.8 | 0 | 0 |
| 7 | Indian Pediatrics | 25 | 1.6 | 25 | 4.23 |
| 8 | American Journal Of Tropical Medicine And Hygiene | 23 | 1.5 | 74 | 10.02 |
| 9 | Asian Pacific Journal Of Tropical Medicine | 23 | 1.5 | 18 | 4.48 |
| 10 | Tropical Doctor | 20 | 1.3 | 34 | 5.61 |

**Table 4 Authorship Pattern of Publications**

| Authorship Pattern | No. of Contribution | % | Cumulative |
|---|---|---|---|
| 1 | 71 | 4.61 | 4.61 |
| 2 | 267 | 17.33 | 21.94 |
| 3 | 259 | 16.81 | 38.74 |
| 4 | 269 | 17.46 | 56.20 |
| 5 | 212 | 13.76 | 69.96 |
| 6 | 136 | 8.83 | 78.78 |
| 7 | 85 | 5.52 | 84.30 |
| 8 | 77 | 5.00 | 89.30 |
| 9 | 62 | 4.02 | 93.32 |
| 10+ | 103 | 6.68 | 100 |
| | 1541 | 100 | |

Table 6 shows that the testing of a prediction depends upon several factors. In the present analysis, the productivity is observed which is affected by several factors. If complete publication details of authors are taken, Lotka's law testing may present a different area. Moreover, if sampling size increases the results may get changed. From the above table 6 it is evident that the expected values are not close to the observed values up to number of papers. Chi-square test are applied to verify the applicability of Lotka's law of scientific productivity. The statistical tests show that the Lotka's law in its generalized form does not fit the author productivity distribution pattern prepared for the straight count and for the contribution of complete study.

**Table 5 Ranking of Journals**

| Sl.No. | No. of Journals | No. of Articles | Total No. of Articles | Percentage | Cumulative No. of Articles |
|---|---|---|---|---|---|
| 1 | 1 | 88 | 88 | 5.71 | 88 |
| 2 | 1 | 75 | 75 | 10.58 | 163 |
| 3 | 1 | 53 | 53 | 14.02 | 216 |
| 4 | 1 | 35 | 35 | 16.29 | 251 |
| 5 | 1 | 34 | 34 | 18.49 | 285 |
| 6 | 1 | 28 | 28 | 20.31 | 313 |
| 7 | 1 | 25 | 25 | 21.93 | 338 |
| 8 | 2 | 23 | 46 | 24.92 | 384 |
| 9 | 1 | 20 | 20 | 26.22 | 404 |
| 10 | 2 | 19 | 38 | 28.68 | 442 |
| 11 | 1 | 18 | 18 | 29.85 | 460 |
| 12 | 1 | 17 | 17 | 30.95 | 477 |
| 13 | 3 | 16 | 48 | 34.07 | 525 |
| 14 | 2 | 15 | 30 | 36.02 | 555 |
| 15 | 1 | 14 | 14 | 36.92 | 569 |
| 16 | 8 | 13 | 104 | 43.67 | 673 |
| 17 | 1 | 12 | 12 | 44.45 | 685 |
| 18 | 2 | 11 | 22 | 45.88 | 707 |
| 19 | 5 | 10 | 50 | 49.12 | 757 |
| 20 | 3 | 9 | 27 | 50.88 | 784 |
| 21 | 11 | 8 | 88 | 56.59 | 872 |
| 22 | 7 | 7 | 49 | 59.77 | 921 |
| 23 | 4 | 6 | 24 | 61.32 | 945 |
| 24 | 10 | 5 | 50 | 64.57 | 995 |
| 25 | 11 | 4 | 44 | 67.42 | 1039 |
| 26 | 39 | 3 | 117 | 75.02 | 1156 |
| 27 | 69 | 2 | 138 | 83.97 | 1294 |
| 28 | 247 | 1 | 247 | 100 | 1541 |
| Total | 437 | | 1541 | | |

**Table 6 Productivity of Author Based on Lotka's Law**

| No. of Authors | Observed Number of Authors with 'n' or (an) or (f) | Observed Percentage of Authors 100 x an / a1 | Expected Number of Authors (an=an/$n^2$)or(p) | (F-P)^2/P |
|---|---|---|---|---|
| 1 | 71 | 100.00 | 71.00 | 0.00 |
| 2 | 267 | 376.06 | 66.75 | 600.75 |
| 3 | 259 | 364.79 | 28.78 | 1841.60 |
| 4 | 269 | 378.87 | 16.81 | 3783.45 |
| 5 | 212 | 298.59 | 8.48 | 4884.48 |
| 6 | 136 | 191.55 | 3.78 | 4624.90 |
| 7 | 85 | 119.72 | 1.73 | 4008.03 |
| 8 | 77 | 108.45 | 1.20 | 4788.03 |
| 9 | 62 | 87.32 | 0.77 | 4868.98 |
| 10+ | 103 | 145.07 | 1.03 | 10095.03 |
| **Total** | **1541** | | | |

## 6. CONCLUSION

Dengue attracts a lot of inter disciplinary attention and is a rapidly developing field of research. The present study is related to bibliometrics analysis of article published in dengue fever from 1989-2016. The study has analysed various aspects such as authorship pattern, degree of collaboration among the authors and growth of publications. It is observed that total of 1541 publications in Dengue research over a period of twenty eight years from 1989 to 2016 and indexed by Web of Science online Database indicates that the publication output in India. It is evident that a significant growth in terms of publications is registered from the year 2008. The year 2016 has the highest number of publications of 283. Parasitology Research journal ranked first in order published 88(5.7%) articles. Indian Journal Of Medical Research occupied second in order published 75(4.9%) articles during the period of study. The highest productivity of publications output (17.46%) from four authors. This is followed by two authors' contribution (17.33%).The total number of 437 journals published 1541 articles. The statistical tests show that the Lotka's law in its generalized form does not fit the author productivity distribution pattern prepared for the straight count and for the contribution of complete study.

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# Indian Journal of Information Science and Services (IJISS)

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[1] K.C.Garg, B.Dutt and Suresh Kumar, "Scientometric Profile of Indian Science as Seen Through Science Citation Index", Annals of Library and Information Studies, Vol. 53 No. 3, 2006, pp.114-125.
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