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# COLLEGE LIBRARIES

## (A Peer-Reviewed Quarterly Journal)

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# Research Contribution and Impact of Indian Library and Information Science (LIS) Academia in Scopus : a study of central universities of India

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**Abstract :**

The purpose of the study was to explore the research contributions and impact of LIS faculties from Central Universities of India using the Scopus database.The required data were obtained from the Scopus database using Author Search. The study covered data from 1987-2019 i.e. 33 years. A total of 81 LIS faculties were found working in LIS departments and data were retrieved for 53 LIS faculties from the Scopus. The study observed 68.83% indexing of LIS faculties in the Scopus from Central Universities of India. A total of 274 research contributions and 1091 citations to these publications have been observed. The University of Delhi was observed as the top research contributing Central University in terms of publications and citations. Study dealt with implications of Lotka's Law and Bradford's Law which has been found deemed to fit in the data. “Library Philosophy and Practice” and “DESIDOC Journal of Library and Information Technology”were found as the core LIS journals. Madhusudhan M was found as the top-cited faculty and "India" appeared as the top-ranked keyword. Findings of the study would benefit the LIS faculties in understanding

their research contributions and impact, and to take corrective measures to improve upon weak areas in LIS research.

**Keywords :**

Bradford's Law, Citations, Keyword Co-occurrence, Keyword Cluster, Lotka's Law, Scopus

## 1. Introduction :

Research is one of the core activities of the teaching fraternity after teaching-learning. Every country and society grows based on research from different perspectives. Faculty achievement is measured in terms of research activities. The universities and research institutes are the main centers of research activities. Research promotion in the countries has been funded mostly by the governments. The outcome of such research promotion is seen as research contributions in various forms. There are numbers of research produced by the teaching fraternity as well as researchers which have been published in many journals indexed in some online databases. The field of Library and Information Science (LIS) encountered several research contributions in the country. Using the Scopus database, this study attempts to quantify the research contributions of Indian LIS faculty from centrally funded universities.

## 2. Literature review :

According to the most recent edition of THE ranking 2019, the study looked at the research preferences of the top-12 research universities and found that University of Oxford has the highest number of collaborators while Physics and Astronomy, Medicine, and Biochemistry are the three areas where research universities collaborate the most (Lancho-Barrantes& Cantu-Ortiz, 2019). Researchers used WoS to assess the top 1% most frequently cited papers in “Information Science & Library Science” as a follow-up to Thomson Reuters' highly cited authors list published in June 2014. (Baur, Leydesdorff&Bornmann, 2016).Researchers discovered the trends in research in India from 2005 to 2014 by looking at the occurrence of author keywords and keywords plus in Social Sciences and Humanities research. They also looked at the similarity between

the author's keyword and the WoS provided keyword plus; and discovered that WoS was inconsistent in assigning keyword plus across different areas of research, whereas authors typically assign 46 keywords in each publication (Tripathi, Kumar, Sonker, and Babbar, 2018). A study looked at research collaboration between India and Bangladesh and extracted the collaboration network as well as the top ten keywords for subject trend analysis. Lotka's Law was determined to be the best fit for co-authorship (Jalal, 2019).Using the WoS database, a bibliometric study was conducted to analyse the publication patterns in Plesiomonas-related research from various perspectives. The study discovered a global decline in Plesiomonas research, with higher research outcomes from high-income nations than others and little collaboration with developing countries (Ekundayo&Okoh, 2018). A centrality study was conducted using Scopus bibliometric data over 1500 New Zealand institutions to identify core institutions in terms of scientific collaboration among the institutions, and it was discovered that a limited number of central institutions were responsible for the majority of national collaborations (Aref, Friggens, & Hendy, 2018).The top 50 keywords in a co-word analysis of Library and Information Science journals in China from 2008 to 2012 were obtained using multivariate statistical and social network analysis, with the most frequently occurring keywords being “library,”“university library,”“digital library,” and “public library” (Hu et al., 2013). Using the China Academic Journal Network Publishing Database, Shen et al. (2017) examined the research status, hotspots, and trends of information behaviour in China for the past 29 years.Growth of publication, core authors, core journals, productive institutions, temporal visualization map, hierarchical cluster analysis and social network analysis of keywords parameters were identified in the study (Shen et al., 2017).

**3. Objectives of the study :**

The main objective of the present study is to analyze the research contributions and impact of LIS faculty members of Central Universities of India using following parameters:

a) Quantitative evaluation of research,

b) Implications of Lotka's Law & Bradford's Law,

c) Growth of research and citation,

d) Productive sources and their impact,

e) Top cited documents and authors,

f) Author keyword analysis, and

g) Keyword clustering and co-occurrence of keywords.

**4. Scope and limitations of the study :**

Using scientometric indicators, the study examines and visualizes the research contribution and impact of Indian LIS faculty. Faculties of LIS in India's Central Universities have been considered as a population. In India, 18 Central Universities offer LIS programmes, although Hemvati Nandan Bahuguna Garhwal University was excluded from the analysis due to a lack of permanent faculty details in institution's website. Finally, a total of 81 LIS faculties from 17 Central Universities were surveyed, and their information was gathered from the relevant institution's website. Data for 53 LIS faculties were retrieved from the Scopus database out of 81 LIS faculties, limiting the study to 53 LIS faculties. These 53 LIS faculties belongs to India's 15 Central Universities, which contain a total of 78 LIS faculty.

**5. Research methods :**

The necessary data were collected from the Scopus database in July 2019, and it covers LIS research contributions published between 1987 and 2019. (i.e. 33 years). To begin, the Central University websites were accessed to compile a list of regular LIS faculty members who work in the respective LIS departments, yielding a total of 81 faculty members. We retrieved data by using the author search function and entering the author's last name first, followed by the first name and the faculty affiliation. When a similar name appears in the search results, the city of the institution and the country of affiliation was entered.Out of a total of 81 LIS faculties, full-text data for 53 have been retrieved. R-Package, Bibexcel, VOSviewer, Pajek, and MS-Excel were used to examine the retrieved bibliographic and citation data.

## 6. Results and discussion :

### *6.1 University, faculty and research coverage in Scopus*

**Table 1: University, faculty and research coverage in Scopus**

| Name of University | No. of Faculty in Scopus | Total LIS Faculty in University | % LIS Faculty in Scopus | Total Pub.(% of Pub.) | Total Citations (% of Cit.) |
|---|---|---|---|---|---|
| Aligarh Muslim University, Aligarh (AMU) | 6 | 7 | 85.71 | 36 (13.13) | 219 (20.07) |
| University of Delhi, New Delhi (DU) | 6 | 7 | 85.71 | 65 (23.72) | 329 (30.15) |
| Mizoram University, Aizawl (MZU) | 6 | 8 | 75 | 27 (9.85) | 89 (8.15) |
| Banaras Hindu University, Varanasi (BHU) | 5 | 8 | 62.5 | 38 (13.86) | 181 (16.59) |
| Indira Gandhi National Open University, New Delhi (IGNOU | 5 | 5 | 100 | 17 (6.2) | 27 (2.47) |
| Pondicherry University, Puducherry (PU) | 5 | 5 | 100 | 31 (11.31) | 100 (9.16) |
| Babasaheb Bhimrao Ambedkar University, Lucknow (BBAU) | 4 | 6 | 66.66 | 18 (6.56) | 20 (1.83) |
| North-Eastern Hill University, Shillong (NEHU) | 3 | 6 | 50 | 10 (3.64) | 57 (5.22) |
| Assam University, Silchar (AU) | 2 | 4 | 50 | 5 (1.82) | 1 (0.09) |
| Central University of Himachal Pradesh, Dharamshala (CUHP) | 2 | 3 | 66.66 | 12 (4.37) | 51 (4.67) |

| Name of University | No. of Faculty in Scopus | Total LIS Faculty in University | % LIS Faculty in Scopus | Total Pub.(% of Pub.) | Total Citations (% of Cit.) |
|---|---|---|---|---|---|
| Dr. HarisinghGour University, Sagar (HSGU) | 2 | 3 | 66.66 | 3 (1.09) | 8 (0.73) |
| Manipur University, Imphal (MU) | 2 | 5 | 40 | 2 (0.72) | 3 (0.27) |
| Central University of Tamil Nadu, Thiruvarur (CUTN) | 2 | 5 | 40 | 2 (0.72) | 0 (0) |
| Tripura University, Agartala (TU) | 2 | 3 | 66.66 | 5 (1.82) | 6 (0.54) |
| Central University of Gujarat, Gandhinagar (CUG) | 1 | 3 | 33.33 | 3 (1.09) | 0 (0) |
| **Total** | 53 | 78 | 68.83 | 274 | 1091 |

Table 1 represents the university, faculty, and research contribution coverage of LIS faculties in Scopus. The study observed 53 LIS faculty belongs to 15 Central Universities in Scopus with 274 research publications and 1091 citations. Further, the total number of existing faculty from observed universities was determined along with the number of faculties actively published in the Scopus database, and a total of 78 faculties from 15 Central Universities were found, of which 53 (68.83%) faculties have the publication in the Scopus database.

6.2 ***Lotka's Law of productivity:***

**Table 2 : Frequency distribution of scientific productivity**

| Documents Published | No. of Authors | Proportion of Authors |
|---|---|---|
| 1 | 131 | 0.61 |
| 2 | 30 | 0.14 |
| 3 | 15 | 0.07 |

| Documents Published | No. of Authors | Proportion of Authors |
|---|---|---|
| 4 | 15 | 0.07 |
| 5 | 4 | 0.01 |
| 7 | 5 | 0.02 |
| 8 | 2 | 0.009 |
| 9 | 2 | 0.009 |
| 10 | 3 | 0.014 |
| 11 | 2 | 0.009 |
| 19 | 1 | 0.004 |
| 23 | 1 | 0.004 |
| 30 | 1 | 0.004 |
| 33 | 1 | 0.0046 |

Table 2 represents the frequency distribution of scientific productivity of LIS faculties in increasing order of documents written by them and the numbers of authors involved in the writing of those documents. It has been observed that about 60% of authors have contributed one publication, 14% of authors have contributed two publications, and 7% of authors have contributed three papers, and so on. This suggests that the productivity distribution of authors in the LIS field follows Lotka's Law (Lotka, 1926).

***6.3 Year-wise growth of research :***

**Table 3 : Year-wise growth of research publications**

| Year | Publications | Cumulative Growth | % of Publications | CAGR |
|---|---|---|---|---|
| **1987** | **1** | **1** | **0.36** | **--** |
| **1993** | **2** | **3** | **0.72** | **20.09%** |
| **1995** | **2** | **5** | **0.72** | **29.10%** |
| **1997** | **1** | **6** | **0.36** | **9.54%** |

| | | | | |
|---|---|---|---|---|
| 2001 | 1 | 7 | 0.36 | 3.93% |
| 2002 | 1 | 8 | 0.36 | 14.29% |
| 2003 | 2 | 10 | 0.72 | 25% |
| 2004 | 3 | 13 | 1.09 | 30% |
| 2005 | 2 | 15 | 0.72 | 15.38% |
| 2006 | 3 | 18 | 1.09 | 20% |
| 2007 | 6 | 24 | 2.18 | 33.33% |
| 2008 | 9 | 33 | 3.28 | 37.50% |
| 2009 | 11 | 44 | 4.01 | 33.33% |
| 2010 | 15 | 59 | 5.47 | 34.09% |
| 2011 | 15 | 74 | 5.47 | 25.42% |
| 2012 | 23 | 97 | 8.39 | 31.08% |
| 2013 | 16 | 113 | 5.83 | 16.49% |
| 2014 | 23 | 136 | 8.39 | 20.35% |
| 2015 | 27 | 163 | 9.85 | 19.85% |
| 2016 | 18 | 181 | 6.56 | 11.04% |
| 2017 | 28 | 209 | 10.21 | 15.47% |
| 2018 | 40 | 249 | 14.59 | 19.14% |
| 2019* | 25 | 274 | 9.12 | 10.04% |

* Up to July 2019

Year-wise number of research publications, cumulative growth, and Compound Annual Growth Rate (CAGR) were analyzed as shown in table 3 that denotes there is a total of 274 publications from the year 1987 to 2019. The highest number of publications (138, 50.36%) were observed during the last 5 years i.e. from 2015-2019 and year 2018 witnessed the highest number of publications (40, 14.59%) during the last 33 years followed by in the year 2017 (28, 10.21%) and in the year 2015 (27, 9.85%). There was a continuous increasing trend in publications from the year 2006 onwards.

### *6.4 Year-wise growth of citations :*

**Table 4 : Year-wise growth of citations**

| Year | No. of Publications | No. of Citations | Citations per Pub. | Citations per Year | Citable year |
|---|---|---|---|---|---|
| 1987 | 1 | 1 | 1 | 0.03 | 32 |
| 1988 | 0 | 0 | 0 | 0 | 0 |
| 1989 | 0 | 0 | 0 | 0 | 0 |
| 1990 | 0 | 0 | 0 | 0 | 0 |
| 1991 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 2 | 2 | 1 | 0.03 | 26 |
| 1994 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 2 | 3 | 1.5 | 0.06 | 24 |
| 1996 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 1 | 0 | 0 | 0 | 22 |
| 1998 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 1 | 10 | 10 | 0.55 | 18 |
| 2002 | 1 | 16 | 16 | 0.94 | 17 |
| 2003 | 2 | 16 | 8 | 0.5 | 16 |
| 2004 | 3 | 18 | 6 | 0.4 | 15 |
| 2005 | 2 | 14 | 7 | 0.5 | 14 |
| 2006 | 3 | 42 | 14 | 1.07 | 13 |
| 2007 | 6 | 50 | 8.33 | 0.69 | 12 |
| 2008 | 9 | 92 | 10.22 | 0.92 | 11 |
| 2009 | 11 | 122 | 11.09 | 1.1 | 10 |
| 2010 | 15 | 83 | 5.53 | 0.61 | 9 |
| 2011 | 15 | 100 | 6.66 | 0.83 | 8 |
| 2012 | 23 | 98 | 4.26 | 0.6 | 7 |
| 2013 | 16 | 89 | 5.56 | 0.92 | 6 |
| 2014 | 23 | 90 | 3.91 | 0.78 | 5 |
| 2015 | 27 | 172 | 6.37 | 1.59 | 4 |
| 2016 | 18 | 27 | 1.5 | 0.5 | 3 |
| 2017 | 28 | 33 | 1.17 | 0.58 | 2 |
| 2018 | 40 | 11 | 0.27 | 0.27 | 1 |
| 2019 | 25 | 2 | 0.08 | | 0 |

Year-wise number of citations, citations per publication, citations per year, and total citable years of publications are represented in table 4. During the year 1987 to 2019, a total of 1091 citations for 274 publications have been observed, and the highest numbers of citations (549, 50.32%) have been observed during the period 2011 to 2015. The number of citations was found the highest in the year 2015 (172) followed by the year 2009 (122) and the year 2011 (100).

### *6.5 Productive sources and their impact:*

**Table 5 : Productive sources and their impact**

| Source Name | No. of Articles | Total Citations | h-indes | g-indes |
|---|---|---|---|---|
| Library Philosophy and Practice | 61 | 86 | 5 | 7 |
| DESIDOC Journal of Library and Information Technology | 48 | 81 | 4 | 6 |
| Annals of Library and Information Studies | 17 | 24 | 2 | 3 |
| Library Review | 14 | 80 | 7 | 8 |
| Electronic Library | 12 | 117 | 6 | 10 |
| International Information and Library Review | 12 | 145 | 6 | 12 |
| Library Hi Tech News | 7 | 48 | 3 | 6 |
| Collection Building | 6 | 34 | 2 | 5 |
| Program | 5 | 46 | 4 | 5 |
| Scientometics | 5 | 128 | 3 | 5 |
| Library Management | 4 | 26 | 3 | 4 |
| 2015 4th International Symposium on Emerging Trends and Technologies in Libraries and Information Services ETTLIS 2015 Proceedings | 3 | 1 | 1 | 1 |
| IEEE 5th International Symposium on Emerging Trends and Technologies in Libraries and Information Services ETTLIS 2018 | 3 | 1 | 1 | 1 |

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|---|---|---|---|---|
| International Journal of Information Science and Management | 3 | 0 | 0 | 0 |
| Journal of Academic Librarianship | 3 | 23 | 3 | 3 |
| Library Hi Tech | 3 | 49 | 2 | 3 |
| New Library World | 3 | 15 | 2 | 3 |
| Open Source Technology: Concepts Methodologies Tools and Applications | 3 | 0 | 0 | 0 |
| Webology | 3 | 19 | 3 | 3 |
| ACM International Conference Proceeding Series | 2 | 0 | 0 | 0 |
| Current Science | 2 | 5 | 1 | 2 |
| Developing Sustainable Digital Libraries: Socio-Technical Perspectives | 2 | 4 | 1 | 2 |
| Journal of Library and Information Services in Distance Learning | 2 | 8 | 2 | 2 |
| Knowledge Management in Libraries: Concepts Tools and Approaches | 2 | 2 | 1 | 1 |
| Lecture Notes in Computer Science (including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) | 2 | 1 | 1 | 1 |
| Assistive Technology | 1 | 4 | 1 | 1 |
| Cataloging and Classification Quarterly | 1 | 1 | 1 | 1 |
| Collection Management | 1 | 0 | 0 | 0 |
| Computers in Libraries | 1 | 0 | 0 | 0 |
| Digital Information Exchange: Pathways to Build Global Information Society | 1 | 0 | 0 | 0 |
| E-Agriculture and E-Government for Global Policy Development: Implications and Future Directions | 1 | 0 | 0 | 0 |
| Education for Information | 1 | 1 | 1 | 1 |
| Global Knowledge Memory and Communication | 1 | 0 | 0 | 0 |

| | | | | |
|---|---|---|---|---|
| Human Rights and Ethics: Concepts Methodologies Tools and Applications | 1 | 0 | 0 | 0 |
| IFLA Journal | 1 | 6 | 1 | 1 |
| Information Development | 1 | 0 | 0 | 0 |
| Information Processing and Management | 1 | 2 | 1 | 1 |
| Innovations in Computing Sciences and Software Engineering | 1 | 0 | 0 | 0 |
| Interdisciplinary Journal of Information Knowledge and Management | 1 | 0 | 0 | 0 |
| International Journal of Medical Toxicology and Legal Medicine | 1 | 0 | 0 | 0 |
| International Journal of Web based Communities | 1 | 0 | 0 | 0 |
| Journal of Electronic Publishing | 1 | 7 | 1 | 1 |
| Journal of Electronic Resources in Medical Libraries | 1 | 0 | 0 | 0 |
| Journal of Information and Knowledge Management | 1 | 7 | 1 | 1 |
| Journal of Information Science | 1 | 25 | 1 | 1 |
| Journal of Information Science Theory and Practice | 1 | 0 | 0 | 0 |
| Journal of Knowledge Management | 1 | 5 | 1 | 1 |
| Journal of Library Administration | 1 | 2 | 1 | 1 |
| Journal of the American Society for Information Science and Technology | 1 | 21 | 1 | 1 |
| Journal of Web Librarianship | 1 | 1 | 1 | 1 |
| Jurnal Komunikasi: Malaysian Journal of Communication | 1 | 0 | 0 | 0 |
| Learned Publishing | 1 | 10 | 1 | 1 |
| Lecture Notes in Networks and Systems | 1 | 0 | 0 | 0 |
| Library Acquisitions: Practice and Theory | 1 | 2 | 1 | 1 |
| Library and Information Science in Developing Countries: Contemporary Issues | 1 | 3 | 1 | 1 |

| | | | | |
|---|---|---|---|---|
| Library and Information Science Research | 1 | 8 | 1 | 1 |
| Library and Information Services for Bioinformatics Education and Research | 1 | 1 | 1 | 1 |
| Library Collections Acquisition and Technical Services | 1 | 1 | 1 | 1 |
| Libres | 1 | 6 | 1 | 1 |
| Libri | 1 | 3 | 1 | 1 |
| Malaysian Journal of Library and Information Science | 1 | 4 | 1 | 1 |
| Managing Knowledge and Scholarly Assets in Academic Libraries | 1 | 0 | 0 | 0 |
| Proceedings - 2012 IEEE International Conference on Technology Enhanced Education ICTEE 2012 | 1 | 3 | 1 | 1 |
| Proceedings of the 3rd European Conference on Information Management and Evaluation ECIME 2009 | 1 | 0 | 0 | 0 |
| Proceedings of the International Conference on Dublin Core and Metadata Applications | 1 | 2 | 1 | 1 |
| Progressive Trends in Electronic Resource Management in Libraries | 1 | 2 | 1 | 1 |
| Scholarly Communication in Library and Information Services: The Impacts of Open Access Journals and E-Journals on a Changing Scenario | 1 | 1 | 1 | 1 |
| Serials Review | 1 | 0 | 0 | 0 |
| Social Network Analysis Mining | 1 | 0 | 0 | 0 |
| Studies in Indian Politics | 1 | 4 | 1 | 1 |
| The Bottom Line | 1 | 10 | 0 | 0 |
| The Electronic Library | 1 | 6 | 1 | 1 |

Table 5 represents the most relevant sources of publication along with the total number of publications, the total number of citations, the h-index, and the g-index of sources. A total of 72 sources were found for 274 publications from the selected LIS faculties as per the Scopus database. Library Philosophy and Practicewas

the most preferred source of publication by the faculties of LIS and they contributed the highest number of articles (61, 22.26%) followed by DESIDOC Journal of Library and Information Technology (48, 17.51%), and Annals of Library and Information Studies (17, 6.2%), Library Review (14, 5.1%), Electronic Library (12, 4.37%) and International Information and Library Review (12, 4.37%).

The impact of sources of publication has been analyzed with the help of the number of citations of each source. A total of 1091 citations from 72 sources were found as shown in Table 5. International Information and Library Reviewhas received the highest number of citations (145, 13.29%) followed by Scientometrics (128, 11.73%), and Electronic Library (117, 10.72%). The h-index was found the highest for Library Review (7) followed by International Information and Library Review (6) and Electronic Library (6). The g-index was found the highest for International Information and Library Review (12) followed by Electronic Library(10), and Library Review (8).

### 6.6 Bradford's Law of distribution :

The frequency distribution of articles in sources has been calculated as per Bradford's Law (Bradford, 1934). The rank of each source based on the frequency of articles published is represented in three groups of zones as shown in Table 6.

**Table 6 : Frequency distribution of articles in sources**

| Source Name | Rank | Frequency | Cumulative Frequency | Zone |
|---|---|---|---|---|
| Library Philosophy and Practice | 1 | 61 | 61 | Zone 1 |
| DESIDOC Journal of Library and Information Technology | 1 | 48 | 109 | Zone 1 |
| Annals of Library and Information Studies | 3 | 17 | 126 | Zone 2 |
| Library Review | 4 | 14 | 140 | Zone 2 |
| Electronic Library | 5 | 12 | 152 | Zone 2 |
| International Information and Library Review | 6 | 12 | 164 | Zone 2 |
| Library Hi Tech News | 7 | 7 | 171 | Zone 2 |
| Collection Building | 8 | 6 | 177 | Zone 2 |

| | | | | |
|---|---|---|---|---|
| Program | 9 | 5 | 182 | Zone 2 |
| Scientometics | 10 | 5 | 187 | Zone 2 |
| Library Management | 11 | 4 | 191 | Zone 3 |
| 2015 4th International Symposium on Emerging Trends and Technologies in Libraries and Information Services ETTLIS 2015 Proceedings | 12 | 3 | 194 | Zone 3 |
| IEEE 5th International Symposium on Emerging Trends and Technologies in Libraries and Information Services ETTLIS 2018 | 13 | 3 | 197 | Zone 3 |
| International Journal of Information Science and Management | 14 | 3 | 200 | Zone 3 |
| Journal of Academic Librarianship | 15 | 3 | 203 | Zone 3 |
| Library Hi Tech | 16 | 3 | 206 | Zone 3 |
| New Library World | 17 | 3 | 209 | Zone 3 |
| Open Source Technology: Concepts Methodologies Tools and Applications | 18 | 3 | 212 | Zone 3 |
| Webology | 19 | 3 | 215 | Zone 3 |
| ACM International Conference Proceeding Series | 20 | 2 | 217 | Zone 3 |
| Current Science | 21 | 2 | 219 | Zone 3 |
| Developing Sustainable Digital Libraries: Socio-Technical Perspectives | 22 | 2 | 221 | Zone 3 |
| Journal of Library and Information Services in Distance Learning | 23 | 2 | 223 | Zone 3 |
| Knowledge Management in Libraries: Concepts Tools and Approaches | 24 | 2 | 225 | Zone 3 |
| Lecture Notes in Computer Science (including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) | 25 | 2 | 227 | Zone 3 |

| | | | | |
|---|---|---|---|---|
| Assistive Technology | 26 | 1 | 228 | Zone 3 |
| Cataloging and Classification Quarterly | 27 | 1 | 229 | Zone 3 |
| Collection Management | 28 | 1 | 230 | Zone 3 |
| Computers in Libraries | 29 | 2 | 231 | Zone 3 |
| Digital Information Exchange: Pathways to Build Global Information Society | 30 | 1 | 232 | Zone 3 |
| E-Agriculture and E-Government for Global Policy Development: Implications and Future Directions | 31 | 1 | 233 | Zone 3 |
| Education for Information | 32 | 1 | 234 | Zone 3 |
| Global Knowledge Memory and Communication | 33 | 1 | 235 | Zone 3 |
| Human Rights and Ethics: Concepts Methodologies Tools and Applications | 34 | 1 | 236 | Zone 3 |
| IFLA Journal | 35 | 1 | 237 | Zone 3 |
| Information Development | 36 | 1 | 238 | Zone 3 |
| Information Processing and Management | 37 | 1 | 239 | Zone 3 |
| Innovations in Computing Sciences and Software Engineering | 38 | 1 | 240 | Zone 3 |
| Interdisciplinary Journal of Information Knowledge and Management | 39 | 1 | 241 | Zone 3 |
| International Journal of Medical Toxicology and Legal Medicine | 40 | 1 | 242 | Zone 3 |
| International Journal of Web based Communities | 41 | 1 | 243 | Zone 3 |
| Journal of Electronic Publishing | 42 | 1 | 244 | Zone 3 |
| Journal of Electronic Resources in Medical Libraries | 43 | 1 | 245 | Zone 3 |
| Journal of Information and Knowledge Management | 44 | 1 | 246 | Zone 3 |
| Journal of Information Science | 45 | 1 | 247 | Zone 3 |
| Journal of Information Science Theory and Practice | 46 | 1 | 248 | Zone 3 |

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|---|---|---|---|---|
| Journal of Knowledge Management | 47 | 1 | 249 | Zone 3 |
| Journal of Library Administration | 48 | 1 | 250 | Zone 3 |
| Journal of the American Society for Information Science and Technology | 49 | 1 | 251 | Zone 3 |
| Journal of Web Librarianship | 50 | 1 | 252 | Zone 3 |
| JurnalKomunikasi: Malaysian Journal of Communication | 51 | 1 | 253 | Zone 3 |
| Learned Publishing | 52 | 1 | 254 | Zone 3 |
| Lecture Notes in Networks and Systems | 53 | 1 | 255 | Zone 3 |
| Library Acquisitions: Practice and Theory | 54 | 1 | 256 | Zone 3 |
| Library and Information Science in Developing Countries: Contemporary Issues | 55 | 1 | 257 | Zone 3 |
| Library and Information Science Research | 56 | 1 | 258 | Zone 3 |
| Library and Information Services for Bioinformatics Education and Research | 57 | 1 | 259 | Zone 3 |
| Library Collections Acquisition and Technical Services | 58 | 1 | 260 | Zone 3 |
| Libres | 59 | 1 | 261 | Zone 3 |
| Libri | 60 | 1 | 262 | Zone 3 |
| Malaysian Journal of Library and Information Science | 61 | 1 | 263 | Zone 3 |
| Managing Knowledge and Scholarly Assets in Academic Libraries | 62 | 1 | 264 | Zone 3 |
| Proceedings - 2012 IEEE International Conference on Technology Enhanced Education ICTEE 2012 | 63 | 1 | 265 | Zone 3 |
| Proceedings of the 3rd European Conference on Information Management and Evaluation ECIME 2009 | 64 | 1 | 266 | Zone 3 |
| Proceedings of the International Conference on Dublin Core and Metadata Applications | 65 | 1 | 267 | Zone 3 |
| Progressive Trends in Electronic Resource Management in Libraries | 66 | 1 | 268 | Zone 3 |

| | | | | |
|---|---|---|---|---|
| Scholarly Communication in Library and Information Services: The Impacts of Open Access Journals and E-Journals on a Changing Scenario | 67 | 1 | 269 | Zone 3 |
| Serials Review | 68 | 1 | 270 | Zone 3 |
| Social Network Analysis Mining | 69 | 1 | 271 | Zone 3 |
| Studies in Indian Politics | 70 | 1 | 272 | Zone 3 |
| The Bottom Line | 71 | 1 | 273 | Zone 3 |
| The Electronic Library | 72 | 1 | 274 | Zone 3 |

For the 72 sources of publications, three zones based on the frequency of publications have been identified. The first zone consists of 2 sources and contributed 109 articles, the second zone consists of 8 sources that contributed 78 articles and the third zone consists of 62 sources that contributed 87 articles. Hence, the source distribution as per Bradford's Law reveals in ratio as 2:8:62 that fits well with Bradford Law of distribution. Table 6 shows that Library Philosophy and PracticeandDESIDOC Journal of Library and Information Technologywere the two core sources of publications as per Bradford's Law.

### 6.6. Top cited documents with authors:

**Table 7: Top 10 cited documents**

| Document | Total Citations | TC per Year |
|---|---|---|
| Madhusudhan M, 2012, IntInfLibr Rev | 55 | 7.85 |
| Ravikumar S & S N Singh, 2015, Scientometrics | 52 | 13 |
| Ravikumar S & S N Singh, 2015, Scientometrics-A | 52 | 13 |
| Seadle M &Madhusudhan M, 2008, Libr Hi Tech | 34 | 3.09 |
| Haridasan S, 2009, Electron Libr | 32 | 3.2 |
| Madhusudhan M, 2010, Electron Libr | 29 | 3.22 |
| Chirra R &Madhusudhan M, 2009, Libr Hi Tech News | 28 | 2.8 |
| Raza MM, 2006, IntInfLibr Rev | 28 | 2.15 |
| Subotic S & Mukherjee B, 2014, J InfSci | 25 | 5 |
| Mukherjee B, 2009, Scientometrics | 23 | 2.3 |

Table 7 represents the top 10 cited documents of LIS faculties as per the Scopus database. A publication in International Information and Library Review by M Madhushudhan has received the highest 55 citations with an average of 7.85 citations per year.

### 6.8 Author's keyword analysis:

**Table 8: Top-50 most occurred author keywords**

| Author keyword | Occurrence |
|---|---|
| India | 47 |
| Academic Libraries | 12 |
| Bibliometrics, Information Retreval | 11(each) |
| Citation Analysis | 9 |
| Knowledge Management, Libraries, University Libraries | 8 (each) |
| Open Access, Social Networking Sites, Web 2.0 | 7 (each) |
| H-index, Research, Scientometrics, Universities | 6 (each) |
| Collection Development, ICT, Internet, Library Automation, Social Media, Social Networking, Students, Web of Science, Websites | 5 (each) |
| Authorship Pattern, Citation, Citations, Content Analysis, Degree of Collaboration, Information Management, Open Access Journals, Research Performance, Scholarly Communication, UGC INFONET, Web Impact Factor, Webometrics, World Wide Web | 4 (each) |
| Activity Index, Assistive Technology, Bibliometric, Blogs, Collaboration Coefficient, Data Repositories, Delhi, Digital Libraries, DOAJ, DRDO, E-Journals, Electronic Media, Evaluation | 3 (each) |

Table 8 represents the top 50 most frequently occurred keywords used by LIS faculty along with its occurrence. For the 274 documents, a total of 1130 keywords have been found and the total number of unique keywords obtained was 726. Among the highly occurring keywords, keywords like “India” (47 times), “Academic Libraries” (12), “Information Retrieval” (11), “Bibliometrics” (11), and “Citation Analysis” (9) were prevalent.

### 6.9 Co-occurrence network of keywords :

Centrality analysis was conducted to determine nodes in the network, to determine which keyword is at the center among the various keywords.

**Table 9: Centrality of keywords**

| Keywords | Cluster | Betweenness Centrality |
|---|---|---|
| India | 3 | 45.97 |
| Libraries | 3 | 0.18 |
| Information Retrieval | 3 | 7.16 |
| Academic Libraries | 3 | 0.58 |
| Students | 3 | 0 |
| Knowledge Management | 3 | 14.04 |
| Universities | 3 | 0.63 |
| University Libraries | 3 | 1.4 |
| Library Automation | 3 | 0.03 |
| Citation Analysis | 2 | 28 |
| H-index | 2 | 0 |
| Scientometrics | 2 | 0 |
| Bibliometrics | 1 | 40.55 |
| Social Networking | 1 | 0.36 |
| Social Networking Sites | 1 | 6.12 |
| Blogs | 1 | 5.54 |
| Web 2.0 | 1 | 19.37 |

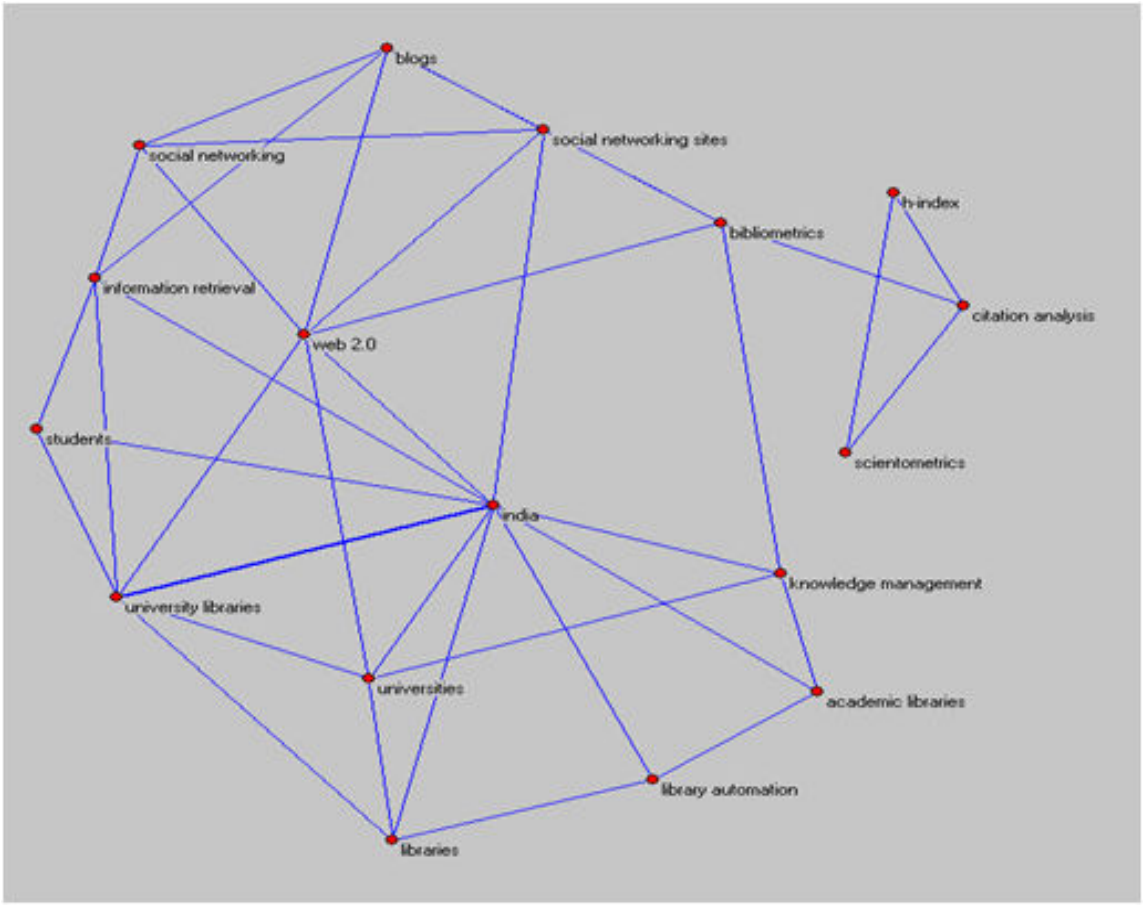


**Fig. 1: Co-occurrence network of keywords**

Degree Centrality, Betweenness Centrality, and Close Centrality are the three types of centrality analysis of which Betweenness Centrality was measured in terms of the role of a keyword as the mediator and intermediator in the entire network (Kim, Jang, & Lee, 2018). The keyword with the highest level of Betweenness Centrality was “India” (45.97), “Bibliometrics” (40.55), “Citation Analysis” (28), “Web 2.0” (19.70), and so on as shown in table 9 and represented in figure 1.

### 6.10 Thematic map of cluster keywords :

The analysis of clusters of highly occurred 50 keywords is taken by considering the minimum number of labels for each cluster as five as shown in table10. The analysis of high-frequency keywords indicates the presence of seven clusters, of which the first label of the cluster (Bibliometrics) contains 18 keywords, second label cluster

(Information Retrieval) contains 8 keywords, third label cluster (Students) contains 3 keywords, fourth label cluster (India) contains 14 keywords, fifth label cluster (Web 2.0) contains one keyword, sixth label cluster (Websites) contains five keywords and seventh label cluster (Library Automation) contains one keyword. Keyword occurrences were calculated for each cluster, the selected keywords occurred overall 293 times.

**Table 10: Clustering of author keywords**

| Keyword Occurrences | Keywords | Cluster | Label of Cluster |
|---|---|---|---|
| 47 | India | 4 | India |
| 12 | Academic Libraries | 4 | India |
| 11 | Bibliometrics | 1 | Bibliometrics |
| 11 | Information Retrieval | 2 | Information Retrieval |
| 9 | Citation Analysis | 1 | Bibliometrics |
| 8 | Libraries | 4 | India |
| 8 | Knowledge Management | 4 | India |
| 8 | University Libraries | 4 | India |
| 7 | Social Networking Sites | 2 | Information Retrieval |
| 7 | Web 2.0 | 5 | Web 2.0 |
| 6 | H-index | 1 | Bibliometrics |
| 6 | Scientometrics | 1 | Bibliometrics |
| 6 | Universities | 4 | India |
| 6 | Research | 4 | India |
| 5 | Open Access | 1 | Bibliometrics |
| 5 | Web of Science | 1 | Bibliometrics |
| 5 | ICT | 2 | Information Retrieval |
| 5 | Social Networking | 2 | Information Retrieval |
| 5 | Social Media | 2 | Information Retrieval |

| | | | |
|---|---|---|---|
| 5 | Students | 3 | Students |
| 5 | Internet | 4 | India |
| 5 | Websites | 6 | Websites |
| 5 | Collection Development | 6 | Websites |
| 5 | Library Automation | 7 | Library Automation |
| 4 | Degree of Collaboration | 1 | Bibliometrics |
| 4 | Authorship Pattern | 1 | Bibliometrics |
| 4 | Research Performance | 1 | Bibliometrics |
| 4 | Citations | 1 | Bibliometrics |
| 4 | Content Analysis | 1 | Bibliometrics |
| 4 | Open Access Journals | 1 | Bibliometrics |
| 4 | Information Management | 4 | India |
| 4 | Citation | 4 | India |
| 4 | UGC-INFONET | 4 | India |
| 4 | Scholarly Communication | 4 | India |
| 4 | Webometrics | 6 | Websites |
| 4 | Web Impact Factor | 6 | Websites |
| 4 | World Wide Web | 6 | Websites |
| 3 | Activity Index | 1 | Bibliometrics |
| 3 | Collaboration Coefficient | 1 | Bibliometrics |
| 3 | DOAJ | 1 | Bibliometrics |
| 3 | Research Productivity | 1 | Bibliometrics |
| 3 | Scientometric Assessment | 1 | Bibliometrics |
| 3 | University of Delhi | 1 | Bibliometrics |
| 3 | Bibliometric | 1 | Bibliometrics |
| 3 | Social Networking Tools | 2 | Information Retrieval |
| 3 | Facebook | 2 | Information Retrieval |
| 3 | Twitter | 2 | Information Retrieval |
| 3 | Mobile Devices | 3 | Students |
| 3 | University | 3 | Students |
| 3 | Library Management | 4 | India |

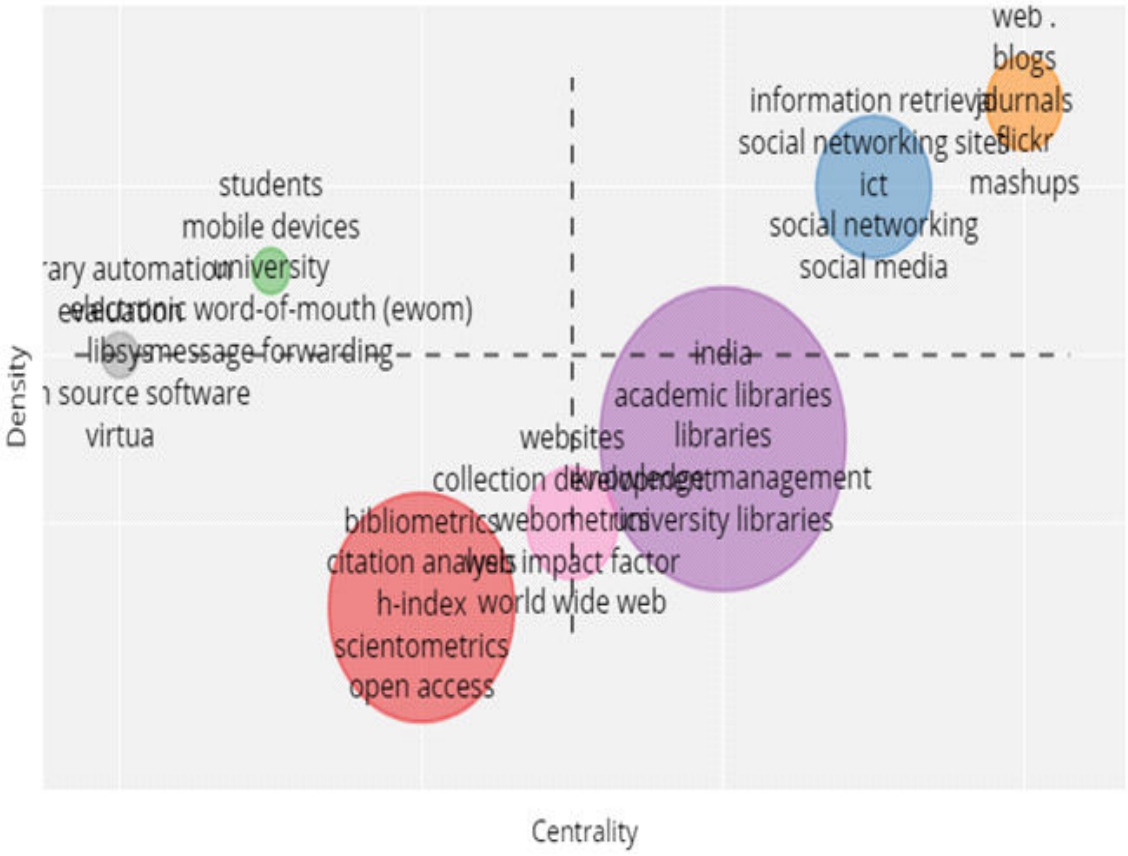


**Fig. 2: Clustering network of keywords**

The highest occurrence of keywords was found in cluster four (122 times) followed by cluster one (84 times), cluster two (42 times), cluster six (22 times), cluster three (11 times), cluster five (7 times) and cluster seven (5 times). The first label of cluster "Bibliometrics" contains mainly the concept of "Scientometrics", "Research Productivity", "H-index", "Web of Science" etc. (Fig. 2). The second label of cluster "Information Retrieval" contains concepts like "Social Networking Sites", "Social Media", "Facebook", "Twitter" etc. The third label of cluster "Students" contains "Mobile Device"and"University", and the fourth label of cluster "India" contains "Academic Libraries", "Knowledge Management", "UGC INFONET", "Universities", "Internet" etc. The fifth label of cluster

"Web 2.0" contains "Web 2.0", while the sixth label of cluster "Websites" contains "Webometrics", "Web Impact Factor", "World Wide Web" etc. The seventh label of the cluster "Library Automation" contains the single keyword "Library Automation".

## 7. Conclusion :

Using Scopus data, the study found 274 research contributions with 1091 citations to them. It's surprising to see that all faculty members of two Central Universities, IGNOU and PU, have been fully indexed in Scopus, whilst some universities were just partially indexed. Overall faculty coverage in Scopus was 68.83 percent, according to the study. The University of Delhi has been identified as the leading contributor of research items and citations to its contributions,with the remaining universities trailing far behind.Lotka's Law implications were calculated and found to be compatible with the data. The CAGR was estimated and found to be positive during the time, indicating that the literature in the discipline of LIS as well as in Scopus from Indian LIS faculties has continued to expand. Citations were used to measure the impact of the research contributions, and it was discovered that more than half of the citations to the publications were obtained recently. In the twenty-first century, the average number of citations per year has increased dramatically.The analysis discovered a total of 72 productive sources, with Library Philosophy and Practice being the most productive publication source.Further research looked at source impact and discovered that International Information and Library Review, Scientometrics, and Electronic Library were the most impactful journals. The implications of Bradford's Law were estimated for the sources and found to be consistent with the data; the core sources of publications were found to be Library Philosophy and Practice and DESIDOC Journal of Library & Information Technology.A research contribution by M Madhusudhan in International Information and Library Review was found to be the most cited document among the overall research contributions, while Scientometrics garnered the most citations per year. From author keywords, the occurrence of keywords, clustering of keywords, and co-occurrence network of keywords were investigated. It is evident from the study that Indian LIS faculties are dealing with the issues of "India" with different perspectives as observed from keywords centrality. Clustering of keywords correlates the topic of discussion by different authors appeared in different sources; it can be easily understood by the first label of cluster "Bibliometrics" contains mainly

"Scientometrics", "Research Productivity", "H-index", "Web of Science" etc. which shows conceptual relativity among author keywords.

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# Mapping the information use among the users at the Library of the National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore : a study

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**Abstract**

During COVID-19 pandemic situation, the National Institute of Mental Health and Neuro Sciences Library was open to the users for rendering normal services. In this study Users were studied in regard to their use of library on different aspects including use of e-resources and internet facilities. Difference of library use in between male and female ofUG & PG level in different disciplines is shown here. Survey method including structured questionnaire were given to the users through email and personally. Chi-Square Test was applied to prove the hypothetical statement. It is observed that major respondents were from PG level. In regard to use of e-resources and duration of spending time in the library it is found that there is no uniformity in between the male and female respondents. Whereas, there is a significant relationship between the male and female respondents in regard to visit the library and in regard to use the internet in the library. As an original work, this study may help to understand the library environment of a medical institute during pandemic situation.

**Keywords:** Chi-Square scoring of Library Usage, Information Mapping, Neuroscience Journals and Books, NIMHANS Library, NIMHANS Library Users

## 1. Introduction :

"Management of a library as service organisation is accomplished by a combination of basic management functions and skills as well as managerial roles."

(Biswas, Nausheen and Chakrabarti, 2011)

The sound management policy and managerial roles consolidate the effective library services. On the other hand, rendering of effective library services to the users can also be observed on the basis of the awareness and perception of the users towards the availability of facilities in the libraries and the performance of the libraries in relation to services. The library of National Institute of Mental Health and Neuro Sciences (NIMHANS) tries to provide and support the services to the users to up bring social and economic values of the Institute even in the pandemic situation. The Library and Information Centre acts as central facilities of the institute wherefrom information needs of the students, research scholars, teachers, medical practitioners other than teaching staff, the technical staff and the ministerial staff are catered . The centre subscribes to a good number Neurosciencejournals and books in addition to various databasesand clinical materials in e-form. In this study an attempt was made here to find out the information environment especially on the use of internet and online resource materials among the users of the Institute.

The library building is a fully Wi-Fi-enabled area. The "Cyber Hall" has been empowered with the latest sets of computers and a newly renovated reading hall is set up at the library. The private and department photocopy facility is also helping the user community to copy required manuscripts. The user can access the subscribed e-resources of the library in both campus and off-campus network sites. Interactive orientation and training programmes, plagiarism check services, lending and reading services etc are being provided here in the whole year excepting 3 days from 8 am to 9.15 pm. (NIMHANS library, 2020).

Due to the Covid-19 pandemic situation as the users have accessed the library online mostly the new Remotlog software has been made available to facilitate off-campus access to the e-resources subscribed by NIMHANS.

## 2. Review of related literature :

A number of past studies are described here to get the understanding on the topic. Roth (1974) analyzed the users in the context of their needs in the library. Martin (1976) described that use studies should be integrated with the library planning.Satisfaction of the library users can be evaluated by the personal and emotional reaction of the users (Harter and Hert, 1997). Hiller (2001) assessed on the needs of the users and their satisfaction level based on the performance of the library services at the University of Washington. Calvert, 2001 told about user's satisfaction and performance of libraries in relation to performance theory. Ravikumar and others (2009) discussed about the type of users nature of information need, planning of education and introduction of library. Adeniran (2011) analyzed the relationship between level of service and user satisfaction at Redeemer's University. On the other hand, Sivathaasan (2013) tried to find out the impact of library collections on user satisfaction of the students at University of Jaffna. Namugera (2014) analyzed the provision of library services in the context of user awareness perception and usage of library services in the academic institution. A study by Biswas, Chakrabarti, and Das Biswas (2013) examined the information seeking behavior of dentists in Indian metropolises.In their study, they examined how dentists acquire the information they need.Additionally, they conducted an investigation to examine the kinds of library resources that these groups used and the problems they encountered with finding information.

## 3. Objectives :

The objectives of the study are:

1) To depict the scenario of library of NIMHANS during pandemic environment.
2) To find out the nature of the users in relation to their spending time and purpose of visit at the library, and
3) To understand the use of internet and online materials by the users in the library.

## 4. Hypothesis :

Hypothesis is formulated as follows: There is very much uniformity among the male and female respondents in the use of library.

**5. Scope and coverage :**

Here, users include the existing students of undergraduate and post-graduate level of the different departments of NIMHANS.

**6. Methods used :**

The survey method was adopted in this study with the help of questionnaire, observation and interview techniques. The questionnaires were sent to the user-population through email and personally. Out of total 180 questionnaires distributed, the number of responses received was 122 or 67.78 %.

**6.1 Chi -Square test :**

a) Definition and its uses in this study

A Chi-Square Test is a statistical hypothesis test that is valid to perform when the test statistic is chi-squared distributed under the null hypothesis. Chi Square Test determines the significant level among the relationship of the variables in a study. In this study relationship between the category of the users and their nature of uses in the library is important to determine. In this test if chi square value is higher than chi square table value, it will indicate null hypothesis is rejected and alternate hypothesis is accepted. Hence there will be significant difference between variables about the category ofusers'behavior and their uses in the library.

b) In Chi-Square test

i. Degrees of Freedom is calculated as

df = (r - 1) x (c -1) where r is the number of rows and c is the number of columns.

ii) The formula of Chi-Square Statisticis

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

$\chi^2$ = Chi Square obtained

$\Sigma$ = the sum of

$O$ = observed score

$E$ = expccted score

iii. Expected Score(E) for any cell calculation formula is:

Column total value X Row total value/ Total table value

c)Procedure for conducting Chi-Square test

Step 1: Calculation of Expected Score - | Male(A) | Female(B) | A+B | A(E) | B(E) |

Step 2: Calculation of Chi Square score --

| Observed value (O) | Expected Value (E) | ( O - E ) | ( O - E )² | ( O - E )² / E |
|---|---|---|---|---|

Step 3: Degree of Freedom (Row-1) * (Column-1)= (2-1)* (6-1)=5

Step 4: Determination of the Chi Square table value in 5% significant level from the table of Chi Square Statistics.

d) Testing of Hypotheses

If it is found that the statistic $x^2$ value is greater than the tabular value for the related df, then Null Hypothesis is rejected and Alternate Hypothesis is accepted.

**7. Interpretation of data :**

The analyses are given based on the following tables:

**Table 1: Distribution of the respondents**

| Name of the Courses | Male | % | Female | % | Total (%) |
|---|---|---|---|---|---|
| PhD | 13 | 10.66 | 23 | 18.85 | 36(29.51) |
| MPhil | 9 | 7.38 | 7 | 5.73 | 16(13.11) |
| MD | 7 | 5.73 | 6 | 4.92 | 13(10.66) |
| DM | 7 | 5.73 | 4 | 3.28 | 11(9.01) |
| MCh/MPH | 3 | 2.45 | 5 | 4.09 | 8(6.56) |
| MSc | 4 | 3.28 | 6 | 4.92 | 10(8.19) |
| BSc | 2 | 1.63 | 18 | 14.75 | 20(16.39) |
| Not mentioned | 3 | 2.45 | 5 | 4.09 | 8(6.56) |
| **Total** | **49** | **40.16** | **73** | **59.84** | **122 (100%)** |

Table 1 depicts the distribution of male and female respondents according to course wise and out of total respondents the percentage of male and female respondents were 40.16% and 59.84% respectively. Out of 40.16 % male respondents, the major respondents were from Ph D course i.e., 10.66 % . On the other hand, out of 59.84 % female respondents, major responses came from Ph D course i.e., 18.85 %.

**Table 2: Spending time of the respondents**

| Duration | Male | Female | Total | % |
|---|---|---|---|---|
| Few minutes | 3(2.45) | 18(14.75) | 21 | 17.21 |
| Half an hour | 10(8.19) | 19(15.57) | 29 | 23.77 |
| One hour | 7(5.73) | 14(11.48) | 21 | 17.21 |
| Two hours | 17(13.93) | 11(9.01) | 28 | 22.95 |
| Three hours and more | 12(9.84) | 11(9.01) | 23 | 18.85 |
| Total | 49 (40.16) | 73 (59.84) | 122 | 100% |

Table 2 shows the distribution of the respondents in regard to their spending time in the library and it is revealed that the duration of the spending time varied from few minutes to three hours or more.

**Table 2.1: Calculation of Chi-Square score**

| Observed value(O) | Expected Value(E) | (O-E) | $(O-E)^2$ | $(O-E)^2/E$ |
|---|---|---|---|---|
| 3 | 8.43 | 5.43 | 29.48 | 3.49 |
| 10 | 11.65 | -1.65 | 2.72 | 0.23 |
| 7 | 8.43 | -1.43 | 2.04 | 0.24 |
| 17 | 11.25 | 5.75 | 33.06 | 2.94 |
| 12 | 9.24 | 2.76 | 7.61 | 0.82 |
| 18 | 12.56 | 5.44 | 29.59 | 2.36 |
| 19 | 17.35 | 1.65 | 2.72 | 0.16 |
| 14 | 12.56 | 1.44 | 2.07 | 0.21 |
| 11 | 16.75 | -5.75 | 33.06 | 1.97 |
| 11 | 13.76 | 2.76 | 7.61 | 0.55 |
| $\chi^2 = \Sigma (O-E)^2/E$ | | | | 12.97 |

Here, $\chi^2$ value is 12.97 (degree of freedom 4) and tabular value on 5% significant level(degree of freedom 4) is 16.75. So, the $\chi^2$ value >tabular value. So, Null Hypothesis is accepted and alternate hypothesis is rejected. Hence, there is no significant relation between the gender of the respondents and their duration of spending time in the library.

**Table 3: Distribution of respondents in regard to Frequency of their library visit**

| Frequency | Male | % | Female | % | Total | % |
|---|---|---|---|---|---|---|
| Once a Day | 2 | 1.63 | 1 | 0.82 | 3 | 2.45 |
| Once a Week | 9 | 7.38 | 6 | 4.92 | 15 | 12.30 |
| Once a Month | 12 | 9.84 | 35 | 28.69 | 47 | 38.52 |
| Several Times | 25 | 20.49 | 28 | 22.95 | 53 | 43.44 |
| Not mentioned | 1 | 0.82 | 3 | 2.45 | 4 | 3.28 |
| Total | 49 | 40.16 | 73 | 59.84 | 122 | 100% |

Table 3 focuses on the frequency of library visit by the respondents where it is found that out of total respondents the maximum percentage of male respondents i.e. 20.49 % visited the library several times in a month followed by 9.84 % male visited the library once a month but on the other hand 28.69 % female respondents visited the library once a month followed by 22.95 % female visited the library several times in a month.

**Table 3.1: Calculation of Chi-Square score**

| Observed value(O) | Expected value (E) | (O- E) | ( O-E)2 | (O-E)2/E |
|---|---|---|---|---|
| 2 | 1.20 | 0.8 | 0.64 | 0.53 |
| 9 | 6.02 | 2.98 | 8.88 | 1.48 |
| 12 | 18.88 | -6.88 | 47.34 | 2.51 |
| 25 | 21.28 | 3.72 | 13.84 | 0.65 |
| 1 | 1.60 | -0.6 | 0.36 | 0.23 |
| 1 | 1.79 | -0.79 | 0.62 | 0.35 |
| 6 | 8.98 | -2.98 | 8.88 | 0.99 |
| 35 | 28.12 | 6.88 | 47.33 | 1.68 |
| 28 | 31.71 | -3.71 | 13.76 | 0.43 |
| 3 | 2.39 | 0.61 | 0.37 | 0.15 |
| | $\chi^2 = \Sigma (O-E)^2/E$ | | | 9.00 |

Here, $\chi^2$ value is 9 and tabular value on 5% significant level is 9.488 for the related df 4. So, the Tabular value is greater than the calculated $\chi^2$ value. So, Null Hypothesis is accepted and alternate hypothesis is rejected.Therefore, there is no relation between the gender of the respondents and the frequency to access the library is granted.

**Table 4: Distribution of the respondents in regard to their purpose of library use**

| Using purpose | Yes | | No | | Abstained | | Total (%) |
|---|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female | |
| Reference books consultation | 15(12.29) | 82(67.21) | 3(2.45) | 4(3.28) | 8(6.56) | 10(6.20) | 122 |
| Subject books reading | 36(29.50) | 50(40.98) | 3(2.45) | 9(7.38) | 8(6.56) | 16(13.11) | 122 |
| General books reading | 12(9.84) | 28(22.95) | 15(12.29) | 15(12.29) | 17(13.93) | 35(28.69) | 122 |
| Preparation of class assignments | 30(24.59) | 45(36.88) | 8(6.56) | 8(6.56) | 15(12.29) | 16(13.11) | 122 |
| Discussion with fellow scholars | 8(6.56) | 21(17.21) | 10(6.20) | 21(17.21) | 21(17.21) | 31(25.41 | 122 |
| Preparation for Exam notes | 29(23.77) | 61(50%) | 6(4.91) | 5(4.10) | 9(7.38) | 12(9.84) | 122 |
| Borrow and Return of books | 40(32.79) | 56(45.90) | 7(5.74) | 6(4.91) | 6(4.91) | 7(5.74) | 122 |

Table 4 depicts the distribution of the respondents in regard to their purpose of Library use. It is seen that out of total respondents, female respondents had used library more than their counterparts.

**Table 5: Distribution of respondents regarding frequency of internet use in the library**

| Frequency of internet use | Male | Female | Total with Percentage |
|---|---|---|---|
| Several times in a week | 10 (8.20) | 6 (4.91) | 16 (13.11) |
| Once a week | 3 (2.45) | 4 (3.28) | 7 (5.74) |
| Once a month | 2 (1.64) | 11 (9.02) | 13 ( 10.66) |
| Several times per month | 7 (5.74) | 3 (2.45) | 10 (8.20) |
| Not used during the last few months | 26 (21.31) | 45 (36.89) | 71 (58.20) |
| No comments | 1 (0.82) | 4 (3.28) | 5 (4.10) |
| Total | 49 (40.16) | 73 (59.84) | 122 (100%) |

Table 5 represents the frequency of use of internet by the users in the library. Out of 40.16% male students, 8.20 % used several times in a week and out of 59.84% female students, 4.91% used several times in a week. Among weekly users, 2.45% were male and 3.28 % were female and among monthly users, 1.64 % were male and 9.02% were female. Out of total respondents, 5.74 % male and 2.45% female used several times in a month, 21.31% male and 36.89 % female used internet seldom, 1.82% male and 3.28 % female did not make any comment on the issue.

**Table 5.1: Calculation of Chi-Square score**

| Observed value(O) | Expected Value(E) | (O-E) | $(O-E)^2$ | $(O-E)^2/E$ |
|---|---|---|---|---|
| 10 | 6.42 | 3.58 | 12.81 | 1.99 |
| 3 | 2.81 | 0.09 | 0.03 | 0.01 |
| 2 | 5.22 | -3.22 | 10.36 | 1.98 |
| 7 | 4.01 | 2.99 | 8.94 | 2.23 |
| 26 | 28.52 | -2.52 | 6.35 | 0.22 |
| 1 | 2 | -1 | 1 | 0.5 |
| 6 | 9.57 | -3.57 | 12.74 | 1.33 |
| 4 | 4.19 | -0.19 | 0.03 | 0.007 |
| 11 | 7.78 | 3.22 | 10.37 | 1.33 |
| 3 | 5.98 | -2.98 | 8.88 | 1.48 |
| 45 | 42.48 | 2.52 | 6.35 | 0.15 |
| 4 | 2.99 | 1.01 | 1.02 | 0.34 |
| $\chi^2 = \Sigma (O-E)^2/E$ | | | | 11.567 |

Here, $\chi^2$ value is 11.567 (degree of freedom 5) and tabular value on 5% significant level (degree of freedom 5) is 11.07. Here, $\chi^2$ value > Tabular value. So, Null Hypothesis is rejected and alternate hypothesis is accepted and there is a relation between the variables.

**Table 6 : Distribution of respondents regarding frequent use of online materials in the library**

| Frequency for use of online resources | Male | Female | Total with Percentage |
|---|---|---|---|
| Several times in a week | 7 (5.74) | 4 (3.28) | 11 (9.02) |
| Once a week | 5 (4.10) | 3 (2.45) | 8 (6.56) |
| Once a month | 3 (2.45) | 12 (9.83) | 15 (12.29) |
| Several times per month | 7 (5.74) | 4 (3.28) | 11 (9.02) |

| | | | |
|---|---|---|---|
| Not used during the last few months | 23 (18.85) | 41 (33.61) | 64 (52.46) |
| No comments | 4 (3.28) | 9 (7.38) | 13 (10.66) |
| Total | 49 (40.16) | 73 (59.84) | 122 (100%) |

Table 6 shows the distribution of respondents in regard to their use of online materials in the library. It is observed that 5.74% male and 3.28% female respondents used several times in a week; 4.10 % male and 2.45 % female respondents used the library once a week; 5.74% male and 3.28% female respondents used several times in a month; 2.45 % male and 9.83 % female respondents used the library once a month,18.85 % male and 33.61 % female did not use the library during the last few months and 3.28% male and 7.38%female respondents did not make any comment.

**Table 6.1 Calculation of Chi-Square score**

| Observed value(O) | Expected Value(E) | (O-E) | $(O-E)^2$ | $(O-E)^2/E$ |
|---|---|---|---|---|
| 7 | 4.42 | 2.58 | 6.66 | 1.51 |
| 5 | 3.21 | 1.79 | 3.20 | 0.99 |
| 3 | 6.02 | -3.02 | 9.12 | 1.52 |
| 7 | 4.42 | 2.58 | 6.66 | 1.51 |
| 23 | 25.70 | -2.7 | 7.29 | 0.28 |
| 4 | 5.22 | -1.22 | 1.49 | 0.29 |
| 4 | 6.58 | -2.58 | 6.66 | 1.01 |
| 3 | 4.79 | -1.79 | 3.20 | 0.67 |
| 12 | 8.98 | 3.02 | 9.12 | 1.01 |
| 4 | 6.58 | -2.58 | 6.66 | 1.01 |
| 41 | 38.30 | 2.7 | 7.29 | 0.19 |
| 9 | 7.78 | 1.22 | 1.49 | 0.19 |
| $\chi^2 = \Sigma (O-E)^2/E$ | | | | 10.18 |

Here, $\chi^2$value is 10.18 (degree of freedom 5) and tabular value on 5% significant level (degree of freedom 5) is 11.07. So, the Tabular value is greater than $\chi^2$ value. So, Null Hypothesis is accepted. Therefore, there is no relation between the gender of the respondents and the frequency to use the online materials in the library is granted.

## 8. Findings :

The analyses of collected data lead to conclusive findings. It is found that the major responses came from PG and higher level. Female respondents of Nursing department were the major respondents in UG level andout of 59.84% female respondents in higher level, major (18.85 %.) responses came from Ph D course. (Table 1)

It is found that the maximum number male respondents (20.49%) visited the library several times in a month followed by 9.84 % visited the library once a month. (Table 3)

It is seen that female respondents (45.90%)had used library more than 32.79% male counterparts for different purposes.(Table 4)

It is revealed that 21.31% and 18.85% male and 36.89% and33.61 female used internet and online materials seldom. It is observed that 8.20% and 5.74% male and 4.91% and 3.28% female used those several times in a week respectively.(Tables 5 & 6)

In regard to testing of hypothesis, it is individually proved that there is no relation between the male and female respondents about their duration of spending time in the library (Table 2.1); there is no relation between the male and female respondents and the frequency to access the library (Table 3.1); but there is a relation between the gender of the respondents to use the internet in the library (Table 5.1); and to use the online materials in the library (Table 6.1).

Opinions of the respondents can be summarized that there is a need for longer hour for the reading room till midnight and staff to be deployed in 3 shift basis; for collections, suggestions of the students are to be given priority while buying books and there should be updated books with recent editions; e-journals are to be accessible more and Library should subscribe both online and offline journals on continuing basis. Moreover, remote networking facilities are needed in the library.

## 9. Conclusion :

The users of NIMHANS library are all related to Medical Science. The mapping of their usage pattern of library resources explores some of the important aspects which are to conclude that both the male and female students are using the library to access the printed and online resources. The usage pattern has not been changed

even in the pandemic situation. It reflects the fact that like the hospital, library usage has also not been hampered much in the pandemic situation because the users are in constant search of information to upgrade them. The users also opined that due to engagement withtheir classes and clinical duties in day time, there is a need for extensionof working hours in the library along with more updated information.Therefore this study conducted in NIMHANS library flares out the usage pattern of information related to mental health which is one of the important areas of Medical Science. Similar research may be carried out in other medical institutions which are dealing with mental health and Neuroscience in other parts of the country to compare the usage pattern of information helping to draw a holistic mapping of information usage among the users related to the concerned medical fraternity.

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# Usage of Electronic Resources by the Students of Sree Chaitanya College, Habra during Lockdown Period : a case study

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**Abstract :**

The novel corona virus pandemic has made us use the digital resources more extensively due to closure of colleges across the globe. Library professionals and users all over the world have had to adjust to new ways of work and life. This study is an attempt to explore the purpose of using e-resources, types of e-resources and type of sites searched during lockdown period. It also expresses the current status of online services of the college and finds scopes and gives necessary recommendations to improve the online services. Online survey research design is used to conduct the study. The findings of the study have established that majority of PG students are more aware of different types of e-resources as comparing to UG students.Ithas also tried tofind out the impediments encountered by the users while accessing and using e-resources and to suggest some recommendations for optimal utilization of e-resources. The study is an original work conducted based on primary data which are collected from regular students of UG and PG level of this college.

**Key words :**

E-resources (Electronic resources), Google search,NDLI, N-LIST, Online Databases, Swayam, Websites

## 1. Introduction :

A drastic change has taken place in every aspect of our life around the world due to outbreak of COVID-19 pandemic. No one was ready toconfront and outbrave this situation. All of a sudden, educational institutes have also been shut down for indefinite period of time. After few months, under the guidance of Government as well as UGC,educational institutes started adapting distance learning methods and

shifting towards online classes as well as conducting online examinations. This situation challenged the ways academic libraries used to function. All the libraries have promoted their digital services. Most of the college libraries in semi urbanarea are not well equipped to render the digital services, though they have tried to promote the services with their minimum e-resources through library websites (like N-list e- resources, NDLI link, other free online remote access sites etc.)

## 2. Review of the literature :

Shastri and Chudasma (2021)discussed how library professionals provided services and resources to users when they need resources/information and which techniques/methods library professionals adopted to fulfill the requirements of the patrons during COVID-19. Adeniran (2013) revealed that the use of electronic resources had tremendous impact on academic performances of the undergraduate students of Redeemer's university; however, there wasa need for them to acquire more skills in the use of electronic resources. Dadhe and Dubey (2020) explored the type of services provided by the libraries of Indian Institute of Technology based on the contents published on their web pages. It also highlighted the significant initiatives taken by the libraries which can be followed by others to meet the post lockdown needs. Ishtiaq, Sehar and Shahid(2020) highlighted the role of university library to disseminate information during pandemic. Ali and Saleem (2020) expressed the major role of libraries and librarians in providing of services during COVID-19 pandemic. Dhuri and Lobo (2021) highlighted the importance of N-LIST e-resources to fulfill the information needs of the users and the satisfaction level of the users during pandemic era. They also depicted that the users are very satisfied with the e-resources provided under N-LIST consortium.

## 3. Significance of the study :

This study is significant as the findings would help the college library in formulation of proper policies and effective strategies to increase e-resources for delivering library services more effectively in future. It also helps for understanding the usage of e-resources by the students in similar type of colleges.

**4. Objectives :**

i. To identify the awareness of e-resources among the students.
ii. To find out the purpose of utilization of e-resources during lockdown.
iii. To identify the types of e-resources searched by the students.
iv. To identify the types of sites searched to retrieve the e-resources.
v. To determine the type of online services rendered by the college library
vi. To know the major issues and concerns in using e-resources.
vii. To study the level of satisfaction with the use of electronic resources.
viii. To suggest suitable recommendations to improve the usage of e-resources.

**5. Scope and limitations :**

The present study is conducted during the lockdown period(from 15th February to 16th March 2021) and confined to 2nd year and 3rd year of undergraduate (UG) and1st year and 2nd year of post graduate (PG) students of Science, Humanities and Social Science streams of SreeChaitanya College, Habra. The survey is conducted amongfive faculties of science (Mathematics, Physics, Chemistry, Zoology and Botany), four faculties of Humanities (Bengali, English, History and Sanskrit), four faculties of Social Science (Anthropology, Economics, Philosophy and Political Science) and only two faculties of postgraduate students (Chemistry, Bengali). It is pertinent to mention that only two subjects (Chemistry and Bengali) are taught in PG level in this college. The survey is limited to 1407 students ofUG (Honours) and postgraduate only out of 2390 students. Students of General stream are not considered in this study.

**6. Research methodology :**

Survey method was employed for carrying out this study. A Structured questionnaire was prepared to collect the data.The questionnaires were posted to the UG and PG students on 15th February, 2021 inthe specific whatsApp-groups of students where they engaged in online classes. They were requested to mail with the filled-in questionnaires within 30 days to the specified e-mail address. Frequency counts and simple percentage were used in analyzing the data collected.

## 7. Data analysis and discussion :

### Table 1: Discipline wise distribution of the respondents

| Level | Discipline | Target Respondents | Response Received | |
|---|---|---|---|---|
| | | | Number | Percentage (%) |
| UG | Science | 950 | 610 | 64.21 |
| | Humanities | 680 | 290 | 42.65 |
| | Social Sciences | 520 | 330 | 63.46 |
| | Total | 2150 | 1230 | 57.20 |
| PG | Science | 160 | 137 | 85.63 |
| | Humanities | 60 | 42 | 70.00 |
| | Total | 220 | 179 | 81.36 |
| Grand Total (UG+PG) | | 2370 | 1409 | 59.45 |

Table 1 shows the discipline wise distribution of the students under this study. In the light of feedback response, PG students' response is higher (81.36%) than the UG students (57.20%).

### Table 2: Discipline, subject and gender wise distribution

| Discipline | Gender | UG Level (Total 1230) | | | | | | | PG Level (Total 179) | | Grand Total (UG+PG) Total (1409) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Subjects | | | | | | | Subjects | | | |
| | Boys/Girls | Mathematics | Physics | Chemistry | Botany | Zoology | Total | (%) | Chemistry | (%) | N | (%) |
| Science | Boys | 70 | 75 | 80 | 85 | 86 | 396 | 32.19 | 76 | 42.46 | 472 | 33.50 |
| | Girls | 35 | 35 | 40 | 52 | 52 | 214 | 17.40 | 61 | 34.08 | 275 | 19.52 |
| | Total | 105 | 110 | 120 | 137 | 138 | 610 | 49.59 | 137 | 76.54 | 747 | 53.02 |
| | (%) | 8.54 | 8.94 | 9.76 | 11.14 | 11.22 | 49.59 | | 76.54 | | 53.02 | |

| | Boys/Girls | English | Bengali | History | Sanskrit | Total | (%) | Bengali | (%) | N | (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Humanities | Boys | 18 | 32 | 40 | 10 | 100 | 8.13 | 18 | 10.05 | 118 | 8.39 |
| | Girls | 35 | 55 | 70 | 30 | 190 | 15.45 | 24 | 13.41 | 214 | 15.19 |
| | Total | 53 | 87 | 110 | 40 | 290 | 23.58 | 42 | 23.46 | 332 | 23.56 |
| | (%) | 4.31 | 7.07 | 8.94 | 3.25 | 23.58 | | 23.46 | | 23.56 | |
| | Boys/Girls | Anthropology | Political Sc | Philosophy | Economics | Total | (%) | | | N | (%) |
| Social Sciences | Boys | 17 | 55 | 50 | 08 | 130 | 10.57 | * | * | 130 | 9.94 |
| | Girls | 25 | 80 | 90 | 05 | 200 | 16.26 | * | * | 200 | 14.19 |
| | Total | 42 | 135 | 140 | 13 | 330 | 26.83 | * | * | 330 | 23.42 |
| | (%) | 3.41 | 10.98 | 11.38 | 1.06 | 26.83 | | | | | |

Table 2 shows gender, discipline and subject wise distribution of the valid respondents of UG and PG level. It is observed that more responses have been received from boys of Science stream, but girl respondents are more from Humanities and Social Sciences.On the other hand, in PG section, out of total 179 students 76.54% are from Science and 23.46% from Humanities.

**Table 3: Awareness of internet sources/e-resources among the students**

**Table 3.1: For UG level students: (Total respondents 1230)**

| Internet Sources/ e-resources | Yes/ No | Science | | Humanities | | Social sciences | | Total | |
|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % |
| Online catalogue (OPAC) | Yes | 590 | 47.97 | 255 | 20.73 | 296 | 24.07 | 1141 | 92.76 |
| | No | 20 | 1.63 | 35 | 2.85 | 34 | 2.76 | 89 | 7.24 |
| Online Databases | Yes | 130 | 10.57 | 51 | 4.15 | 87 | 7.07 | 268 | 21.79 |
| | No | 480 | 39.02 | 239 | 19.43 | 243 | 19.76 | 962 | 78.21 |
| Question Answering sites | Yes | 401 | 32.60 | 115 | 9.35 | 220 | 17.88 | 736 | 57.84 |
| | No | 209 | 16.99 | 175 | 14.23 | 110 | 8.94 | 494 | 40.16 |
| N-LIST, NDLI | Yes | 500 | 40.65 | 102 | 8.29 | 299 | 24.31 | 901 | 73.25 |
| | No | 110 | 8.94 | 188 | 15.28 | 31 | 2.52 | 329 | 26.75 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Video showing sites | Yes | 335 | 27.24 | 95 | 7.72 | 155 | 12.60 | 585 | 47.56 |
| | No | 275 | 22.36 | 195 | 15.85 | 175 | 14.23 | 645 | 52.44 |
| Social networking sites | Yes | 600 | 48.78 | 275 | 22.36 | 311 | 25.28 | 1186 | 96.42 |
| | No | 10 | 0.81 | 15 | 1.22 | 19 | 1.54 | 44 | 3.58 |
| Other sites like Swayam, ePGpathshala etc. | Yes | 121 | 9.84 | 47 | 3.82 | 65 | 5.28 | 233 | 18.94 |
| | No | 490 | 39.87 | 243 | 19.77 | 265 | 21.54 | 997 | 81.06 |

**F stands for frequency of respondents & % stands for percentage.**

N.B.: Total sample exceeds the required size as the question is multiple choices

It is evident from the table 3.1 that OPAC, N-LIST and Social networking sites are well known to most of the students (OPAC 92.76%, N-LIST 73.25% and social networking sites 96.42%). It is also clear from the table that the awareness of e-resources among UG Humanities students is not up to the mark.

**Table 3.2: For PG level students :( Total respondents 179)**

| Internet Sources/ e-resources | Yes/ No | Science | | Humanities | | Total | |
|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % |
| Online catalogue (OPAC) | Yes | 137 | 76.54 | 42 | 23.46 | 179 | 100 |
| | No | 0 | 0 | 0 | | 0 | 0 |
| Online Databases | Yes | 134 | 74.86 | 37 | 20.67 | 171 | 95.53 |
| | No | 03 | 1.68 | 05 | 2.79 | 08 | 4.47 |
| Question Answering sites | Yes | 135 | 75.42 | 35 | 19.55 | 170 | 94.97 |
| | No | 02 | 1.12 | 07 | 3.91 | 09 | 5.03 |
| N-LIST, NDLI | Yes | 137 | 76.54 | 42 | 23.46 | 179 | 100 |
| | No | 0 | 0 | 0 | 0 | 0 | 0 |
| Video showing sites | Yes | 133 | 74.30 | 33 | 18.44 | 166 | 92.74 |
| | No | 04 | 2.23 | 09 | 5.03 | 13 | 7.26 |
| Social networking sites | Yes | 137 | 76.54 | 42 | 23.46 | 179 | 100 |
| | No | 0 | 0 | 0 | 0 | 0 | 0 |
| Other sites like Swayam, ePGpathshala etc. | Yes | 129 | 72.07 | 39 | 21.79 | 168 | 93.85 |
| | No | 10 | 5.59 | 03 | 1.68 | 11 | 6.15 |

**F stands for frequency of respondents & % stands for percentage. (N.B.: Total sample exceeds the required size as the question is multiple choices.)**

Table 3.2 reflects that the awareness of e-resources/sites among PG students is much higher than that of UG students. The credit of cent percent awareness of OPAC, N-LIST, and social sites goes to them irrespective of discipline. The table depicts that the awareness level of Humanities students is lower than that of Science students.

**Table 4: Purpose of using e-resources during lockdown**

| Purpose | UG Level | | PG Level | | UG+PG | |
|---|---|---|---|---|---|---|
| | Total 1230 students | | Total 179 students | | Total 1409 students | |
| | F | % | F | % | F | % |
| For studying course material for Exam. | 1125 | 91.46 | 146 | 81.56 | 1271 | 90.21 |
| For project work & assignment | 1019 | 81.84 | 155 | 86.59 | 1174 | 83.32 |
| For career development | 690 | 56.10 | 161 | 89.94 | 851 | 60.40 |
| Learning & Knowledge updating | 550 | 44.72 | 139 | 77.65 | 689 | 48.90 |
| Entertainment & General Information | 995 | 80.89 | 120 | 67.04 | 1115 | 79.13 |

(N.B.: Total sample exceeds the required size as the question is multiple choices.)

Table 4 shows the purpose of using e-resources during pandemic.For overall consideration (when UG and PG combined), it is seen that maximum number of students have spent their time in using online resources for studying course material for examination (90.21%) and for project work (83.22%), whereas 79.13% and 60.40% students have used e-resources for entertainment and career development respectively during the lockdown period.

**Table 5: Type of e-resources searched**

| Types of e-resources | UG Level | | PG Level | | UG+PG | |
|---|---|---|---|---|---|---|
| | Total 1230 students | | Total 179 students | | Total 1409 students | |
| | F | % | F | % | F | % |
| E-Books, E-Journals | 825 | 67.07 | 157 | 87.71 | 982 | 69.69 |
| E- Question papers | 1096 | 89.11 | 105 | 58.66 | 1201 | 85.24 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Specific topic of their studies | 1180 | 95.93 | 164 | 91.62 | 1344 | 95.39 |
| Video lectures | 590 | 47.97 | 125 | 69.83 | 715 | 50.75 |
| Digital Databases | 438 | 35.61 | 169 | 94.41 | 607 | 43.08 |
| E-News (General Information) | 851 | 69.19 | 112 | 62.57 | 963 | 68.35 |

**(N.B.: Total sample exceeds the required size as the question is multiple choices)**

It is observed from the table 5 thatmajority of the students both UG andPG have searched specific topics of their studies (95.93% and 91.62% respectively). In considering the overall response, searching digital databases and video lectures are much lower than any other searches. These are only 43.08% and 50.75% respectively.

**Table 6: Type of sites searched**

| Type of site searched | UG Level | | | | PG Level | | | Total |
|---|---|---|---|---|---|---|---|---|
| | Total Respondents1230 | | | | Total Respondents 179 | | | Total 1409 |
| | Science F/ (%) | Human-ities F / (%) | Social Sciences F / (%) | Total F / (%) | Science F / (%) | Human-ities F / (%) | Total F / (%) | F / (%) |
| N-LIST | 421 (34.23) | 95 (7.72) | 255 (20.73) | 771 (62.68) | 90 (53.07) | 65 (36.31) | 155 (86.59) | 926 (65.72) |
| NDLI | 447 (36.34) | 89 (7.24) | 290 (23.58) | 826 (67.15) | 85 (47.49) | 55 (30.73) | 140 (78.21) | 966 (68.56) |
| Google | 610 (49.59) | 290 (23.58) | 330 (26.83) | 1230 (100) | 94 (52.51) | 85 (47.49) | 179 (100) | 1409 (100) |
| You-tube | 590 (47.97) | 190 (15.45) | 320 (26.02) | 1100 (89.43) | 91 (50.84) | 57 (31.84) | 148 (82.68) | 1248 (88.57) |
| Swayam | 91 (7.40) | 25 (2.03) | 45 (3.66) | 161 (13.09) | 88 (49.16) | 48 (26.82) | 136 (75.98) | 297 (21.09) |
| ePGPathshala | 101 (8.21) | 65 (5.28) | 85 (6.85) | 251 (20.41) | 87 (48.60) | 60 (33.52) | 147 (82.12) | 398 (28.25) |
| Other sites | 321 (26.10) | 57 (4.63) | 301 (24.47) | 679 (55.20) | 90 (50.28) | 70 (39.11) | 160 (89.39) | 839 (59.55) |

**F/ (%) stands for frequency of respondents/percentage**.

(N.B.:Total sample exceeds the required size as the question is multiple choices )

The Table 6 reveals the various sites searched by the students of UG and PG levels of different discipline to retrieve online information.In depth analysis conveys that students of Science faculty use more sites as comparing to Humanities and Social Sciences students.

**Table7: Type of services used by the students through college library during lockdown period**

| Services provided by the college | UG Level Out of 1230 students | | PG Level Out of 179 students | | UG+PG Total 1409 students | |
|---|---|---|---|---|---|---|
| | F | % | F | % | F | % |
| N-LIST,NDLI | 751 | 61.06 | 160 | 89.39 | 911 | 64.66 |
| OPAC | 608 | 49.43 | 141 | 78.77 | 749 | 53.16 |
| Local Repository (E-Questions, Lecture notes, E-Syllabus etc.) | 1055 | 85.77 | 150 | 83.80 | 1305 | 92.62 |
| Link of Open Access Resources | 350 | 28.46 | 135 | 75.42 | 485 | 34.42 |
| Referral service | 750 | 60.98 | 35 | 19.55 | 785 | 55.71 |

**(N.B.: Total sample exceeds the required sample size as the questions are multiple choices.)**

Table 7 reflects that for overall consideration (UG and PG combined), local repository and N-LIST/NDLI have proved to be the most useful services rendered by the college during this pandemic situation. 92.62% students have used local repository and 64.66% students have used N-LIST, NDLI.

**Table No.8: Assistance for searching e-resources**

| Assistance Obtained | Respondents | Percentage (%) |
|---|---|---|
| From Teachers | 998 | 70.83 |
| From Librarians | 851 | 60.40 |
| From Friends | 650 | 46.13 |
| By Self | 1050 | 74.52 |
| From Other persons | 421 | 29.88 |

(N.B.: Total sample exceeds the required size as the question is multiple choices.)

The Table 8 depicts that 70.83% students have got help from their teachers for searching required information, 60.40% from library professionals, and 46.13% from friends. But 74.52% of the students have searched e-resources by self assistance.

**Table 9: Problems faced for searching e-resources**

| Problems | Respondents | Percentage (%) |
|---|---|---|
| Limited access to computer with proper internet connectivity | 815 | 57.84 |
| Lack of searching skill | 1087 | 77.15 |
| Lack of resources in my subject | 950 | 67.42 |
| Time consuming | 1109 | 78.71 |
| Difficulty in finding relevant information | 675 | 47.91 |
| Scarcity of e-resources and limited number of open access link in my college library | 1195 | 84.81 |
| Some full texts required subscription or payment | 591 | 41.94 |
| Language problem | 450 | 31.94 |

**(N.B.: Total sample exceeds the required size as the question is multiple choices.)**

The Table 9 shows that a lot of problems have been encountered by the students of this collegeto retrieve e-resources. It has focused that most the students face the problem of lack of searching skill and non-availability of e-resources and limited number of open access link in my college library.

**Table 10: Satisfaction level of accessing e-resources during lockdown period**

| Satisfaction level | UG Level | | PG Level | | UG+PG | |
|---|---|---|---|---|---|---|
| | Out of 1230 students | | Out of 179 students | | Total 1409 students | |
| | F | % | F | % | F | % |
| Excellent | 25 | 2.03 | 15 | 8.38 | 40 | 2.84 |
| Very good | 51 | 4.15 | 35 | 19.55 | 86 | 6.10 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Good | 230 | 18.70 | 50 | 27.93 | 280 | 19.87 |
| Poor | 474 | 38.54 | 44 | 24.58 | 518 | 36.76 |
| Very poor | 450 | 36.59 | 35 | 19.55 | 485 | 34.42 |

It is reflected from the table 10 that the satisfaction level of different students varies. Most of the students are not satisfied with accessingof e-resources. It is seen that the satisfaction level of PG students is slightly higher than UG students.

**Table 11: Opinion of the students to take measures for optimal use of e-resources**

| Measures | Respondents | Percentage (%) |
|---|---|---|
| To enhance local repository | 1240 | 88.00 |
| To arrange users' training program at regular interval | 1245 | 88.36 |
| To increase Band width for speedy searching & downloading | 980 | 69.55 |
| To increase the facility of remote access | 1005 | 71.33 |
| To digitize textbooks & reference books at institutional level | 1301 | 92.33 |
| Institutional membership should be taken with different universities, Intuitions or Publishers to access e-resources. | 1084 | 76.93 |
| To increase collection of e-resources on regional languages | 650 | 46.13 |

(**N.B.:** Total sample exceeds the required size as the question is multiple choices.)

Table 11 depicts various opinions of students for optimizing the usage of e-resources in this college. Most of them (92.33%) favourthe digitization of text and reference books.

**8. Interpretations of the major findings :**

i. Both boys and girls are conscious about the use of e-resources for progressing their studies. It is seen from the study, majority of girls students come from the Humanities and Social Sciences streams.In depth analysis reveals that a large number of students of Sanskrit, English, Bengali, Anthropology and Economics are reluctant to use online resources.

ii. The analysis shows that the PG students of both Science and Humanities stream are much more aware of different online sources than that of UG students.

iii. During lockdown period, the main purpose of using e-resources by both UG and PG students is to get through the examination by searching syllabus oriented online course material and doing project work. But PG students are conscious about career information along with study topics. Their search items are quite different from UG students. They have also concentrated on e-books, e-journals, e-databases etc.

iv. Most popular searches are Google and You-tube search that are reflected in this study. But N-LIST, NDLI, online educational databases are required by the students for authentic information.

v. During lockdown period college students have tried to get help about the accessing procedure of e-resources from their teachers and librarians. But a good number of students haveaccessed e-resources of their own accord.

vi. There is no doubt that pandemic situation enhances the utilization of e-resources among college library patrons.

**9.Conclusion :**

The sudden and violent start of COVID-19 pandemic and its continuous lashing with one after another wave has brought our life to a standstill. This situation paved the way for library and library professionals to resort to more and

more e-platforms to keep the educational field rhythmic to a great extent. Libraries of different Universities, IITs, and Research Institutes have developed their digital environment. But college libraries, especially libraries in semi urban and rural areas are at initial stages of Automation or Digitization. So in this pandemic situation, students of this college are partially affected for getting e-resources. The social responsibility of library professionals is to provide the information on how to access e-resources to the users.

**10. Suggestions :**

This college library is not adequately equipped with modern technologies, but has to be updated to cope with the continuous changing scenario.Some recommendations have been enumerated below:

i. The college library should take initiative to create and enhance local repository.

ii. Financial assistance is required from college authority at regular interval to modernize the library with latest technologies along with subscription of e-resources and skilled manpower.

iii. Collaboration with different institutions should be done for local repositories through consortium.

iv. Different links for remote access as well as in-house e-resources must be in one place i.e. in Library web page for the convenience of the users.

v. Library professionals should organize frequent users orientation program for search strategy of e-resources. They should keep in touch with users regularly for knowingtheir satisfaction level of e-resource systems and services. It is inevitable for proper use of online resources.

vi. Mobile App to access all online databases, online books and journals, library website with comprehensive guide about how to login to access e-resources etc. should be introduced immediately.

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# Perception and Attitudes of College Teachers towards Academic Social Networking Sites : with special reference to the college teachers of Nagaon District of Assam

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**Abstract :**

Academic Social Networking Sites (ASNS) have become one of the popular and important platforms in the changing scenario of highereducation in the 21st century. The ASNSs have been playing a pivotal role in knowledge sharing especially within academic community. The present study tries to explore the perception and attitude of College Teachers of Nagaon district, Assam towards academic social networking sites.A structured questionnaire designed for data collection was distributed among the college teachers through email and WhatsApp. The study gives a clear picture about the awareness and use of ASNS by the college teachers of Nagaon district. Data analysis revealed that 99% of the respondents were aware of ASNS. The study further showed that 97% of the respondents have their account in various ASNS. Out of the surveyed ASNS 79.59% respondents have accounts in Research Gate followed by Academia.Edu (60.2%). The College Teachers have been using these ASNS for various reasons such as for uploading publications, to communicate with academicians and researchers etc. This is the first study of its kind on perception and attitudes of college teachers towards academic social networking sites of Nagaon District of Assam.

**Keywords :**

Academia Edu, Academic Social Networking Sites (ASNS), CollegeTeachers, Google Scholar, LinkedIn, Mendeley, Research Gate, Scholastica

## 1. Introduction :

Academic Social Networking Sites have become one of the popular and important platforms in the changing scenario in 21st century education. In comparison to the Social networking sites (SNS), the ASNS are more specific to academic fraternity in sharing their academic activities, specializations, publications and assessing other impacts of scholarly communications. There are so many ASNSs available in the web. Some of them are Research Gate,Google Scholar, LinkedIn, Mendley, Zotero, Scholastica etc. These sites are totally different in comparison to the other social networking sites. These sites help to improve our level of knowledge and specially apprise us about the new research updates in different areas. Moreover University Grants Commission (UGC) has given much more emphasis on research and development amongst the teaching community working in universities and colleges. ASNSs may be helpful in carrying out research activities.

## 2. Literature review :

Barbour and Marshall(2012) described that in ASNSs, researchers can present their professional experience, ideas including the number of citations and downloads of his articles and thereby gradually buildup their professional reputation.El-Berry (2015) conducted a study to explore the awareness and use of five popular ASNSs among the academic staff in South Valley University in Egypt and found that most of the academic staffs were aware of using ASNS. Asmi and Madhusudhan(2015) described that with the changing paradigm of information seeking patterns of research scholars, ASNSs offers new ways to communicate and gather knowledge. Pieterse and Meishan (2016) in their study investigated the nature of the use and perceived utility of ASNS for those academic fraternities whose professional careers are based on the performance and publication of studies. Bardakci et al. (2017) explored that although ASNS were widely used, majority of the participants did not use or acquired them as a way of collabo-

rative knowledge building with other researchers. Jordan and Weller(2018) gave an insight study in to the various issues regarding use of ASNS and found a wide range of benefits and limitations associated with it.Parabhoi and Kumari(2018) found that ASNSs are very much important in academic life and its features are rapidly changing. The study also revealed the quantum of the use of ASNS by the academic community of Indian School of Mines,Dhanbad.Mohammad et al. (2018) also described the ASNS from two different perspectives i.e. properties of ASNS and statistical comparison of ASNS. Neog(2020) found that the research scholars of the central universities of Assam have a positive perception and attitudes towards academic use of social networking sites provided by their respective university libraries.

**3. Statement of the problem :**

It is observed that a good number of faculty members are working in the colleges of Nagaon district. Some of them have been using the ASNS for their academic upliftment as well as career advancement. It is also observed that ASNS are not extensively used as compared to the use of social networking sites.So, this study has been conducted to investigate the perception and attitude of college teachers towards Academic social networking sites and the quantum of using these sites by them.

**4. Objectives :**

The main objective of this study is to investigate about the perception and attitudes of College Teachers towards academic social networking sites. Followings are the specific objectives lined up in order to meet the main objective:

* To find out the awareness of the college teachers about ASNS
* To discover the popular Academic SNSs among the teaching community
* To find out the frequency of use of ASNS by college teachers
* To know about the benefits from ASNS
* To find out difficulties while using ASNS by teachers.

**5. Scope and Limitation of the study :**

The study will investigate the colleges of Nagaon district of Assam. As on today (2021), there are 25 colleges in Nagaon, Assam. This study has been concentrated on thecolleges (Table 1), which have been accredited with 'A' grade by NAAC (National Assessment and Accreditation Council).Hence, the present study has been confined only to the teachers of Nowgong College, AnandaramDhekialPhookan (ADP) College, Nowgong Girls' College and Kaliabor College.

**Table 1: Colleges of Nagaon district of Assam under study**

| Sl. No. | Name of the College | Year of Establishment | NAAC Grading | Year of Accreditation |
|---|---|---|---|---|
| 1 | Nowgong College | 1944 | A | 2019(3rd cycle) |
| 2 | ADP College | 1959 | A | 2015(2nd cycle) |
| 3 | Nowgong Girls' College | 1962 | A | 2015(2nd cycle) |
| 4 | Kaliabor College | 1969 | A | 2015(2nd cycle) |

## 6. Methodology :

To conduct this study Survey method was applied with a Structured Questionnaire to collect required data from the Teachersof the Colleges of Nagaon district of Assam.The Stratified random sampling has been applied in this study. A sample of 282 college teachers [31.72% of the total population (from the colleges of Nagaon accredited with 'A' grade by NAAC)]has been taken up from a total population of 889 College Teachers of the Colleges of Nagaon district of Assam.

**Table 2: Total number of college teachers of the colleges of Nagaon district of Assam accredited with 'A' grade by NAAC**

| Sl. No. | Name of the College | No. of Teachers |
|---|---|---|
| 1 | Nowgong College | 76 |
| 2 | ADP College | 65 |
| 3 | Nowgong Girls' College | 68 |
| 4 | Kaliabor College | 73 |

(Source: College websites)

A total of 282 structured questionnaires (google form) were distributed among the college teachers through WhatsApp and e-mail. Total 98 valid responses were received which is 34.75% of the total population.The collected data have been

scrutinized tabulated and analyzed separately using MS-Excel spreadsheet.

**7. Data analysis and results :**

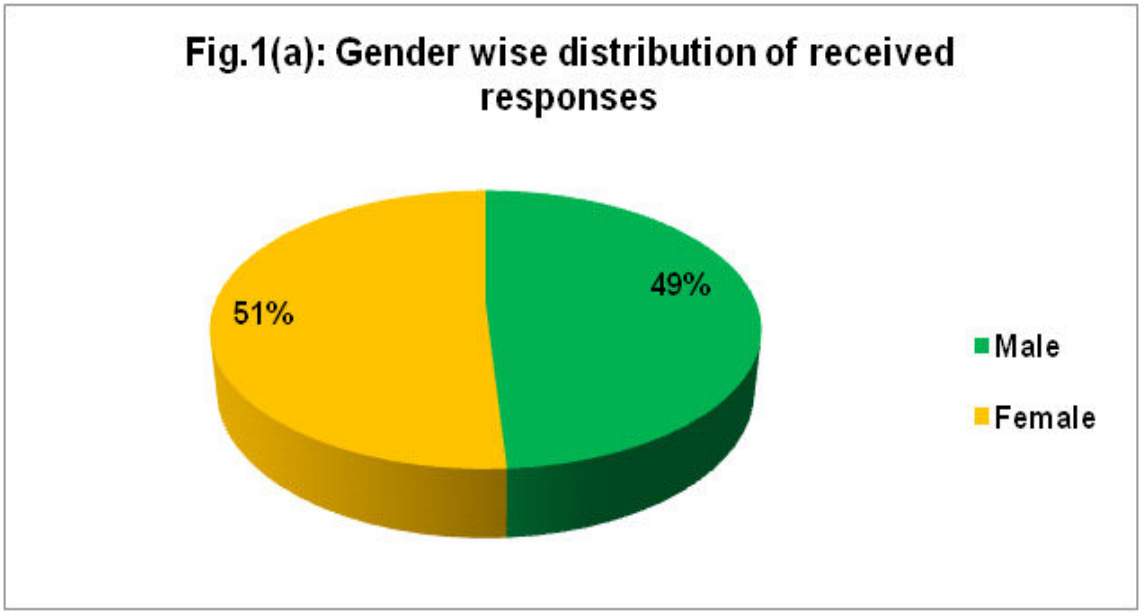
The data received on different parameters from the respondents have been analyzed, interpreted and presented as under.

**7.1 Demographic characteristics of the respondents :**

The demographic characteristics of the respondents are shown in the following figures.

**7.1.1 Gender wise distribution of respondents:**

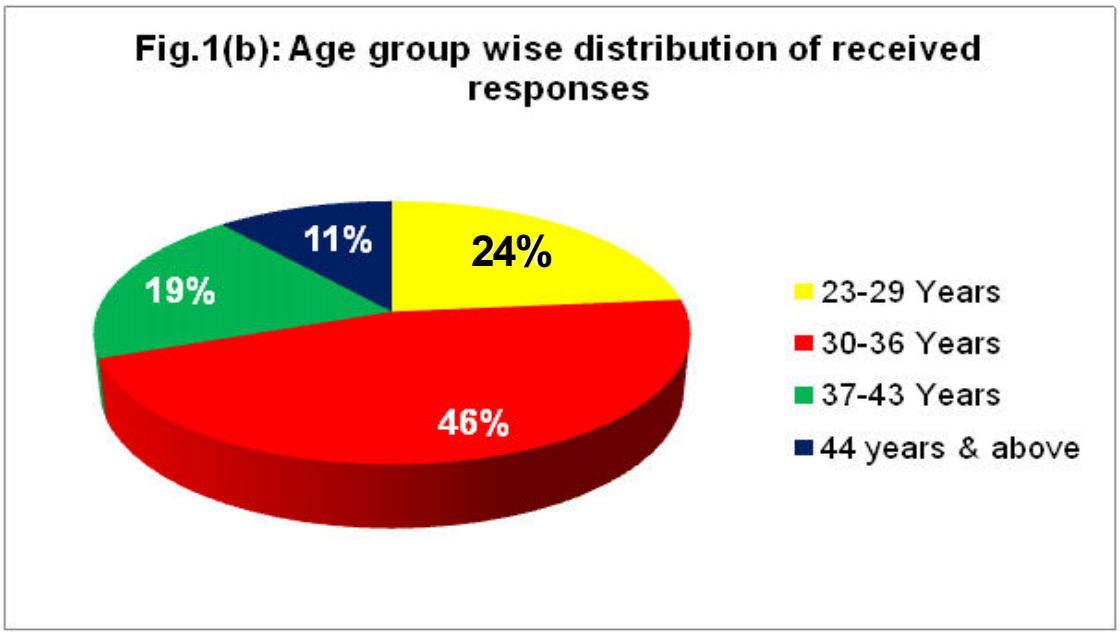
In the Figure 1 (a) the gender wise distribution of received responses has been described.




Out of the total 98 respondents 49% respondents are male and 51% respondents are female.

### 7.1.2 Age group wise distribution of respondents :

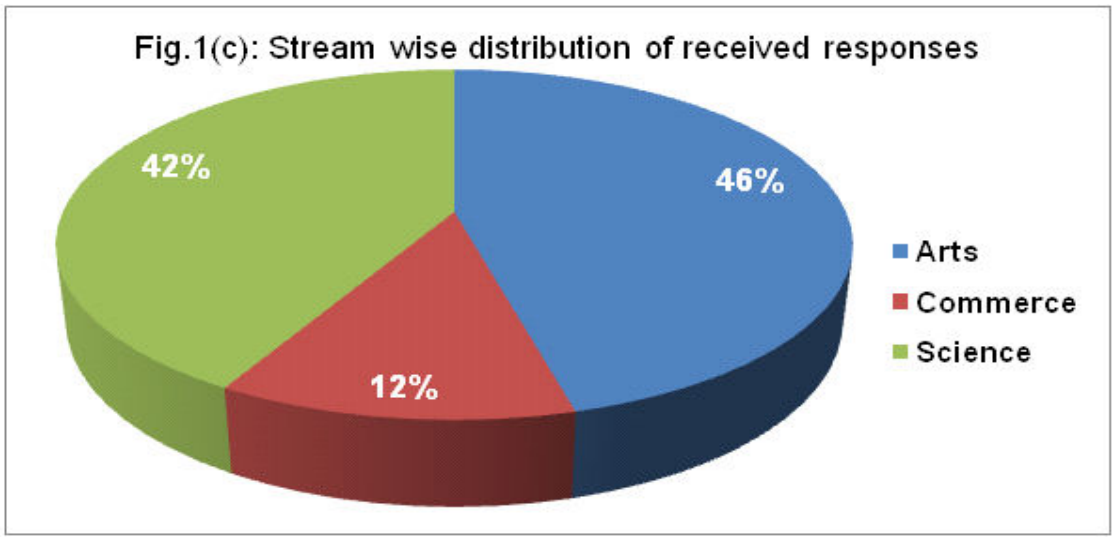
Age group wise distribution of received responses has been described in Fig.1 (b).




24% of the total respondents are in the age group of 23-26 years. 46% of the respondents are of 30-36 years of age. 19% respondents are in the age group of 37-43 years. 11% respondents are of 44 years and above.

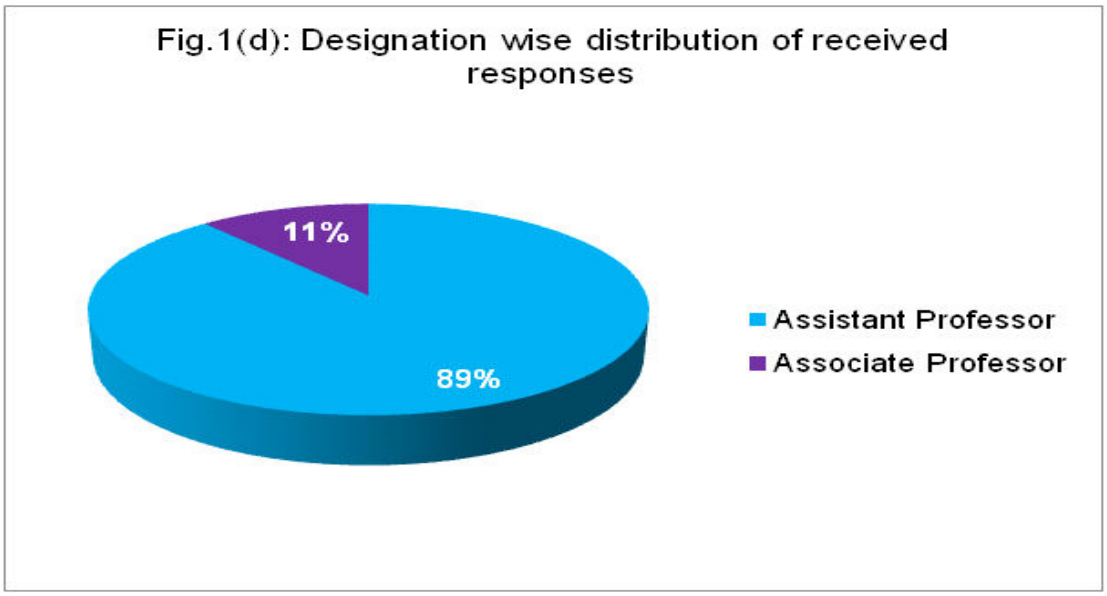
### 7.1.3 Stream wise distribution of respondents :

Stream wise distribution of respondents can be



The figure shows that 46% of the respondents are from Arts stream, 12% respondents are from Commerce stream and 42% respondents are from Science stream.

### 7.1.4 Designation wise distribution of respondents :




In the Fig.1 (d) designation wise distribution of respondents has been described. The figure shows that 89% of the respondents are Assistant Professor and 11% respondents are Associate Professor.

### 7.2 Awareness about ASNS :

The awareness of the college teachers of the surveyed colleges about ASNSs have been described in the figure Fig.2.

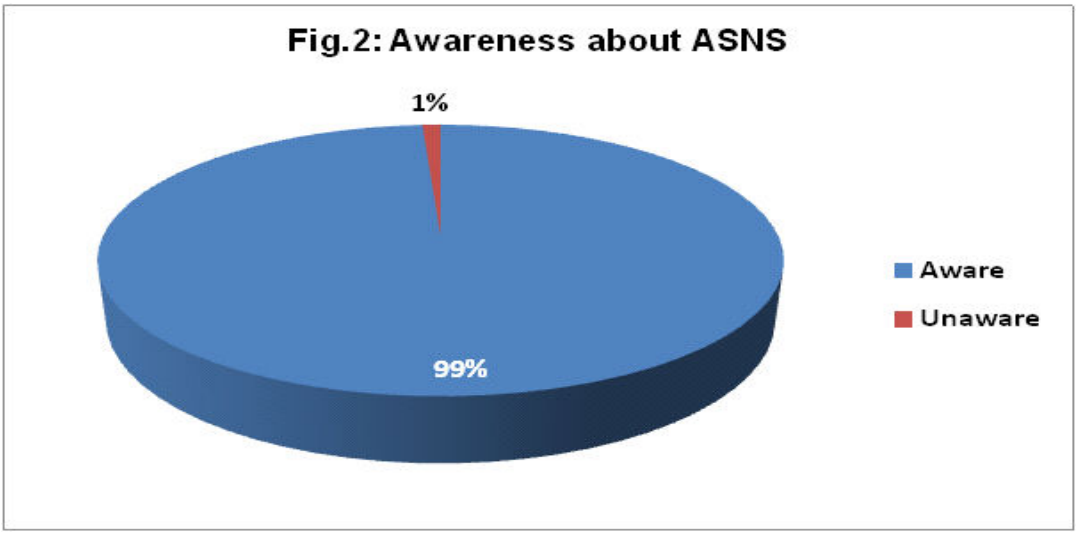
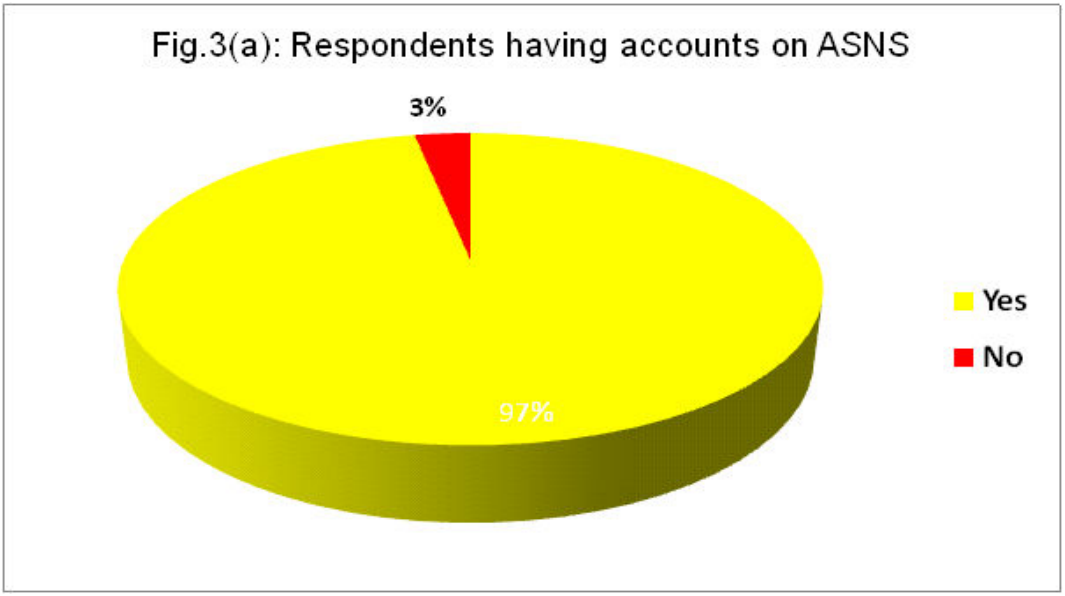


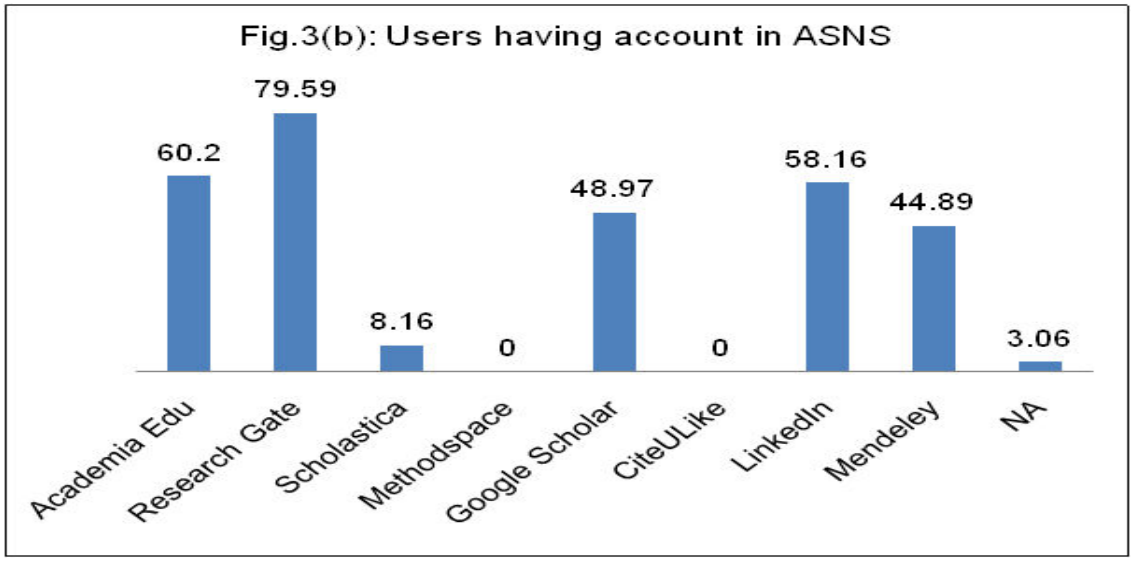
Fig.2 shows that 99% of the total respondents are aware about the ASNSs and only 1% respondents are unaware about the ASNSs.

**7.3 Respondents having accounts on ASNS :**

The following figures Fig.3(a) and Fig.3(b) have been used to describe about the status of the respondents having accounts on various ASNSs.Fig.3(a) shows that 97% of the total respondents have accounts on ASNSs and 3% have no accounts on ASNSs.



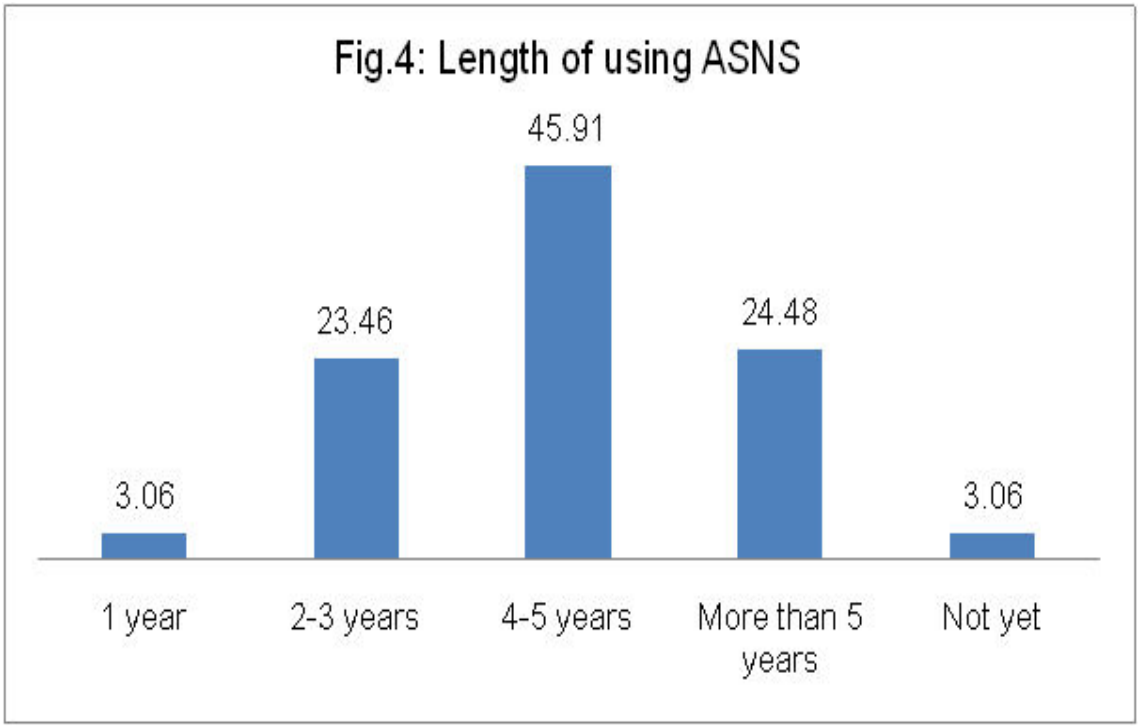

On the other hand, Fig.3(b) shows the status of the respondents having accounts on different ASNSs



From the Fig.3(b) it is found that 60.2% of the respondents have accounts on Academia.Edu. Research Gate has been used by 79.59% respondents. 8.16% respondents have their account on Scholastica. 48.97% respondents under this study are having their account on Google Scholar. LinkedIn has been used by 58.16% respondents under this study. 44.89% of the respondents are having their account on Mendeley. On the other hand, 3.06% respondents have no accounts on any of the ASNSs.

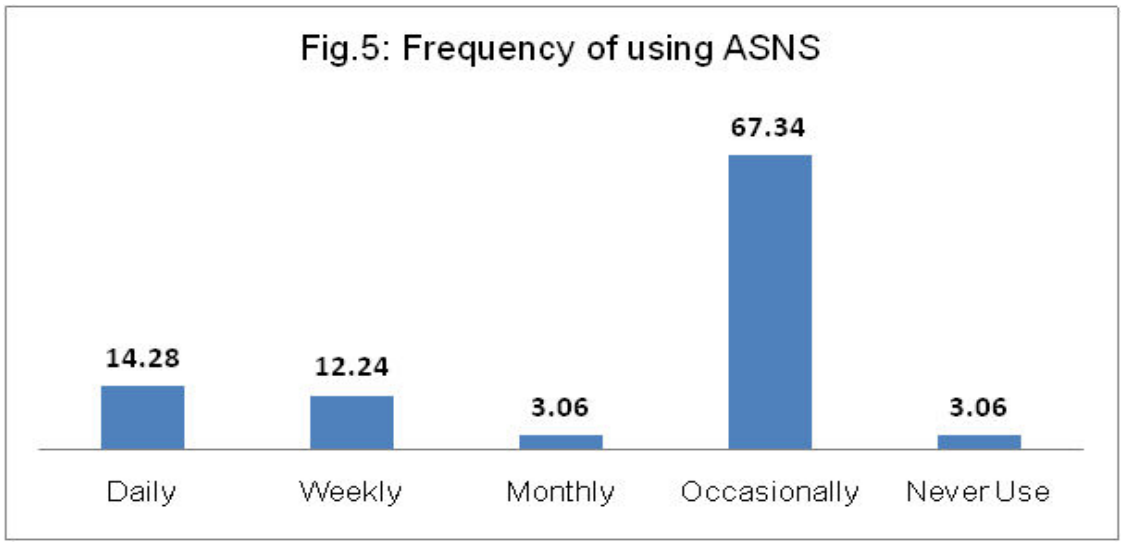
### 7.4 Length of using ASNSs:

The lengths of following ASNSs by the college teachers of the surveyed colleges have been represented in the following figures.The Fig.4 shows the number college teachers using ASNSs for what period.



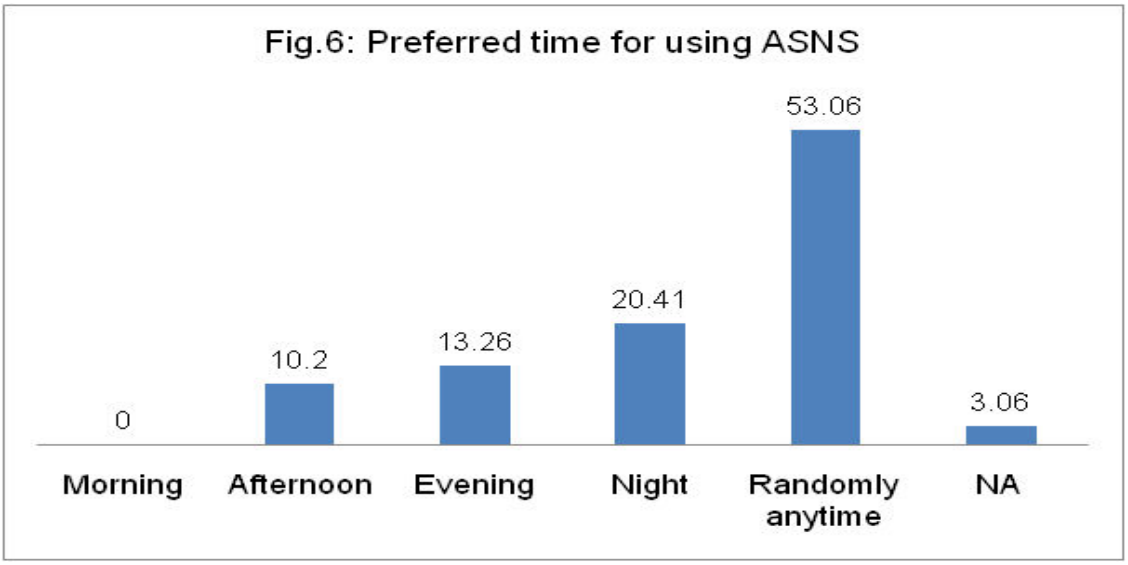

### 7.5 Frequency of using ASNSs:

Frequency of using ASNSs by the college teachers of the surveyed colleges have been represented in the Fig.5.



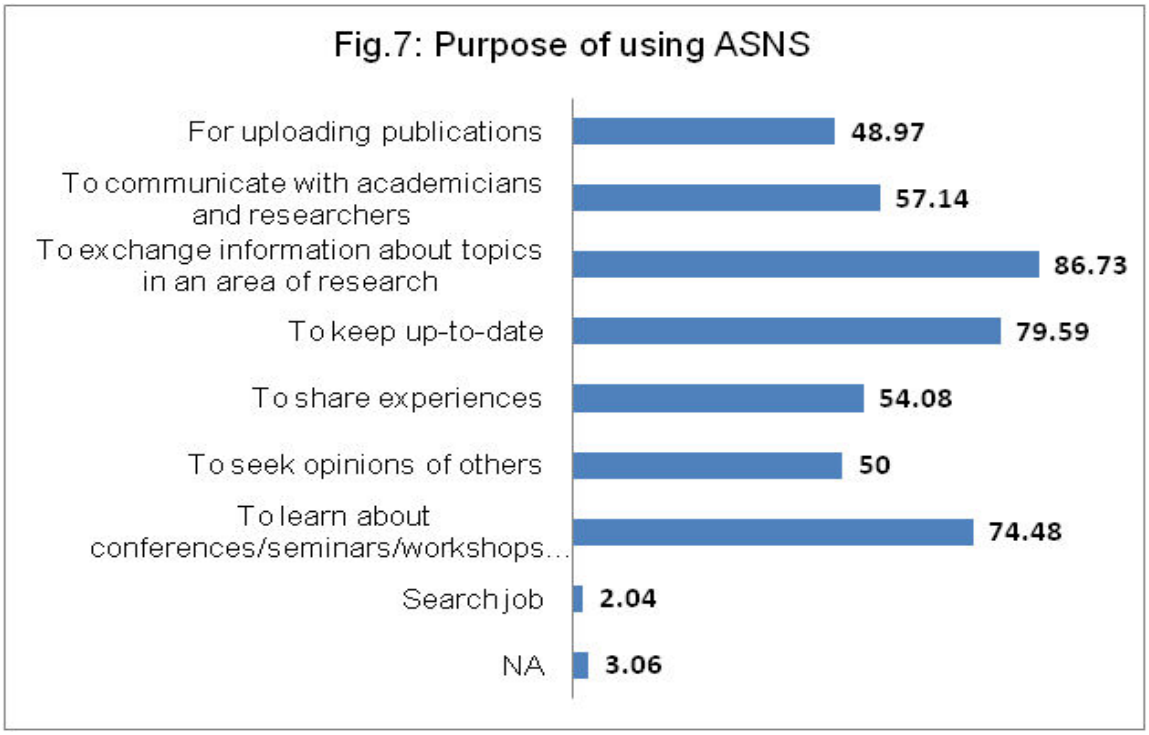

### 7.6 Preferred time for using ASNS :

Preferred time of the college teachers for using ASNSs is an important aspect of this study. Fig.6 has been used to describe the preferred time for using ASNSs by the college teachers.



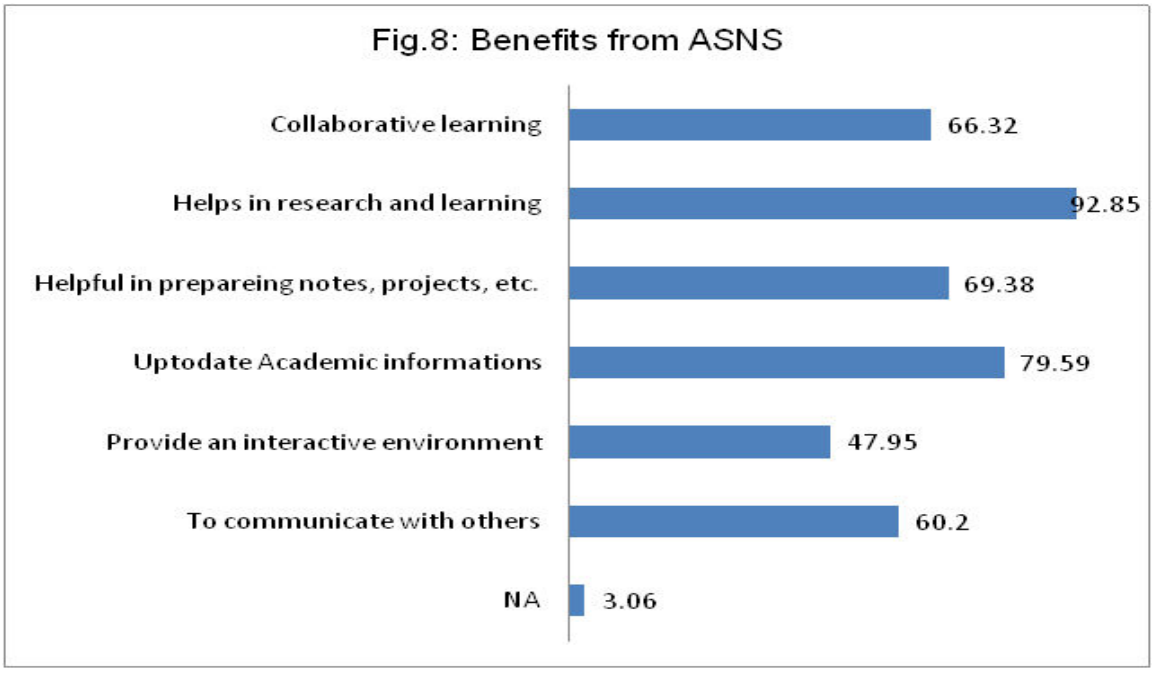

### 7.7 Purpose of using ASNS :

The purpose of using ASNSs may be different from person to person. The purpose of using ASNSs by the college teachers under the study has been represented in the Fig.7.



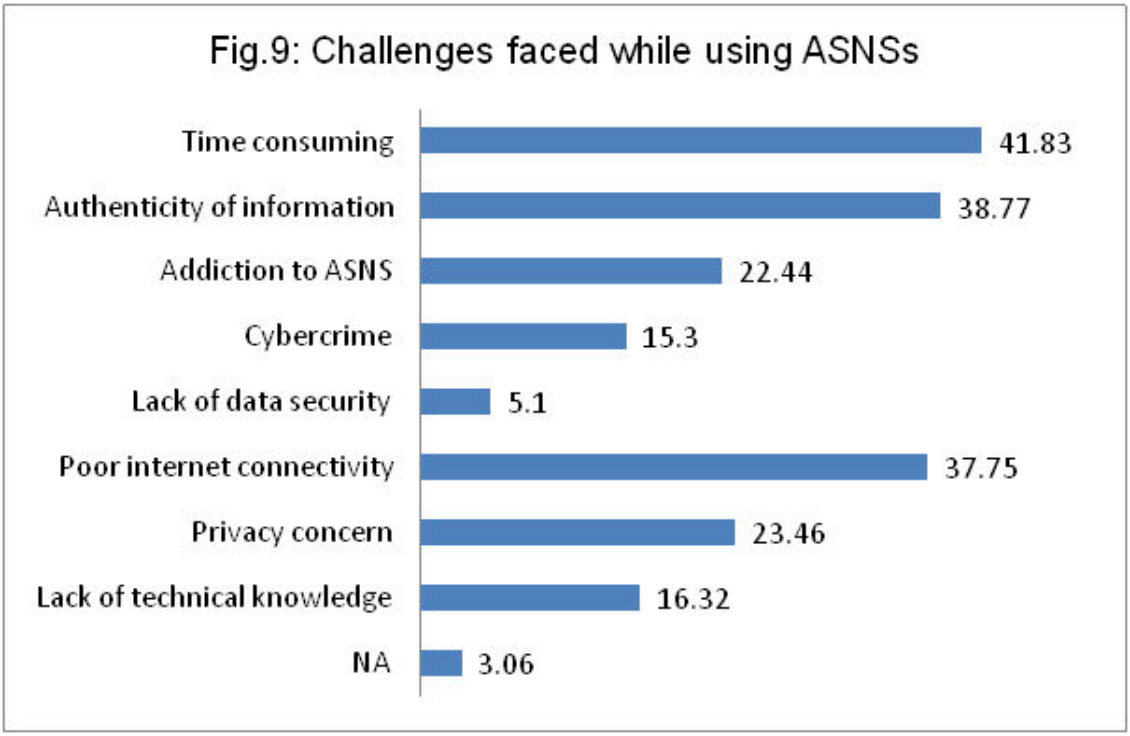

**7.8 Benefits from ASNS :**

The benefits gained by the college teachers of the surveyed colleges from using ASNSs have been analyzed from their responses and have been described in Fig.8



### 7.9 Challenges faced while using ASNSs :

The challenges faced by the college teachers while using ASNSshave been discussed in the Fig.9.From the Fig.9, it is found that 41.38% respondents have experienced that ASNSs are 'time consuming'. According to 38.77% college teachers, 'authenticity of information' is a challenge while using ASNSs.




### 7.10 Reliability of information available on ASNSs:

The reliability of information available on ASNSs as per the college teachers has been described in the Fig.10.

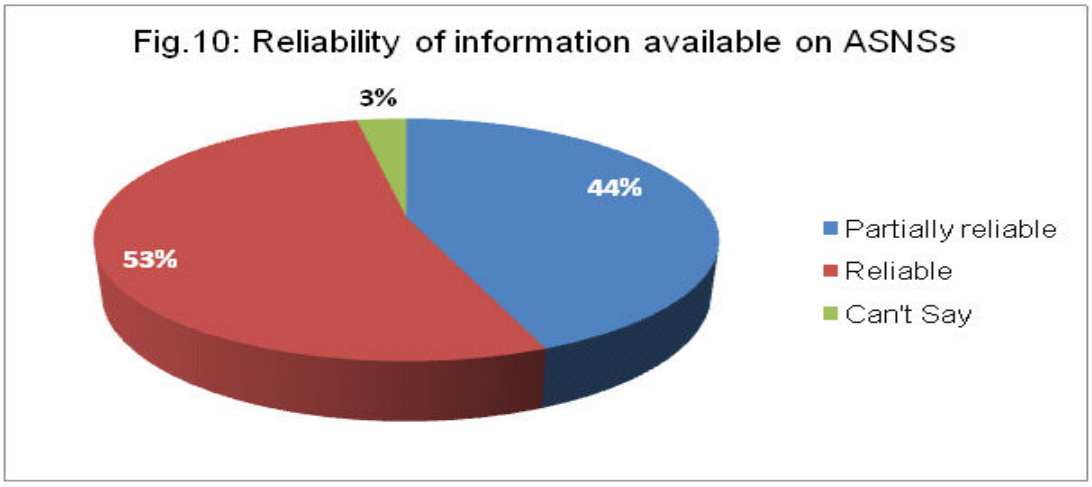
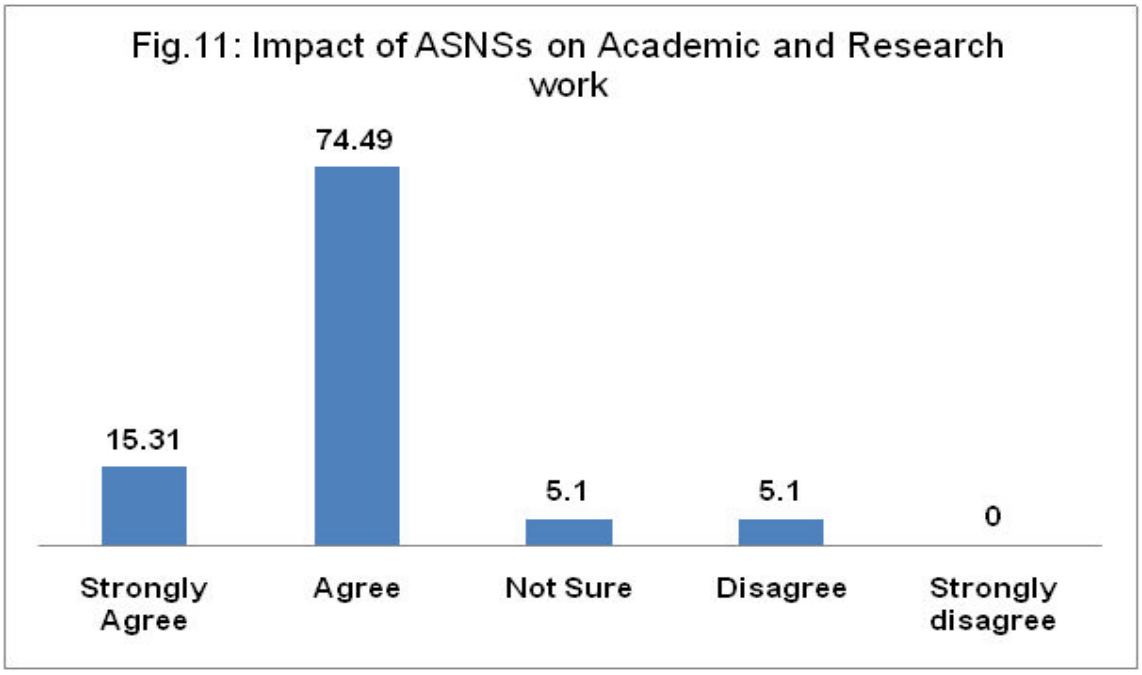


Fig.10 shows that 44% college teachers believe that information available on ASNSs are 'partially reliable'. On the other hand, information available on ASNSs are 'reliable' to 53% of the college teachers. 3% college teachers opined that they 'can't say' anything about the reliability of information available on ASNSs.

### 7.11 Impact of ASNSs on Academic and Research work :

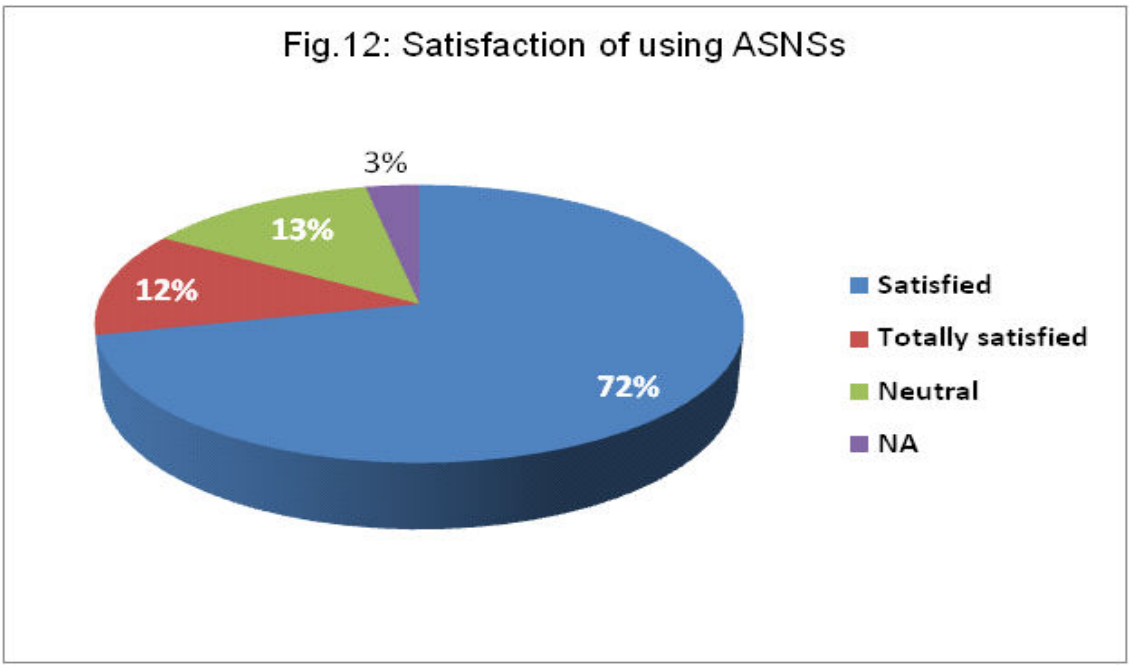
The impact of using ASNSs by the college teachers on their academic and research work has been described in the Fig. 11.




15.31% of the college teachers 'strongly agreed' that ASNSs have impacts on their academic and research work. 74.49% of the college teachers 'agreed' that ASNSs have impacts on their academic and research work. 5.1% respondents 'disagreed' of having any impact of ASNSs on their academic and research work. On the other hand, 5.1% college teachers were 'not sure' about having any impact of ASNSs on their academic and research work.

### 7.12 Satisfaction of using ASNSs :

The satisfaction got by the college teachers after using ASNSs has been described in the Fig.12.The Fig.12 shows that 72% of the college teachers are 'satisfied' with the ASNSs. 12% respondents opined that they are 'totally satisfied' with ASNSs.13% college teachers expressed 'neutral' opinion on satisfaction of using ASNSs. On the other hand, getting satisfaction is not applicable to 3% respondents as they don't have any account in ASNSs.




### 8. Discussion :

The key findings have been discussed below:

- It is found more than 90% respondents are aware about the ASNSs.
- The study revealed that Research Gate is the most popular ASNS.
- It is found that 14.28% college teachers of the colleges under this study visit ASNSs on daily basis, 12.24% college teachers visit weekly, 3.06% respondent visit monthly, 67.34% college teachers visit their ASNSs 'occasionally'.
- More than 90% teachers opined that ASNSs 'Helps in research and learning'.

- At the time of using ASNSs teachers faced some difficulties due the factors of time consuming, remote location of colleges, privacy concern etc.

**9.Conclusion :**

ASNS has become an integral academic necessity of most of the research scholars and academicians as it provides them opportunity to communicate globally with the peers regarding their ongoing research and to share their published works.

It is found from the study that the majority of college teachers of Nagaon district are aware of the use and benefits of ASNSs. But, to cop up with the rapid changing features of ASNSs and University Grants Commission's (UGC) new rules emphasized on quality research and publication, there is a need for more exercises regarding use of ASNSs like seminars, workshops, Faculty Development Programs, etc. at individual as well as at institutional level. The Internal Quality Assurance Cell (IQAC) of the respective colleges can take active role by insisting the teachers for more research and research publications.Apart from this, there is a scope of creating intra district academic social networking group among the college teachers of Nagaon districtengaging the teachers with more research publications and research experience as mentor. This collaborative effort will surely give benefits to those faculty members who are not using the ASNS or unaware of the use of ASNSs.There is a scope of further studies to explore the use of other ASNS by the College Teachers of Assam and impact of these sites on their professional excellence.

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# A Study of Scholarly Open Access Journals in DOAJ with Special Reference to Business and Management

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**Abstract :**

Open access (OA) journals in 'Business and Management' have grown in number over a period and analysis of it provides an insight and understanding of the factors, which led to such growth. The study using quantitative records method analyses downloaded metadata of publications from 'Directory of Open Access Journals' (DOAJ). From the analysis of data, it reports 427 Business and Management journals indexed in the directory reflecting impressive year wise growth rate, which has jumped to 92.27% from 2011. Results and discussions indicate about cent percent peer review process followed by these journals, with 78.69% journals not levying any Article Processing Charges (APC) and more than 99% of these, publishing articles under Creative Commons (CC) license. Further, the study confirms quantitative analysis of various factors such as country of origin, language, ranking, inclusion in citation indexes and UGC CARE list, digital archiving, etc.

**Keywords :**

Author Processing Charges (APCs), Business and Management, DOAJ, Open Access, Open Access Journals, Open Access Licensing, Scopus, Web of Science

## 1. Introduction :

Open access has heralded a new era in the dissemination of scholarly content. It is evident from its availability in various forms on the Internet, at no cost and distributed with open license by publishers, scholarly societies, and individuals. Its growth is phenomenal with umpteen numbers of scholarly journals, repositories, books, theses, dissertations, and others (Morrison, 2020). As per one estimate,

today, more than 47% of the scholarly literature available is OA through Gold, Green and Bronze models of OA (Piwowar et al., 2018). This to a greater extent because of the embracement of OA models by scholarly publishers and authors. Secondly, hybrid model of publications by publishers such as Elsevier, Wiley, and Springer including scholarly societies has also corroborated to this development. DOAJ, a platform for OA journals currently lists 16600+ OA titles, 6.3+ million articles in all fields of knowledge representing 126 countries (DOAJ, 2021) considered as one of the authoritative sources to find out such journals. The present study focuses on the status of 427 OA journals in 'Business and Management' indexed in this directory based on various parameters.

## 2. Review of literature :

Over a period, the number of OA journals published has multi-folded across the disciplines, barring the predatory OA journals. Innumerable numbers of studies have highlighted the growth of OA journals. In a study, Falk (2004) has observed the steady increase in the number of OA journals, from 5 in 1992 to 1200 in 2004. Similarly, a systematic quantitative study of growth during a period 1993-2009 has showed that average annual growth of OA journals is at 18% from 2000 (Laakso et al., 2011). A trend in growth of open access journals for a period 2002 to 2018 revealed 12065 journals indexed in DOAJ covering all fields of study and a major contribution coming from Indonesia and United Kingdom (Hugar, 2019). In respect to growth of OA journals in social sciences, Mishra and Maharana (2020) have discussed OA journals in social sciences in DOAJ and reported highest increase in their numbers i.e., 22.17% in the year 2013. In another study a comparative analysis of growth of OA journals in Natural and Social sciences based on Web of Science found growth in both the disciplines, but more so in natural sciences (Liu & Li, 2018).

In terms of indexing of OA journals in directories and indexes, McVeigh (2004) pointed out their growing coverage to the extent of 20% in Science, Social Science and Humanities citation indexes brought out by Thomson Reuters. Similarly, Gul, Vani and Majeed (2008) have elaborated on the increase of OA journals across the continents in 'Scopus' database. The status of OA journals in DOAJ in terms of number of publications, their coverage in JCR (Web of Science) and Scopus published from D8 countries has been studied in yet another study (Ghane & Niazmand, 2016). They found that, 13.8% of the journals indexed in DOAJ published from D8 countries and their coverage in JCR stands at 11.7% and in Scopus at 29%. Rodrigues and Abadal (2014) have also explored the number of Ibero American OA journals covered in Scopus and Web of Science databases and found that, out

of 879 journals indexed, 82% are open access. It has been found from the review that, the growth of OA journals across the domains is remarkable and their indexing in citation indexes may encourage authors to consider these journals for publication.

### 3. Objectives of the study :

The core objectives of this study are as follows:

- To find out the existent position of OA journals in Business and Management;
- To explore the number of OA journals covered in indexing and abstracting databases like, Scopus, Web of Science and UGC-CARE list;
- To discover the SJR rankings of OA journals;
- To comprehend the OA journals digital archiving policy;
- To study the 'Licensing' model adopted by publishers for dissemination of OA Journals; and
- To know the publication fees (APC) applied for publication in journals

### 4. Scope and limitations of the study :

The scope of the study is confined to only journals in the areas of 'Business and Management' indexed in DOAJ and excludes journals indexed by any other sources or single titles hosted on the Internet.

### 5. Methodology :

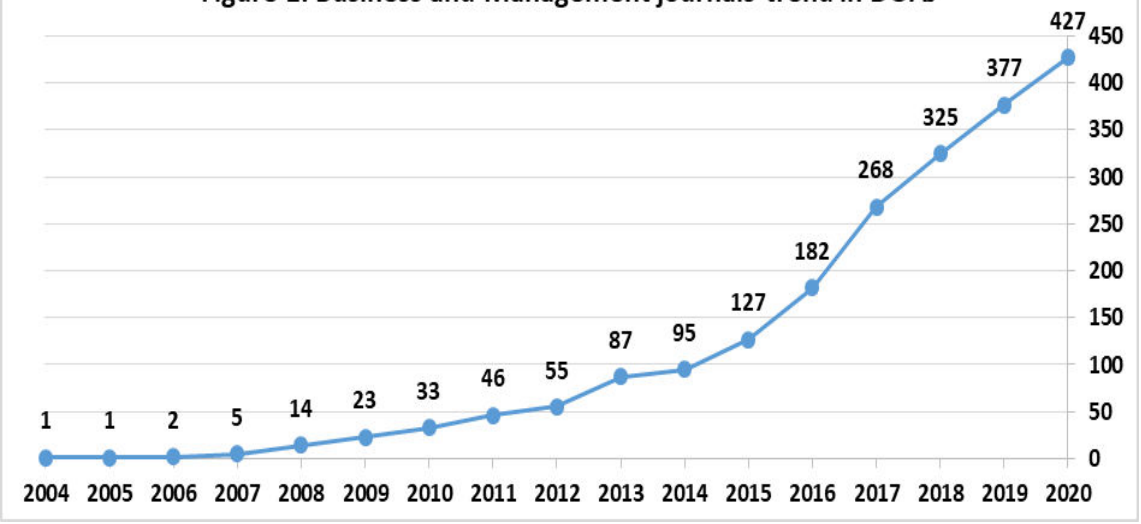
The study using quantitative records method analyses OA journals in 'Business and Management' identified from the downloaded metadata of journals from DOAJ (https://doaj.org/csv) using a subject filter 'Social Sciences: Commerce: Business*'. From the data, it is evident that a total of 427 titles belong to the field of Business and Management (2004-2020). Further, the data was segregated by applying a filter formula on the respective fields and was analysed using Microsoft Excel. The list of journals was also compared with data of UGC-CARE list (https://ugccare.unipune.ac.in/Apps1/Home/Index), Scopus (https://www.scopus.com/sources.uri), and Web of Science (https://mjl.clarivate.com/home). To identify the Journal rankings, SciMago (https://www.scimagojr.com) database has also been consulted.

## 6. Discussion and analysis :

### 6.1 Business and Management journals trend in DOAJ

The growth of Business and Management journals in DOAJ database is progressively increasing over the years. The first Business & Management journal was being added into the DOAJ in the year 2004 and as of 2020 it has 427 titles. The data confirms that year-wise growth of journal titles in Business & Management is impressive, recording 92.27% increase in number of titles from 2011 due to OA initiatives. The Figure 1 portrays the journals trend in DOAJ from 2004 to 2020.

Figure 1. Business and Management journals trend in DOAJ




### 6.2 Current of OA publications:

**Table 1 : Current of OA journals - 2016-2020 :**

| Published in the year | No. of journals | Percentage |
|---|---|---|
| 2020 | 160 | 37.47 |
| 2019 | 65 | 15.22 |
| 2018 | 68 | 15.93 |
| 2017 | 93 | 21.78 |
| 2016 | 41 | 9.60 |
| **Total** | **427** | **100.00** |

Though new journals keep getting added every year, the continuity of the existing journals and the currency of the publication is an issue. It has been observed (Table 1) that, out of 427 journals 160 (37.47%) journals are current as their last updated date is in 2020. However, delay in publication has been observed in the case of 65 (15.22%) journals by a year (publication year 2019) and in the case of 68 (15.93%) delay in publication has been observed by 2 years (publication year 2018), furthermore, 134 (31.38%) journals are delayed between 3 and 4 years (publication years 2016 and 2017).

### 6.3 Country wise distribution of journals :

**Table 2: Distribution of Business and Management journals by country**

| SN | Country-wise Publishers | No. of Journals | Percentage |
|---|---|---|---|
| 1 | Indonesia | 115 | 26.93 |
| 2 | Brazil | 61 | 14.29 |
| 3 | Romania | 29 | 6.79 |
| 4 | Colombia | 25 | 5.85 |
| 5 | Poland | 23 | 5.39 |
| 6 | Ukraine | 18 | 4.22 |
| 7 | United Kingdom | 13 | 3.04 |
| 8 | Iran, Islamic Republic of | 11 | 2.58 |
| 9 | Serbia | 10 | 2.34 |
| 10 | Turkey | 9 | 2.11 |
| 11 | Spain | 8 | 1.87 |
| 12 | United States & Slovenia (7 each) | 14 | 3.28 |
| 13 | Czechia | 6 | 1.41 |
| 14 | South Africa / Croatia / Ecuador/ Korea, Republic of/ Lithuania/ Peru (5 each) | 30 | 7.03 |
| 15 | Argentina/ Greece / Malaysia / Mexico (4 each) | 16 | 3.75 |
| 16 | Chile / Russian Federation / Netherlands / Venezuela, Bolivarian Republic of (3 each) | 12 | 2.81 |
| 17 | Australia / Canada / Costa Rica / Pakistan (2 each) | 8 | 1.87 |
| 18 | Sweden / Austria / Belarus / Belgium/ Bolivia, Plurinational State of/ Bosnia and Herzegovina/ China / Cuba / Denmark/ India/ Iraq / Ireland / Italy / Kyrgyzstan / Morocco / New Zealand / Puerto Rico / Slovakia / Switzerland (1 each) | 19 | 4.45 |
| | **Total** | **427** | **100** |

The country wise distribution of Business and Management journals given in Table 2 is spread across 51 countries. The data indicates that Indonesia is the leading country publishing 115 (26.93%) OA journals, followed by 61 (14.29%) from Brazil, 29 (6.79%) from Romania and rest from other countries. It is interesting to observe that, more OA journals are getting published from the developing countries. This trend may be due to limited access to international journals owing to costs associated towards their subscription. Secondly, it might be due to the support from the national governments in establishing OA platforms, thus making knowledge free for all. For instance, since 1970s the Indonesian "publication system adopted non-profit principles, which has stimulated the OA publications" (Irawan, 2021).

### 6.4 Language of publications:

**Table 3: Distribution of journals by language**

| SN | Language | No. of Journals | Percentage |
|---|---|---|---|
| 1 | English | 139 | 32.55 |
| 2 | Indonesian | 43 | 10.07 |
| 3 | Spanish | 35 | 8.2 |
| 4 | Portuguese | 26 | 6.09 |
| 5 | Persian | 7 | 1.64 |
| 6 | Russian | 3 | 0.7 |
| 7 | Turkish | 4 | 0.94 |
| 8 | Ukrainian | 2 | 0.47 |
| 9 | French | 1 | 0.23 |
| 10 | Serbian | 1 | 0.23 |
| 11 | Journals in more than one language | 166 | 38.88 |
| | **Total** | **427** | **100** |

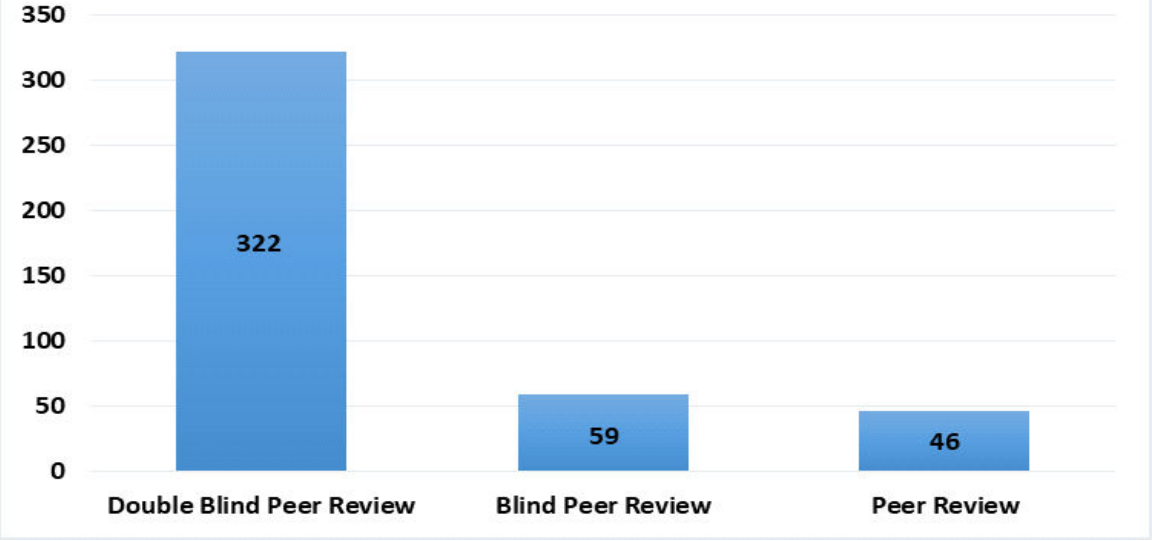
Language-wise distribution of journals (Table 3) spread across 10 specific languages and around 166 journals (38.88%) publishing in more than one language. It is unsurprising that, the English language (32.55%) dominates as a single language, which is the case with most of the subjects including Business and Management.

### 6.5 Journal peer review process :

From the data as given in Figure 2, it is observed that cent percent of the OA

journals in Business and Management have a strong peer review process to ensure the quality of publications and to support good editorial practices. Further, it is noticed that 239 (55.97%) have a journal plagiarism vetting policy to ensure academic integrity and ethics in publication.

Figure 2. Peer Review process of journals




### 6.6 Digital archives :

Digital archiving of journals enables continued access to the content of journals in case the journals cease to exist. The data revealed that, out of 427 journals, 87 (20.37%) journals are providing preservation services, in which, 70 (16.39%) are archiving content either in 'Lots of Copies to Keep Stuff Safe' (LOCKSS), 'Controlled LOCKSS' (CLOCKSS), 'Portico' and 'Public Knowledge Project Preservation Network' (PKP PN) services, and rest 17 (3.98%) journals are archiving in other platforms/portals/national libraries like, Portal Garuda, Cariniana Network, etc.

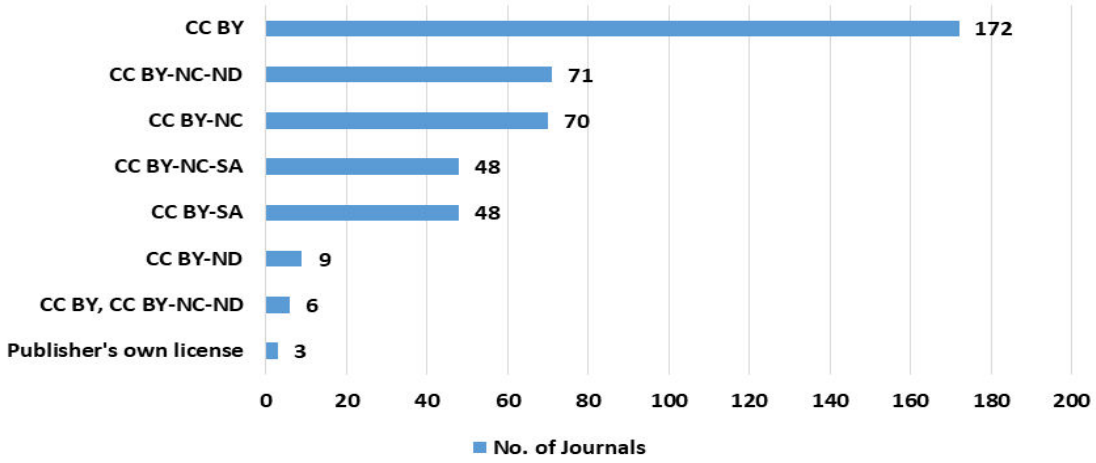
### 6.7 Persistent article identifiers / Permanent Universal Resource Locator :

Document Object Identifier (DOI) or Permanent Universal Resource Locator (PURL) has become a de-facto standard for journal articles for providing continued access to articles in case of change of Internet domain names of publishers. It was observed that, 248 (58.08%) journals have permanent article identifiers like DOI, PURL Handles and ARK.

### 6.8 Licensing model of journals :

Interestingly, almost all the Business and Management journals in DOAJ (Figure 3) have adopted open licensing for publishing the content. The analysis revealed that, 99.30% have adopted Creative Commons (CC) license and rest 0.70% have publisher's own license. Greater implementation of CC license is seen as a forward step towards distributing content free from copyright and allowing reuse of the content as per the type of CC license adopted by journals

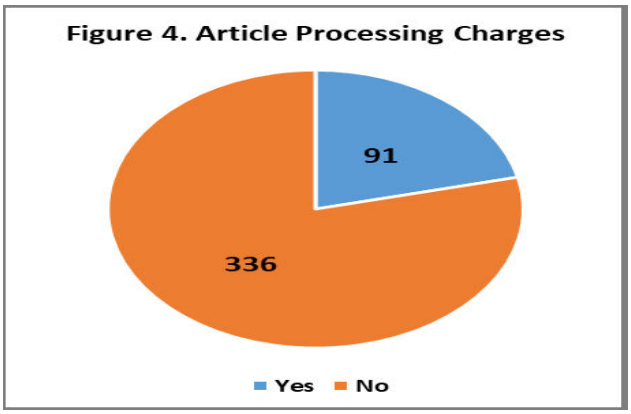
Figure 3. Licensing model of journals




### 6.9 Article Processing Charges (APC) :

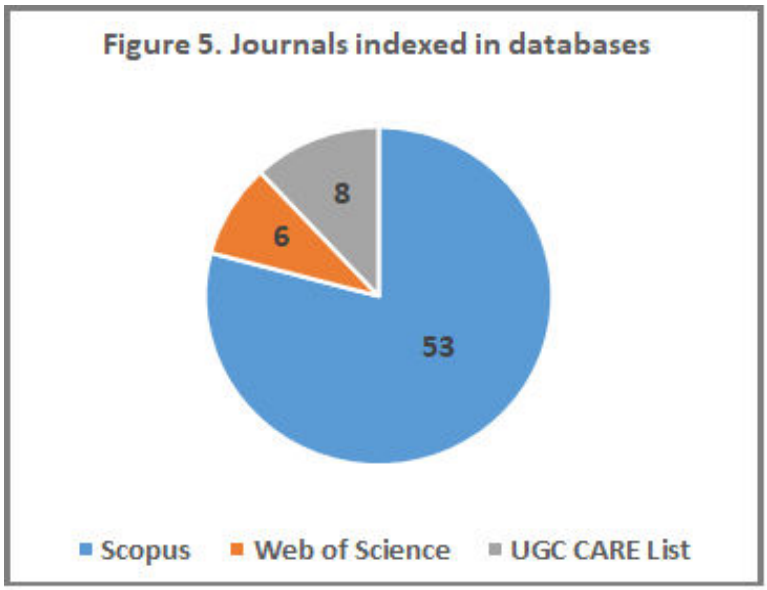
APC imposed on authors helps in mitigating the costs associated with OA publishing. This is one of the models (Gold OA) adopted by many publishers. However, interestingly analysis revealed that (Figure 4), 336 (78.69%) journals are not charging any APC to authors and only 91 (21.31%) are found to be charging APC. It is a delight for authors in Business and Management to publish their articles without any APC and to make the publication OA for the benefit of all.

Figure 4. Article Processing Charges



### 6.10 Journals covered in citation databases (Scopus and Web of Science) and UGC-CARE list :

While comparing the list of journals in Business and Management covered in DOAJ with the list of journals indexed in 'Scopus', 'Web of Science' and UGC-CARE list, it has been observed that 53 (12.41%) journals have been indexed in 'Scopus', 6 (1.41%) in 'Web of Science' and 8 (1.87%) journals have been covered in UGC-CARE list (Figure 5). The list of journals covered in Scopus, Web of Science and UGC-CARE list is given in Appendix-I, which can be accessed at: https://bit.ly/3nBao3Q




### 6.11 Journal Ranking

**Table 4 : Scimago Journal Ranking (SJR)**

| Rank | Title | ISSN | SJR | SJR Best Quartile |
|---|---|---|---|---|
| 1 | European Research on Management and Business Economics | 24448834 | 10.24 | Q1 |
| 2 | Spanish Journal of Marketing – ESIC | 24449709, 24449695 | 7.96 | Q2 |
| 3 | Asian Journal of Shipping and Logistics | 20925212 | 6.96 | Q1 |
| 4 | European Journal of Management and Business Economics | 24448451 | 6.91 | Q2 |
| 5 | Business Research | 21983402, 21982627 | 6.81 | Q1 |

| | | | | |
|---|---|---|---|---|
| 6 | China Journal of Accounting Research | 17553091 | 6.15 | Q2 |
| 7 | International Journal of Innovation Studies | 20962487, 25892975 | 5.57 | Q2 |
| 8 | Journal of Small Business Strategy | 10818510, 23801751 | 5.48 | Q2 |
| 9 | Journal of Business Economics and Management | 20294433, 16111699 | 4.85 | Q2 |
| 10 | Journal of Innovation and Entrepreneurship | 21925372 | 4.80 | Q2 |
| 11 | IIMB Management Review | 09703896 | 4.25 | Q2 |
| 12 | Revista de Contabilidad-Spanish Accounting Review | 19884672, 11384891 | 3.78 | Q3 |
| 13 | Business: Theory and Practice | 16480627, 18224202 | 3.69 | Q3 |
| 14 | Journal of Asian Finance, Economics and Business | 22884645, 22884637 | 3.69 | Q2 |
| 15 | Cogent Business and Management | 23311975 | 3.45 | Q2 |
| 16 | BAR - Brazilian Administration Review | 18077692 | 2.42 | Q3 |
| 17 | Contaduria y Administracion | 01861042 | 2.36 | Q3 |
| 18 | RAUSP Management Journal | 25310488 | 2.35 | Q3 |
| 19 | Asian Academy of Management Journal | 21804184, 13942603 | 2.34 | Q3 |
| 20 | Business Systems Research | 18479375 | 2.31 | Q3 |
| 21 | Trziste | 03534790 | 2.29 | Q3 |
| 22 | Journal of Eastern European and Central Asian Research | 23288280, 23288272 | 2.23 | Q3 |
| 23 | Revista Contabilidade e Financas | 1808057X, 15197077 | 2.23 | Q4 |
| 24 | Global Business and Finance Review | 23841648, 10886931 | 2.06 | Q3 |
| 25 | Logforum | 1734459X, 18952038 | 2.00 | Q3 |
| 26 | Gadjah Mada International Journal of Business | 14111128, 23387238 | 1.92 | Q3 |
| 27 | SA Journal of Human Resource Management | 2071078X, 16837584 | 1.88 | Q4 |
| 28 | Journal of Transport and Supply Chain Management | 19955235, 23108789 | 1.84 | Q4 |
| 29 | RAE Revista de Administracao de Empresas | 2178938X, 00347590 | 1.83 | Q3 |
| 30 | Electronic Journal of Business Research Methods | 14777029 | 1.81 | Q4 |
| 31 | Accounting | 23697407, 23697393 | 1.75 | Q4 |
| 32 | UCJC Business and Society Review | 26593270 | 1.73 | Q3 |

| | | | | |
|---|---|---|---|---|
| 33 | Innovar | 01215051 | 1.56 | Q4 |
| 34 | International Journal of Business Science and Applied Management | 17530296 | 1.50 | Q4 |
| 35 | Estudios Gerenciales | 01235923, 26656744 | 1.44 | Q4 |
| 36 | Studies in Business and Economics | 23445416, 18424120 | 1.32 | Q4 |
| 37 | International Journal of Management and Business Research | 22287019, 22287027 | 1.25 | Q4 |
| 38 | ACRN Journal of Finance and Risk Perspectives | 23057394 | 1.22 | Q4 |
| 39 | International Journal of Construction Supply Chain Management | 11790776 | 1.18 | Q4 |
| 40 | Dynamic Relationships Management Journal | 2350367X, 22325867 | 1.02 | Q4 |

SciMago journal rankings (SJR) were obtained to assess the quality of a Business and Management journals indexed in DOAJ. It was found from the 'SciMago' database that, 40 (9.37%) journals have rankings, which has been given in Table 4. SJR is a measure calculated by dividing number of weighted citations (from prestigious journals in the field) received during a given year to papers published in the last three years with total number of papers published in those three years. Similarly, SJR best quartile is a measure, which is based on the ranking of journals in each field of research. The top 25% of the journals are grouped into Q1, 25% to 50% into Q2, 50% to 75% into Q3 and 75% to 100% into Q4 (Kumar, 2020).

## 7. Conclusion :

The scholarly OA journals in Business and Management are steady in number in DOAJ. The data demonstrates that an estimated 93,079+ articles were published from 427 journals indexed in DOAJ since 2004. It also revealed that, their share is more among the developing countries, 115 being published from Indonesia and 61 from Brazil followed by other countries. India's contribution stands at only one journal, may be owing to factors such as not many open access journals getting published in the field or journals are mostly publishing in print, journals not fitting into the inclusion criteria fixed by the DOAJ or awareness of the directory may be limited among the Indian publishers. In a way, it is in line with India's overall contribution to DOAJ, which stands at meagre 2% covering all fields of study (Panda, 2021). The inclusion of 67 journals in 'Scopus', 'Web of Science' and 'UGC-CARE

List' and 336 journals not charging APC may encourage publications from researchers. The cent percent peer review process followed by these journals seems to maintain the quality of publications in terms of originality. That makes DOAJ a most authoritative source for OA journals. However, to promote OA publishing further, greater support from government, universities and researchers is needed. Owing to recent developments like PlanS, a coalition of research councils in Europe, this may become reality in the days to come, as it has made compulsory for researchers to publish or make available all the funded research open access from 2021 (Coalition-s, 2021). Also, an effort from the publishers to adopt new ways of promoting the content and getting journals indexed in citation databases may result in wider acceptance and usage.

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# Marketing of Academic Library Products and Services in the Digital Era

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**Abstract :**

Marketing the products and services in academic libraries is essential for the academicians amidst lockdown. Different marketing techniques increase the usages in libraries. In this pandemic situation marketing online will enable the users to get in touch with the library services. The main objectives of the study are analyzing the role of Social Media (SM), promoting the library services, knowing the effectiveness of the marketing strategies, evaluating the perception on marketing the library resources and defining the challenges faced by the librarians in promoting the library services. An online questionnaire was prepared in Google Form, the questionnaire was sent to 124 librarians of the Arts and Science Colleges of Kerala and colleges affiliated with Manonmaniam Sundaranar University. Out of 124 respondents, 96 of them filled the questionnaire legibly and were taken as samples. The results highlight that majority of the librarians use library websites as the most important platform to showcase their library services, 14% agree that SM helps the library professionals to create, converse, connect, to contribute and share information to other libraries, marketing

strategies like OPAC, library orientation, and user education were the most effective techniques to promote the library services. The librarians faced various challenges in marketing the library products and services such as lack of technical skill in operating the various SM tools, library budget, and raising the cost of the printed and E- documents. The study recommended that the library professionals need to update their digital skills and the libraries need to adopt more digital marketing strategies to provide immediate service to their users globally.

**Keywords :**

Academic Library, Digital Era, Disruptive Technology,Information and Communication Technology, Library Professionals, Marketing Skills,Marketing Strategies, Social Media tools

## 1. Introduction :

Disruptive Technology (DT) has influenced the academic libraries and changed the libraries into another computerized period, with the help of the (DT), Information and Communication Technology (ICT), and Internet; the clients can get to the information sources readily available. These advances give choices to make the method of access simple and utilize the academic libraries, assets, and administrations. The academic libraries need to move as indicated by the indications of the time and receive inventive promoting techniques that fit the scholarly libraries to deliver exciting and speedy services and fulfill the clients.

Libraries are considered as the store house of information and data, which all in all go about as the main thrust for the reformist improvement of the general public. Libraries are the information and data establishment of any country. A library gathers, sorts out and makes information assets available to a wide range of clients paying little mind to their ages, foundation, and interests (Islam, 2004) characterized the library as a learned foundation outfitted with fortunes of information, kept up coordinated and oversaw via prepared faculty to teach the kids, people consistently and aid their personal development through a compelling and brief spread of data.

Marketing is the way to acquire the objectives of any association and organization. The four components of promoting an idea are target market, fulfilling requirements

and needs, co-ordinate advertising, and hierarchical objectives. The cutting-edge method showcases the advanced method of advertising the results of any foundation. The cutting edge idea promotes social methodology that is client situated. The cutting-edge idea begins with the consumer's needs and wants. It makes the client the focal point of all business exercises. It laid accentuation on consumer loyalty. Online media like WhatsApp, Facebook, and Twitter are also utilized for computerized advertising.

**2. Literature review :**

Strategic planning is one of the vital aspects of management to achieve the success for any new endeavour. Biswas, Nausheen and Chakrabarti (2011) discussed the various aspects of strategic panning which can be implemented in academic library to achieve the goal for any new programme. Bhardwa and Jain (2020) did a structured literature review on the marketing of library resources and services. This study evaluated the marketing of library resources and services and discussed the different means and ways for effective marketing. The study advocated the libraries to use the mobile services and the applications of Web2.0 for effective marketing and to satisfy the users. Bhatt, Kumar and Yusuf(2019) highlighted the importance of marketing the library products and services in the selected academic libraries in Delhi. Chandratre(2019) studied about marketing of Library and Information Services. This paper proposed that academic librarians can create the most optimistic stereotype by modifying library and information services with their flavour of the personal brand of long last relationship.Jacob and Olajide (2018) investigated the type of resources accessible in the libraries, about the marketing strategies and to propose instructions for upgrade the library services. The results reported that the libraries occasionally marketed their resources, conducted user education. They concluded that the libraries need to update their OPAC regularly because it is the best way to market the library products and services. Hajam (2018) also discussed the importance and need of marketing the library resources and services, the functions of marketing practices in obtaining the libraries plans and objectives productively in the prerequisites of the users in the AllamaIqbl library. The study concluded with a recommendation that the librarians should use latest digital marketing strategies.

**3. Statement of the problems :**

The studied literature made an attempt to bring out the problems of the marketing library products and services legibly. They further proposed effective strategies for the librarians to update the modern technologies in order to promoting library services. However these literatures did not point out the root cause of the problem. The field of library service has many problems such as executing the digital techniques in promoting the resources in the library. It is painful to state that majority of the librarians miserably fail to update the modern technologies. It is identified that they are not impregnated with modern technologies to serve the users. Thus, the younger generation also following the same age old strategies. Hence the researcher is motivated to fill this gap by undertaking a research on marketing of academic library products and services in the digital era.The result of the study will benefit the users to access the improved services from libraries as the result of the recommendations of this study. Hence, the study has been entitled as"Marketing of Academic Library Products and Services in the digital Era"

**4. Objectives :**

1. To examine the importance of Social Media tools in promoting the library services
2. To know the effectiveness of the marketing strategies in the academic libraries
3. To evaluate the perception on marketing the library resources and services
4. To define the challenges faced by the librarians in promoting the library services

**5. Scope of the study :**

The present study is to examine the marketing of academic library products and services. Hence, the scope of the present study is limited to libraries of Arts and Science Colleges of Kerala and affiliated colleges of Manonmaniam Sundaranar University, Tamilnadu in the digital environment. Further, evaluating the perception of marketing may help to identify the best marketing strategies for academic libraries attached with Arts and Science Colleges.

**6. Methodology :**

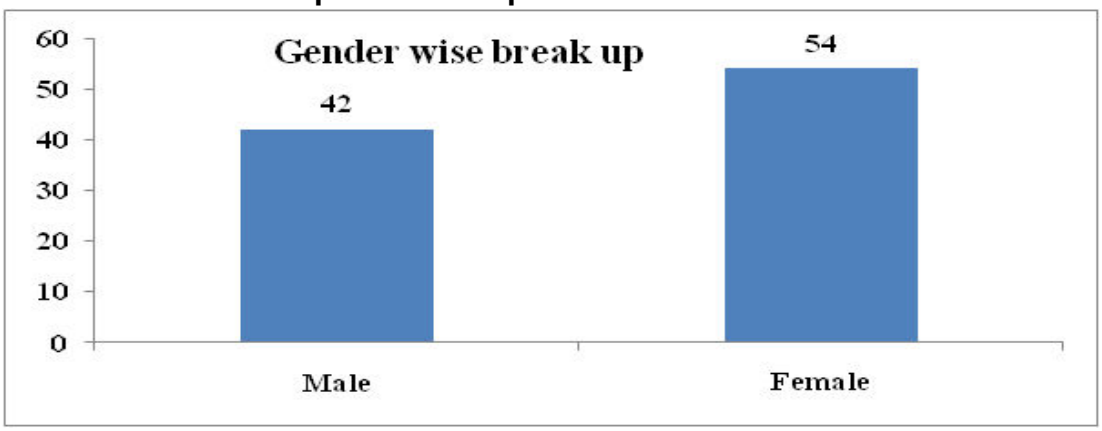
An online questionnaire was prepared in Google form and send to 129 library

professionals of the Arts and Science Colleges of both the Universities. The library professionals were selected randomly. Out of 129 librarians, 96 of them responded properly and their responses were taken as the primary data for the study. The primary data collected were coded, analyzed, classified, and tabulated by Excel. The statistical tool used for the study is MS Excel. Out of 96 respondents, there were 42 male and 54 female.

### 7. Analysis and interpretation :

The derived data has been analysed in search of result to support the stated objectives of this study.

**Chart 2: Gender wise profile of respondents**

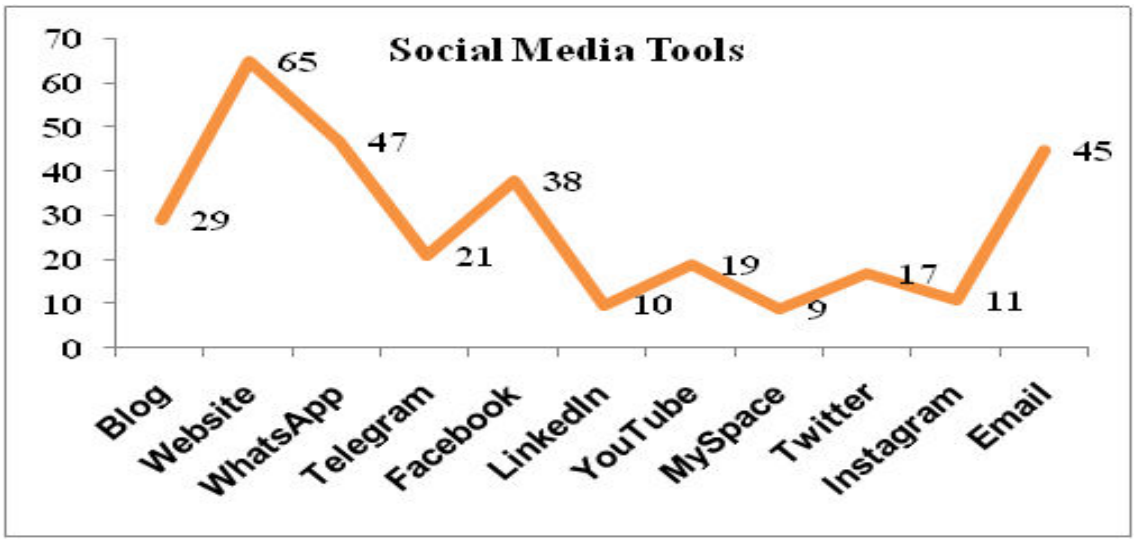



The chart 1 reveals the gender-wise break-up of the respondents.It is found that out of the total respondents,43.75% were male and 56.25% were female.

**Chart 1: Profile of the working exerience of the respondents**

The chart 2 depicts the profile of the working experiences of the respondents. It is observed thatout of total respondents 9.38% have below five years of experience, 18.75 % of the respondents have 5-10 year of experience, 21.88% have 10-15 years of experience, 23.96% have 15-20 years of experience, 16.67% respondents have 20-25 years of experience and only 9.38%have more than 25 years of experience.

**Chart 3 : Social media tools**




The line chart represents the various SM tools used by the librarians to promote the library services. It is identified that out of 96 respondents only 29( 30.21%) of them used the blog to display the services, followed by 65(67.71%) Website, 47(48.96%) Telegram, 38(39.58%) Facebook, 10(10.42%) LinkedIn, 19(19.79%) YouTube, 9(9.376%) MySpace, 17(17.71%) Twitter, 11(11.46%) Instagram 45(46.88%) used Email to promote the library services.

**Table 1: Importance of social media tools in promoting the library services**

| Sl. No | Importance of SM tools | Very Imp. | Imp. | Moderately Imp. | Slightly Imp. | Not Imp. | Total |
|---|---|---|---|---|---|---|---|
| 1 | SM tools enable library users to find the resources | 82 (85.42%) | 9 (9.38%) | 5 (5.21%) | 0 (0%) | 0 (0%) | 96 (100%) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | SM tools are essential to market library services | 69 (71.88%) | 24 (25%) | 3 (3.13%) | 0 (0%) | 0 (0%) | 96 (100%) |
| 3 | SM tools help in knowledge sharing | 56 (58.33%) | 22 (22.92%) | 16 (16.67%) | 2 (2.08%) | 0 (0%) | 96 (100%) |
| 4 | SM tools enable the librarians to get closer to the users | 63 (65.63%) | 15 (15.63%) | 9 (9.38%) | 6 (6.25%) | 3 (3.13%) | 96 (100%) |
| 5 | SM tools facilitate students, faculty and researchers to use library and its resources | 76 (79.17%) | 11 (11.46%) | 8 (8.33%) | 1 (1.04%) | 0 (0%) | 96 (100%) |
| 6 | SM tools are essential in the process of exchanging knowledge and information | 42 43.75% | 25 26.04% | 13 13.54% | 9 9.38% | 7 7.29% | 96 (100%) |
| 7 | SM tools help the library professionals to create, converse, connect, to contribute and share information to other libraries | 39 (40.63%) | 14 (14.58%) | 19 (19.79%) | 11 (11.46%) | 13 (13.54%) | 96 (100%) |
| 8 | SM tools are essential to feed user with information about new arrivals and events of the library | 69 (71.88%) | 11 (11.46%) | 6 (6.25%) | 8 (8.33%) | 2 (2.08%) | 96 100% |

(Imp. = Important, SM = Social Media)

The table 1 shows the importance of SM tools in promoting the library services. Majority of the respondents 85.42% agree that SM tools help to find library resources for the users. 9.38% states it is important. 5.21% states it can be used moderately. But none of them has negative opinion on SM tools. 13.54% openly reveal that it is

not important. 71.88% agree that SM tools help to feed users with information about new arrivals and events of the library and 2.08% state it is not important.

**Table 2: Effectiveness of marketing strategies in the libraries**

| Sl. No | Effectiveness of marketing strategies | Extremely effective | Very effective | Effective | Somewhat effective | Not effective | Total |
|---|---|---|---|---|---|---|---|
| 1 | Word to Mouth | 69 (71.87%) | 12 (12.5%) | 6 (6.25%) | 9 (9.37%) | 0 (0%) | 96 (100%) |
| 2 | Library Orientation | 86 (89.58%) | 5 (5.21%) | 4 (4.17%) | 1 (1.04%) | 0 (0%) | 96 (100%) |
| 3 | User education | 76 (79.17%) | 13 (13.54%) | 5 (5.21%) | 2 (2.08%) | 0 (0%) | 96 (100%) |
| 4 | Library Tours | 56 (58.33%) | 19 (19.79%) | 11 (11.46%) | 6 (6.25%) | 4 (4.17%) | 96 (100%) |
| 5 | Exhibition of the new arrivals in the library | 72 (75%) | 2 (2.08%) | 11 (11.46%) | 9 (9.38%) | 2 (2.08%) | 96 (100%) |
| 6 | Bulletin board services | 54 (56.25%) | 12 (12.5%) | 13 (13.54%) | 11 (11.46%) | 6 (6.25%) | 96 (100%) |
| 7 | OPAC | 91 (94.79%) | 5 (5.21%) | 0 (0%) | 0 (0%) | 0 (0%) | 96 (100%) |
| 8 | News Letters | 53 (55.21%) | 9 (9.38%) | 15 (15.63%) | 14 (14.58%) | 5 (5.21%) | 96 (100%) |
| 9 | Posters in the library notice board | 46 (47.92%) | 23 (23.96%) | 19 (19.79%) | 5 (5.21%) | 3 (3.13%) | 96 (100%) |
| 10 | Brochures | 49 (51.04%) | 21 (21.88%) | 9 (9.38%) | 8 (8.33%) | 9 (9.38%) | 96 (100%) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11 | Library Club | 52 (54.17%) | 19 (19.79%) | 11 (11.46%) | 9 (9.38%) | 5 (5.21%) | 96 (100%) |
| 12 | Conducting Book Fairs | 49 (51.04%) | 12 (12.5%) | 17 (17.71%) | 11 (11.46%) | 7 (7.29%) | 96 (100%) |
| 13 | User Statistics | 35 (36.46%) | 41 (42.71%) | 9 (9.38%) | 5 (5.21%) | 6 (6.25%) | 96 (100%) |
| 14 | Notice Board | 53 (55.21%) | 17 (17.71%) | 15 (15.63%) | 9 (9.38%) | 2 (2.08%) | 96 (100%) |

The table 2 shows the effectiveness of the marketing strategies in the libraries 69(71.87%) of the respondents agreed that word to mouth is an extremely effective marketing strategy and no one has the opinion that this strategy is not effective for marketing the library products and services. The majority of the respondents (89.58%) opined that library orientation is an extremely effective marketing strategy On the other hand no one has the opinion that this strategy is not effective. The majority of the respondents 91(94.79%) said that OPAC is an extremely effective marketing strategy and none of them have the opinion on effective, somewhat, and not effective. 53(55.21%) of them agreed that the notice board is an extremely effective marketing strategy and 2(2.08%) have the opinion that not effective for marketing the products and services in the academic library.

**Table 3 : Perception on marketing the library resources and services**

| Perception on marketing the library resources and services | Strongly agree | Agree | Neutral | Disagree | Strongly disagree | Total |
|---|---|---|---|---|---|---|
| Marketing leads the use of resources and services at maximum | 81 (84.38%) | 11 (11.46%) | 4 (4.17%) | 0 (0%) | 0 (0%) | 96 (100%) |
| Marketing of library service poses additional work load | 14 (14.58%) | 9 (9.38%) | 45 (46.88 %) | 15 (15.63%) | 13 (13.54%) | 96 (100%) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Marketing of library resources and services help to fulfil user expectations | 56 (58.33%) | 12 (12.5%) | 17 (17.71%) | 6 (6.25%) | 5 (5.21%) | 96 (100%) |
| Adopting innovative marketing strategies require planning and investment in ICT | 48 (50%) | 12 (12.5%) | 16 (16.67%) | 14 (14.58%) | 6 (6.25%) | 96 (100%) |
| Marketing leads the library services from the library to the end users of the academic library | 26 (27.08%) | 13 (13.54%) | 40 (41.67%) | 8 (8.33%) | 9 (9.38%) | 96 (100%) |
| Additional manpower and materials are required | 13 (13.54%) | 15 (15.63%) | 23 (23.96%) | 31 (32.29%) | 14 (14.58%) | 96 (100%) |

The table 3 displays the perception of marketing the library resources and services. The perception of marketing is tested with the help of a 5-point scale. 84.38% of the respondents strongly agree that marketing leads to make use of resources and services. 15.63% of them agree. 23.96% of them express neutral statements. 32.29% of them disagree and 14.58% of them strongly disagree.

**Table 4: Challenges faced by the librarians in promoting the library services**

| Sl. No | Challenges | Yes | % | No | % |
|---|---|---|---|---|---|
| 1 | Insufficiency in library budget | 64 | 66.67 | 32 | 33.33 |
| 2 | Change in user's mode of satisfaction | 56 | 58.33 | 40 | 41.67 |
| 3 | New updates | 61 | 63.54 | 35 | 36.46 |

| | | | | | |
|---|---|---|---|---|---|
| 6 | Widely available information services | 43 | 44.79 | 53 | 55.21 |
| 7 | Increase in the cost of documents | 49 | 51.04 | 47 | 48.96 |
| 8 | Rising up new services and technologies | 58 | 60.42 | 38 | 39.58 |

The table 4 display the challenges faced by the librarians in promoting the library services. 66.67% respondents express the insufficiency in library budget. 33.33% of them make partial statements. 60.42% of them are ready to accept developments in new services and technologies and 39.58% of them are not.

**8. Findings of the study :**

1. Out of total respondents, there are 43.75% male and 56.25% female.
2. 23 respondents have 10  25 years of experience as library professionals.
3. Only 9 of the respondents have  experiences below 5 years
4. Library website is the most used SM tool and Myspace was the least used tool in promoting the resources.
5. Majority of respondents agree that word to mouth is an effective way of marketing the library resources.
6. No one express that word to mouth is not an effective method to market.
7. Most of the respondents state that library orientation, library website and OPAC are the current techniques which are used in many libraries to mar ket the services.
8. 15(15.63%) of them send personal letters to users through text messages and email.
9. Majority of the respondents have a good relationship with their staff and users.
10. 32(40.63%)libraries have Institutional Repository.
11. Majority of the respondents 81(84.38%) strongly agree the fieldof marketing leads to the use of resources and services at maximum.
12. 26(27.08%) agree that marketing leads the library services from the library

to the end-users of the academic library.

13. 85.42% of the respondents agree that marketing enables library users in locating library resources.
14. No one has the negative remarks in locating library resources.
15. Majority of the respondents strongly agree that Social networking sites are essential to market library services.
16. Most of the respondents state that there is a lack of library budget.
17. 51.04% agree that there is an increase of rates with regard to the documents

## 9. Conclusion :

The study highlights that the library professionals of the Arts and Science Colleges of Kerala and affiliated colleges of ManonmaniamSundaranar University have excellent experiences in their profession. They use different marketing strategies to showcase the library services. Web OPAC is doing a commendable service to take the field of library to the next level. They too face various challenges in marketing the academic library products and services. Once the library is properly positioned, with specific marketing strategies for each target group, the college libraries can market their information products and services efficiently and effectively.

## 10. Suggestions :

- The libraries can have a proper access to Social Networking Sites such as YouTube, Facebook, Twitter, and WhatsApp.
- The library professionals must show interest to use the latest strategies to make visible the library services.
- Adequate knowledge about different computer applications should be com pulsory.
- The librarians can concentrate on creative innovations.

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# Web-Based Content Analysis of State University Library Website in the North Eastern States of India: a study

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**Abstract :**

The library is the heart and backbone of any institute which supports fulfilling the requirement of users to enhance the knowledge through various resources. The present study is analysed the content of the information available on the State University Library Website in the North Eastern States of India. A checklist method was used for content evaluation based on a previous study conducted by different experts on this particular topic.The findings showed that the Cotton University Library Website scored 36 out of 45 (80%), which graded first and comes under the very good grade point whereas ARGUCOM Library Website ranked in 11th position with needs improvement grade point to make available the basic library services as per patronrequirement by scoring 01 out of 45 (2.22%) features.Researcher suggested that the website developer must make an effort to offer dynamic content, virtual tours, RSS feeds, web push notifications, online calendars, QR Code facility, bulletin boards, FAQs, discussion forums, etc. to enhance the web-based library services.

**Keywords :**

Content Analysis, North Eastern States of India, State University Library Website, Web-Based Content Analysis

## 1. Introduction :

Libraries are the gateway of an institution likewise the library websitesresemble the library in the electronic media where the detailed information about the library right

from the collections, services, etc., are given.The library website also acts as a tool of information dissemination by the Library Science Professionalswhich are mostly used for various purposes, viz., publish information about the library, mission, vision, objectives, holidays, library timings, staff details, contact information, collection, services, Web-OPAC, photo gallery, copyright details, and it'sbest practices which are adopted in the library. The library website provides several digital information resources and digital online services to its particular community on- and off-campus, as well as to users from all over the world. A library website helps to shape a long and solid connection with the users by promoting library services and products. Without projecting library images through the library website, it is hard for any library to establish a credible relationship with the users. To establish strong relationships between the library and its users,librarians must carefully think to step towards the put-up of an effective library website so that it could not only just help everyone to know the library at a glance but also feel the effectiveness of web-based services. (Kuri& O,2018)

**2. Previous work on content analysis :**

There were several studies undertaken worldwide in this area however not one study was found regarding the content analysis of the State University Library Website of North East in India in this particular region. The researcher goes through only those literature, which was found pertinent to the current study contributed by diverse experts.Bharati & Madhusudhan (2019) analysed the quantitative and qualitative contents of JNU and BHULibrary website like thefeatures of general information; multimedia,library services; about the library; library resources; currency, accuracy, and relevance; Web 2.0/Library 2.0;user interface; search features, informative feedback, structure features, organization,link and maintenance features,etc. The findings showed that the qualitative data of BHU did not usagethe first leaf news tool and scrolling notice however JNU used and implemented these flavourswhich fascinate theirusers to advertisement the information given on the website.Hugar (2019) undertakena study on content analysis of engineering college library websites and webpage in Goa. It was revealed that AITD obtained 28 overall scores and stood the first rank among the five engineering colleges in Goa state providing maximum data in their respective library website which was followed by PCCE and GCE scoring 25 and 21 points respectively. The

study brought out that very meager information was provided by the Shree Rayeshwar Institute of Engineering and Information Technology,

### 3. Research Objectives :

The present study was undertaken to accomplish the following objectives:

1. To examine the number of State University Library Websites functioning in North East State;
2. To determine the library collections, facilities, library services provided on the website, links to other e-Resources;
3. To evaluate the form of contents and features made accessible on State Uni versity Library Websites in North East India;
4. To determine the use of Web 2.0 Tools and services on the websites;
5. To recommend measures for the upgrading of State University Library Websites in North East India.

### 4. Scope and limitation of the study :

The present study is confined to examine the content of State University Library Websites of North East State situated in diverse states of the North East Region. Presently,twenty universities are administratively controlled by the respective state governments (Source: https://www.ugc.ac.in/oldpdf/State%20University/Consolidated%20State%20%20 University%20List.pdf). Out of these twenty State universities in North East India, nine universities namely, Assam Women's University, Bhattadev University, Kumar Bhaskar Varma Sanskrit & Ancient Studies University, Madhabdev University, Rabindranath Tagore University, Srimanta Sankaradeva University of Health Sciences, Dhanamanjuri University, Manipur University of Culture and Sikkim State University were not included for the present study due to the unavailability of the library website.

### 5. Research methodology :

The research data was collected by the webpage survey method and observation tool. A well structure checklist with forty-five criteria was designed and developed based on the previous studies to gather research data from the respective library

website. The ranking ofthe selected library website was done based on five points grading scale. All the selected State University Library Websites were surfed from 05th to 31st January 2020 to collect research data. The collected data was scrutinized and further tabulated for analysis and interpretation.

### 6. Findings and analysis :

The data analysis part was completed from 05th to 31st January 2020. The researcher adopted the checked marked method, viz, tick mark "✓" for Yes(1) and cross sign "×" for Not(0) to each feature accessible in the library website under the present study.

### 6.1 Basic information on State University library website :

Table 1 revealed that all the library websites of selected universities of North East India under the study were given information about the library with 100%. 81.81% (09) of theState University Library Website stated the information about working hours/holidays and library staff, which was followed by 08 (72.72%) State University Library Website given information about library membership.63.63% (07) of the State University Library Website revealed copyright whereas library rules and regulations, library section, and domain stated by 06 State University Library Website with 54.54% respectively. 05 (45.45%) of the State University Library Website stated the library committee, which was followed by 04 (36.36%) of the State UniversityLibrary Website stated mission/objective statement and 03 (27.27%) of State University Library Website mentioned Site Map/Floor Map. Only 01 (9.09%) of the State University Library Website have provided the image gallery and 02 (18.18%) of theState University Library Websites given detailed information about downloads and news.

**Table 1: Basic information of State Universitylibrary website of North East India**

| General Information | 01 | 02 | 03 | 06 | 07 | 08 | 09 | 10 | 13 | 17 | 20 | Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| About Library | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 11 | 100 |
| Mission/Objective Statement | X | X | X | X | ✓ | X | ✓ | X | ✓ | ✓ | X | 4 | 36.36 |
| Working Hours/Holidays | ✓ | X | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ | ✓ | 9 | **81.81** |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Library Membership | ✓ | X | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ | X | 8 | 72.72 |
| Library Rules | X | X | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X | X | 6 | 54.54 |
| Copyright | ✓ | X | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X | X | 7 | 63.63 |
| Library Committee | X | X | ✓ | X | ✓ | X | ✓ | ✓ | ✓ | X | X | 5 | 45.45 |
| Library Staff | X | X | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 9 | 81.81 |
| Site Map/ Floor Map | X | X | ✓ | ✓ | ✓ | X | X | X | X | X | X | 3 | 27.27 |
| Library Sections | ✓ | X | ✓ | ✓ | ✓ | ✓ | X | X | ✓ | X | X | 6 | 54.54 |
| Downloads | X | X | X | ✓ | X | X | X | X | ✓ | X | X | 2 | 18.18 |
| News | X | X | X | X | ✓ | X | X | ✓ | X | X | X | 2 | 18.18 |
| Image Gallery | X | X | X | ✓ | X | X | X | X | X | X | X | 1 | 9.09 |
| Domain | ✓ | X | ✓ | ✓ | ✓ | X | X | ✓ | ✓ | X | X | 6 | 54.54 |
| **Total Score (Max. 14)** | 06 | 01 | 10 | 11 | 12 | 07 | 04 | 09 | 11 | 05 | 03 | | |

Note: AAU (01), ARGUCOM (02), ASTU (03), Bodoland University (06), Cotton University (07), Dibrugarh University (08), Gauhati University (09), KHSOU (10), NLUASSAM (13), MTU (17) and Maharaja Bir Bikram University (20)

### 6.2 Library collections' information on website :

The analysis of the present study discloses that the majority (72.72%) of the State University Library Websites have revealed the information about book collection which was followed by the information about the journals and theses and dissertations with 54.54%. It was further observed that 05 (45.45%) of theState University Library Websiteprovides detailed information about general magazines and back volumes of journals. 27.27% of theState University Library Website gives information about the reference sources and newspapers. And only 02 of theState University Library Websites with 18.18% have given information about the conference proceedings.

**Table 2 : Library collection of State University library website of North East India**

| Library Collection | 01 | 02 | 03 | 06 | 07 | 08 | 09 | 10 | 13 | 17 | 20 | Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Books | ✓ | X | X | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | ✓ | 8 | 72.72 |
| Journals | X | X | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | X | ✓ | 6 | 54.54 |
| Reference Sources | X | X | X | X | ✓ | ✓ | X | X | ✓ | X | X | 3 | 27.27 |
| Theses & Dissertations | ✓ | X | X | ✓ | ✓ | ✓ | ✓ | ✓ | X | X | X | 6 | 54.54 |
| Newspaper | ✓ | X | X | X | ✓ | ✓ | X | X | X | X | X | 3 | 27.27 |
| General Magazines | ✓ | X | X | X | ✓ | ✓ | X | ✓ | X | X | ✓ | 5 | 45.45 |
| Conference Proceedings | X | X | X | X | ✓ | X | X | ✓ | X | X | X | 2 | 18.18 |
| Back Volume of Journals | ✓ | X | X | X | ✓ | ✓ | ✓ | X | ✓ | X | X | 5 | 45.45 |
| **Total Score (Max. 08)** | 05 | 00 | 00 | 03 | 08 | 07 | 03 | 05 | 04 | 00 | 03 | | |

### 6.3 Library services' information on website :

Table 3 represents that the majority (09) of the State University of North East India has mentioned detailed information on the library website about the OPAC facility with 81.81% which was followed by 08 (72.72%) of theState University Library Website which has given completely the information about internet-based services. It is further found from the study that 63.63% of theState University Library Website(07) has given information about reference services and circulation. 54.54% of the State University Library Website provides the information of reprographic service and reading room and 45.45% of State University Library Website has given the information about the services such as CAS, database, and digital library and only 27.27% of State University Library Website (03)provided the information about CD service and ILL/DDS.

**Table 3: Library services of State University library website of North East India**

| Library Services | 01 | 02 | 03 | 06 | 07 | 08 | 09 | 10 | 13 | 17 | 20 | Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CD Service | ✓ | X | X | X | ✓ | ✓ | X | X | X | X | X | 3 | 27.27 |
| OPAC Facilities | ✓ | X | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | 9 | 81.81 |
| CAS | ✓ | X | ✓ | X | ✓ | X | X | ✓ | ✓ | X | X | 5 | 45.45 |
| ILL/DDS | ✓ | X | X | X | ✓ | X | X | ✓ | X | X | X | 3 | 27.27 |
| Database Access | ✓ | X | X | X | ✓ | ✓ | X | ✓ | ✓ | X | X | 5 | 45.45 |
| Internet-Based Services | ✓ | X | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | X | 8 | 72.72 |
| Reprographic Service | ✓ | X | ✓ | X | ✓ | ✓ | X | ✓ | ✓ | X | X | 6 | 54.54 |
| Digital Library | X | X | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | X | X | 5 | 45.45 |
| Reference Service | ✓ | X | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X | X | 7 | 63.63 |
| Circulation | ✓ | X | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X | X | 7 | 63.63 |
| Reading Rooms | X | X | ✓ | ✓ | ✓ | ✓ | ✓ | X | ✓ | X | X | 6 | 54.54 |
| **Total Score (Max. 11)** | 09 | 0 | 07 | 06 | 11 | 09 | 03 | 09 | 09 | 01 | 0 | | |

### 6.4 E-Resources' information on website :

The present study makes known that the majority (07) of the State University Library Website subscribed to E-Journals with 63.63%, which is followed by the information about the availability of e-books by 06 (54.54) State University Library Website. It is also observed that 05 ofthe State University Library Website with 45.45% have provided the information about the Institutional Repository (IR), three State Universities give information about the availability of the CD-ROM databases on their particular library website. It is further observed from the study that not a single State University Library Website has facilitated the new archive.

**Table 4 : E-resources of State University library website of North East India**

| E-Resources | 01 | 02 | 03 | 06 | 07 | 08 | 09 | 10 | 13 | 17 | 20 | Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E-Books | ✓ | X | X | X | ✓ | ✓ | X | ✓ | ✓ | ✓ | X | 6 | 54.54 |
| E-Journals | ✓ | X | X | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | X | 7 | 63.63 |
| E-Database | ✓ | X | X | X | X | ✓ | X | X | ✓ | X | X | 3 | 27.27 |
| CD-ROM Database | ✓ | X | X | X | ✓ | ✓ | X | X | X | X | X | 3 | 27.27 |
| Video Cassettes | X | X | X | X | X | ✓ | X | X | X | X | X | 1 | 9.09 |
| Institutional Repository | X | X | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | X | X | 5 | 45.45 |
| New Archives | X | X | X | X | X | X | X | X | X | X | X | Nil | Nil |
| **Total Score (Max. 07)** | 04 | 0 | 0 | 02 | 04 | 06 | 01 | 03 | 04 | 01 | 0 | | |

### 6.5 Web 2.0 applications in State University library website

Table 5 shows the availability of Web 2.0 applications in the library website taken for the study. The study reveals that 18.18% (02) of the State University Library Website of North East India used Web 2.0 Applications such as Facebook and Blog on their respective website. It is found from the study that no one of the State University Library Websites used other Web 2.0 Tools viz., Twitter, Flickr, and YouTube.

**Table 5: Web 2.0 applications of State University library website of North East India**

| Web 2.0 Applications | 01 | 02 | 03 | 06 | 07 | 08 | 09 | 10 | 13 | 17 | 20 | Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Facebook | X | X | X | X | ✓ | ✓ | X | X | X | X | X | 2 | 18.18 |
| Blog | X | X | X | X | X | ✓ | X | X | ✓ | X | X | 2 | 18.18 |
| Twitter | X | X | X | X | X | X | X | X | X | X | X | Nil | Nil |
| Flickr | X | X | X | X | X | X | X | X | X | X | X | Nil | Nil |
| YouTube | X | X | X | X | X | X | X | X | X | X | X | Nil | Nil |
| **Total Score (Max. 05)** | 0 | 0 | 0 | 0 | 01 | 02 | 0 | 0 | 01 | 0 | 0 | | |

### 6.6 Rating scale for State University library website of North East India :

The five-point rating scale was used and fixed similarly based on the maximum score of 45 of Content features (i.e., 37-45 Score for Outstanding, 28-36 Score for Very Good, 19-27 Score for Good, 10-18 Score for Average and 01-09 Score for Needs Improvement. It is found from the study that based on the total score got by Cotton University, Dibrugarh University and NLUASSAM got a “very good” cursory glance securing the position first, second, and third respectively. KHSOU, AAU, and Bodoland University got a “Good Rank” as per the grading score, securing the position fourth, fifth, and sixth in the study. ASTU and Gauhati University got “Average Rank” as per the ranking score securing the position seventh and eighth.It is revealed through the study that MTU, and Maharaja Bir Bikram University, and ARGUCOM did not reach the mark of the total score which further secured under the group“Needs Improvement” and got the position ninth, tenth and eleventh respectively.

## 7. Conclusion :

A library website acts as a platform for the dissemination of information about library activities, resources, programs, services, and newswhich also supports the dissemination of the information to altogether the web-savvy patrons. The present study discloses that none of the State University Library Websites stand up under the “Outstanding score criteria which reflects the grade point 37-45”. It was found that Cotton University (36) scores the highest number followed by Dibrugarh University (31) among the State UniversityLibrary Website taken for the study. NLUASSAM library website secured the third rank with 29 scores. And no State University Library Websites adopted other Web 2.0 Tools namely, Twitter, Flickr, and YouTube. The information provided in the State University Library Websites must need to evaluate and analyzed periodically using design, website content, and structure of the site which is essential to reflect changes in user behaviour, attitude, information retrieval expertise, and information resources as per the user's need in the present digital era.

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