

Marine information Exploration by Scientists and Academicians in Institutions and Universities: A Comparative Study.

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ABSTRACT

This paper discusses a number of these that have been successful at the departments of universities, Marine and Fishery science research institution libraries of south India. Research, particularly in the marine and fishery science disciplines, benefits from being able to scan comprehensively the content of journals and then access research full text of the articles. New trends with changed publishing and librarian attitudes are required if a library is to improve its capability to meet the information needs of scientists and academic community, a number of ways to give researchers access to authoritative scholarly quality information through information networks.

Keywords: Marine Information, Scientists, Academicians, Institutions and Universities.

1. INTRODUCTION

The advances in computer and communications technologies have improved the facilities of information access – in-house and/or remote. The optical storage devices with ability to store pictures and sound and high processing capabilities have added another dimension to the fast changing trend to information access. These developments are today responsible for the growth of marine information explosion of full text information sources in electronic media. Mainly two types of information sources, the primary periodicals and the reference works have found it convenient to get into the electronic form in large number their high utilitarian and generic value (A.Y.Asundi-2000)¹.

2. Need for the Study

Tremendous growths of knowledge and information explosion have posed challenge in procuring, organizing and disseminating information for librarians and actual users. With the help of modern information technology and communication technology, libraries and information centers can render their services and also respond to the needs of the readers. Several factors like training of library professionals, funds, information policies, modern information technologies also have been taken care of.

3. Objectives of the Study

The following objectives have been formulated for the study

1. To find out the scientists and academicians, awareness about marine information sources and services.

2. To assess the frequency of information sources accessed by library.
3. To ascertain the e-resources accessed different points.
4. To identify the problems faced by the scientists and academicians
5. To suggest suitable way to improve the use of library resources.

4. Scope and Limitation

This research study is confined to the study of library resources and services with special reference to fisheries scientists. Geographically it is bounded to the fisheries colleges/ research institutions affiliated to central institute of fisheries education (CIFE) and Indian Council of Agricultural Research Mumbai, India with special reference to South India.

There are four states that will be covered namely Karnataka, Andhra Pradesh, Tamil Nadu, and Kerala respectively.

5. Methodology

A structural questionnaire was developed for the purpose of data collection and distributed. Some are distributed personally, some are by post and some are through e-mail among the marine scientists in the selected CSIR institutions. 570 questionnaires were distributed, out of which 365 questionnaires were received back with the response rate being 64%. The questionnaire covered five basic areas namely, users characteristics such as age, levels of education, field of specialization, institution affiliation and purpose of current research, strategies of seeking information, use of the libraries/information centers, and suggestions for the improvement of the existing information systems.

The study mainly consists of marine science scientists working in the thirteen marine science research institutions. The term marine science scientists' includes the university/fishery college faculties as well as research scientists of various levels.

6. Data Analysis and Interpretation

A total of 570 structured questionnaires were distributed among marine scientists/faculties of different marine science institutions/universities/fishery colleges, taking into account above 55% of total respondents in each institution. The 570 questionnaires were distributed and 365 samples were received. Received sample questionnaires were analyzed statistically. For data analysis the following statistical techniques were used in the present study.

. Table-1

The institution wise and gender wise distribution of scientists and faculties.

| Sl No | Research Institutions | Scientists =239 | | | Sl No | Academic Institutions | Faculty members=126 | | |
|-------|-----------------------|-----------------|--------------|--------------|-------|-----------------------|---------------------|-------------|--------------|
| | | M | F | T | | | M | F | T |
| 1 | CESS, Trivandrum | 15 (6.3) | 02 (0.8) | 17 (7.1) | 1 | Andhra University | 44 (34.9) | 08 (6.3) | 52 (41.3) |
| 2 | CIBA, Chennai | 22 (9.2) | 14 (5.9) | 36 (15.1) | 2 | Cochin University | 20 (15.9) | 10 (7.9) | 30 (23.8) |
| 3 | CIFT, Cochin | 17 (7.1) | 08 (3.3) | 25 (10.5) | 3 | CFS Mangalore | 15 (11.9) | 05 (4.0) | 20 (15.9) |
| 4 | CMFRI, Cochin | 24 (10.0) | 31 (13.0) | 55 (23.0) | 4 | CFS Nellore | 05 (4.0) | 04 (3.2) | 09 (7.1) |
| 5 | INCOIS, | 18 | 05 | 23 | 5 | Kerala University | 03 | 02 | 05 |

| | | | | | | | | | |
|---|---------------------------|---------------|--------------|----------------|---|-------------------------|--------------|--------------|----------------|
| | Hyderabad | (7.5) | (2.1) | (9.6) | | | (2.4) | (1.6) | (4.0) |
| 6 | NIO, (Reg off), Cochin | 15 (6.3) | 06 (2.5) | 21 (8.8) | 6 | Mangalore University | 08 (6.3) | 02 (1.6) | 10 (7.9) |
| 7 | NIOT, Chennai | 52 (21.8) | 10 (4.2) | 62 (25.9) | 7 | 0 | 0 | 0 | 0 |
| | Total | 163 (68.2) | 76 (31.8) | 239 (100.0) | | Total | 95 (75.4) | 31 (24.6) | 126 (100.0) |

Table-1 and Figure-1 clearly show the institution wise and gender wise distribution of scientists and faculties. The sample population used in the present study contains more number of male scientists (68.2%) than female scientists (31.8%) and more number of male faculties (75.4%) than female faculties (24.6%).

In this study, the respondents were requested to indicate in order of their preference in four point scale about their using documentary and non-documentary sources for marine science information.

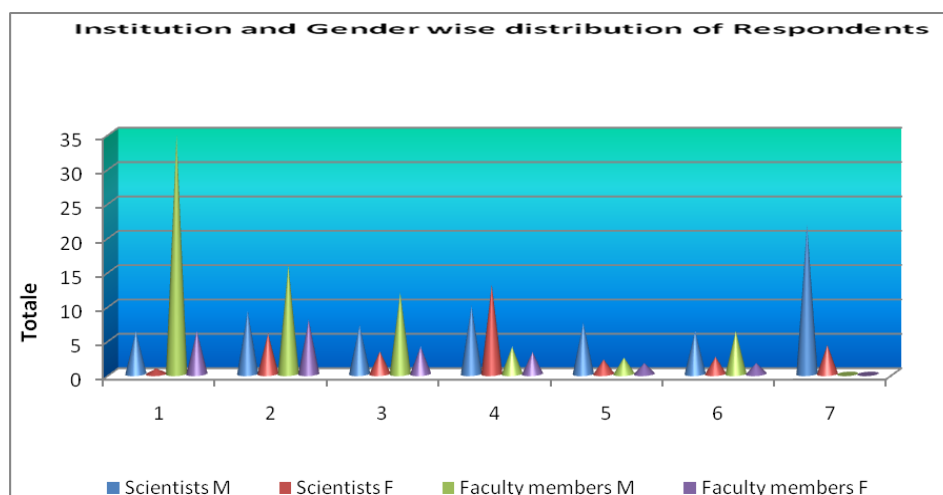


Fig. 1. Institution and Gender wise Distribution of Scientists and Faculty Members

| SI No | Mode of locating information | Scientists=239 | | | | W.A | Std. Dev | F. Test | Rank | Faculty Members=126 | | | | W.A | Std. Dev | F. Test | Rank |
|-------|--|----------------|---------------|---------------|---------------|------|----------|---------------------------------|------|---------------------|--------------|--------------|--------------|------|----------|--------------------------------|------|
| | | 1 | 2 | 3 | 4 | | | | | 1 | 2 | 3 | 4 | | | | |
| 1 | Using the library card catalogue | 06 (2.5) | 91 (38.1) | 61 (25.5) | 81 (33.9) | 2.90 | 0.90 | 168.676 Significant at 1% level | 8 | 03 (2.4) | 61 (48.4) | 51 (40.5) | 11 (8.7) | 2.56 | 0.69 | 63.613 Significant at 1% level | 5 |
| 2 | Online public access catalogue (OPAC) | 04 (1.7) | 106 (44.4) | 103 (43.1) | 26 (10.9) | 2.63 | 0.70 | | 7 | 00 (0.0) | 74 (58.7) | 29 (23.0) | 23 (18.3) | 2.60 | 0.78 | | 6 |
| 3 | Seeking assistance at the reference and information desk | 10 (4.2) | 21 (8.8) | 163 (68.2) | 45 (18.8) | 3.02 | 0.67 | | 10 | 02 (1.6) | 10 (7.9) | 75 (59.5) | 39 (31.0) | 3.20 | 0.65 | | 10 |
| 4 | Browsing through the library shelves | 20 (8.4) | 145 (60.7) | 28 (11.7) | 46 (19.2) | 2.42 | 0.89 | | 5 | 06 (4.8) | 59 (46.8) | 18 (14.3) | 43 (34.1) | 2.78 | 0.98 | | 8 |
| 5 | Sharing ideas with other users | 00 (0.0) | 115 (48.1) | 09 (3.8) | 115 (48.1) | 3.00 | 0.98 | | 9 | 00 (0.0) | 67 (53.2) | 11 (8.7) | 48 (38.1) | 2.85 | 0.95 | | 9 |

| | | | | | | | | | | | | | | | | | |
|----|---|---------------|---------------|---------------|--------------|------|------|--|---|--------------|--------------|--------------|--------------|------|------|--|---|
| 6 | Scanning current periodicals for further directions | 28 (11.7) | 154 (64.4) | 39 (16.3) | 18 (7.5) | 2.20 | 0.74 | | 4 | 05 (4.0) | 80 (63.5) | 28 (22.2) | 13 (10.3) | 2.39 | 0.73 | | 4 |
| 7 | Consulting library staff | 15 (6.3) | 82 (34.3) | 118 (49.4) | 24 (10.0) | 2.63 | 0.75 | | 6 | 02 (1.6) | 55 (43.7) | 43 (34.1) | 26 (20.6) | 2.74 | 0.80 | | 7 |
| 8 | Using the Internet facility | 200 (83.7) | 32 (13.4) | 03 (1.3) | 04 (1.7) | 1.21 | 0.55 | | 1 | 98 (77.8) | 21 (16.7) | 03 (2.4) | 04 (3.2) | 1.31 | 0.67 | | 1 |
| 9 | Searching online databases | 161 (67.4) | 64 (26.8) | 08 (3.3) | 06 (2.5) | 1.41 | 0.68 | | 2 | 60 (47.6) | 47 (37.3) | 09 (7.1) | 10 (7.9) | 1.75 | 0.90 | | 2 |
| 10 | Referring to e-Journals (CD Rom) | 138 (57.7) | 69 (28.9) | 06 (2.5) | 26 (10.9) | 1.67 | 0.96 | | 3 | 57 (45.2) | 45 (35.7) | 10 (7.9) | 14 (11.1) | 1.85 | 0.98 | | 3 |

Table No 2: Mode of Locating Information in the Library / Information Centers: Scientists and Faculty Members

Table -2 describes the mode of locating information in the library. The large number of **scientists** most frequently used the Internet facility (83.7%) and is ranked first among various channels of information, followed by searching online database (67.4%) and electronic journals (CD-ROMs) (57.7%), which are ranked second and third respectively. In the case of frequently scanning current periodicals (64.4%), browsing through library shelves (60.7%) and sharing ideas with other users (48.1%) have highly utilized mode for locating information. Seeking assistance at the reference and information desk (68.2%) and consulting library staff (49.4%) are the occasionally used modes. Online Public Access Catalogue (OPAC) (44.4%) and library card catalogue which do not appear to be popular modes among marine scientists (38.1%) are ranked seventh and eighth, respectively.

Whereas **faculty members** for locating information. The data reveals that most frequently the maximum number of faculty members used Internet facility (77.8%), searching online database (47.6%), electronic journals (45.2%) as modes for accessing information and these are ranked first, second and third respectively. Scanning of current periodicals (63.5%), library card catalogues (48.4%), and OPAC (58.7%) are frequently used modes and ranked fourth, fifth and sixth respectively. Unfortunately reference and information desk, the data shows higher ranks for Internet, online, and electronic journals as popular modes used by university community in the online digital library environment.

The Figure -2 clearly describes the modes used by scientists and faculty members for locating information.

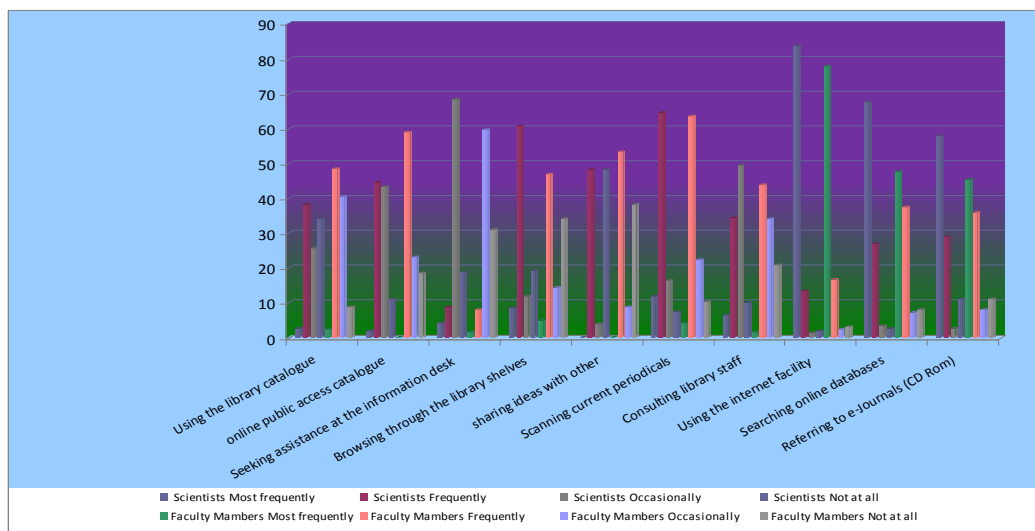


Fig. - 2. Mode of Locating Information in the Library / Information Centers

Table No 3: Frequency of Information Sources Accessed by Scientists and Faculty members

| Sl No | Information Sources | Scientists=239 | | | | W.A | Std. Dev | F. Test | Rank | Faculty Members=126 | | | | W.A | Std. Dev | F. Test | Rank |
|-------|------------------------|----------------|---------------|---------------|--------------|------|----------|--------------------------------|--------------|---------------------|--------------|--------------|--------------|------|----------|--------------------------------|------|
| | | 1 | 2 | 3 | 4 | | | | | 1 | 2 | 3 | 4 | | | | |
| 1 | Books | 60 (25.1) | 41 (17.2) | 96 (40.2) | 42 (17.6) | 2.50 | 1.05 | 59.091 significant at 1% level | 10 | 71 (56.3) | 45 (35.7) | 08 (6.3) | 02 (1.6) | 1.53 | 0.69 | 32.017 Significant at 1% level | 02 |
| 2 | Journals | 165 (69.0) | 64 (26.8) | 09 (3.8) | 01 (0.4) | 1.36 | 0.58 | | 01 | 92 (73.0) | 24 (19.0) | 08 (6.3) | 02 (1.6) | 1.34 | 0.68 | | 01 |
| 3 | Theses | 29 (12.1) | 55 (23.0) | 130 (54.4) | 25 (10.5) | 2.63 | 0.83 | | 11 | 23 (18.3) | 60 (47.6) | 27 (21.4) | 16 (12.7) | 2.29 | 0.91 | | 9 |
| 4 | Conference Proceedings | 14 (5.9) | 136 (56.9) | 62 (25.9) | 24 (10.0) | 2.41 | 0.76 | | 08 | 24 (19.0) | 68 (54.0) | 20 (15.9) | 14 (11.1) | 2.19 | 0.87 | | 8 |
| 5 | Patents / Standards | 25 (10.5) | 71 (29.7) | 99 (41.4) | 44 (18.4) | 2.84 | 0.06 | | 14 | 27 (21.4) | 21 (16.7) | 41 (32.5) | 37 (29.4) | 2.70 | 1.11 | | 12 |
| 6 | Research Reports | 82 (34.3) | 115 (48.1) | 25 (10.5) | 17 (7.1) | 1.90 | 0.85 | | 05 | 65 (51.6) | 25 (19.8) | 35 (27.8) | 01 (0.8) | 1.78 | 0.88 | | 03 |
| 7 | Abstracting Journals | 41 (17.2) | 126 (52.7) | 33 (13.8) | 39 (16.3) | 2.20 | 0.94 | | 07 | 14 (11.1) | 75 (59.5) | 37 (29.4) | 00 (0.0) | 2.18 | 0.61 | | 06 |
| 8 | Bibliographies | 24 (10.0) | 94 (39.3) | 63 (26.4) | 57 (23.8) | 2.73 | 1.68 | | 12 | 23 (18.3) | 17 (13.5) | 19 (15.1) | 67 (53.2) | 3.03 | 1.19 | | 15 |
| 9 | Encyclopedias | 17 (7.1) | 26 (10.9) | 139 (58.2) | 57 (23.8) | 2.99 | 0.79 | | 15 | 22 (17.5) | 16 (12.7) | 72 (57.1) | 16 (12.7) | 2.65 | 0.91 | | 11 |
| 10 | Directories | 11 (4.6) | 22 (9.2) | 139 (58.2) | 67 (28.0) | 3.09 | 0.74 | | 16 | 14 (11.1) | 23 (18.3) | 63 (50.0) | 26 (20.6) | 2.80 | 0.89 | | 14 |
| 11 | Yearbooks | 18 (7.5) | 47 (19.7) | 151 (63.2) | 23 (9.6) | 2.75 | 0.73 | 13 | 13 (10.3) | 56 (44.4) | 39 (31.0) | 18 (14.3) | 2.49 | 0.86 | 10 | | |
| 12 | CD-ROMs (DVD) | 109 (45.6) | 71 (29.7) | 34 (14.2) | 25 (10.5) | 1.89 | 1.01 | 04 | 69 (54.8) | 04 (3.2) | 14 (11.1) | 39 (31.0) | 2.18 | 1.37 | 07 | | |
| 13 | Online, | 163 (68.2) | 45 (18.8) | 05 (2.1) | 26 (10.9) | 1.58 | 1.17 | 03 | 73 (57.9) | 08 (6.3) | 05 (4.0) | 40 (31.7) | 2.10 | 1.38 | 04 | | |
| 14 | Internet | 170 (71.1) | 43 (18.0) | 00 (0.0) | 26 (10.9) | 1.51 | 0.95 | 02 | 58 (46.0) | 29 (23.0) | 02 (1.6) | 37 (29.4) | 2.14 | 1.28 | 05 | | |
| 15 | Subject portals | 71 (29.7) | 107 (44.8) | 60 (6.7) | 45 (18.8) | 2.15 | 1.01 | 06 | 23 (18.3) | 39 (31.0) | 10 (7.9) | 54 (42.9) | 2.75 | 1.19 | 13 | | |
| 16 | Cassettes | 56 (23.4) | 81 (33.9) | 41 (17.2) | 61 (25.5) | 2.45 | 1.11 | 09 | 12 (9.5) | 23 (18.3) | 17 (13.5) | 54 (42.9) | 3.21 | 1.06 | 16 | | |

Information sources are of great value for the academic and research community. In this study, an attempt has also been made to find out the importance of various information sources referred in the marine science library and information centers as shown in Table-3. The majority of marine scientists used journals which are ranked first. Internet is ranked second, online resources third, CD-ROMs/DVDs fourth and research reports fifth in position. It is a surprise to know that the book is placed in the tenth rank and patents and standards are placed in the fourteenth position. Since reference sources are occasionally used sources obviously less accessed sources are encyclopedia and directories which are placed in fifteen and sixteenth positions.

Whereas majority of the faculty members, more often, used the journals as sources of information (73%) followed by the online resources oftenly (57.9%), books (56.3%), CD-ROMs/DVDs (54.8%) and research reports (51.6%). More number of users used abstracting journals (59.5%), conference proceedings (54%) and theses (47.6%). As per expectation of the researcher occasionally used sources are encyclopedia (57.1%) and directories (50%).

The data presented in Table -.3 is also presented in the form of graph (Figure -3).

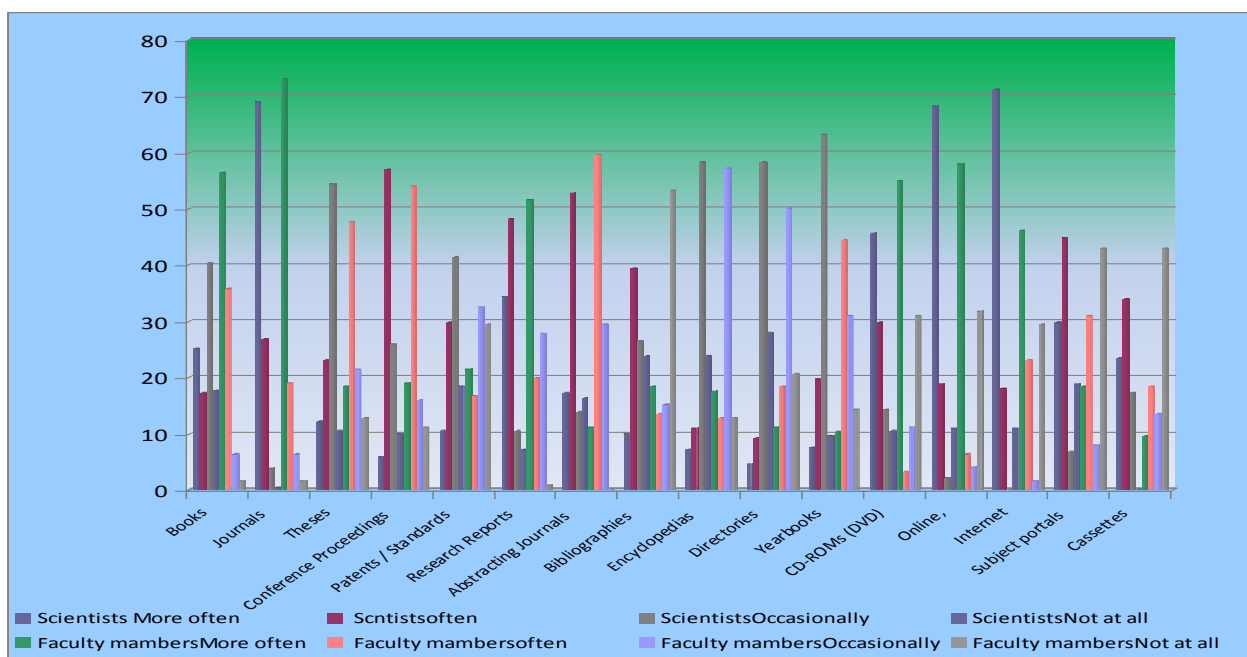


Fig. 3. Frequency of Information Sources Accessed

The result of this study is in the line of study conducted by Vajjaramatti and others (2003). It indicates that periodicals and books were the most preferred sources by the researchers.²

All the documentary sources of information were subjected to standard deviation test more often than not at all. It was found that journals got the first rank value of 0.68 in this study and cassettes got the last rank value of 1.06. It is significant to note that, the F-value is significant at 1% level.

Table – 4

Access Point of Information

| Sl No | Information sources | Scientists =239 | | | W.A | Faculty Members=126 | | | W.A |
|-------|------------------------|-----------------|--------------|-------------|-----|---------------------|--------------|--------------|-----|
| | | 1 | 2 | 3 | | 1 | 2 | 3 | |
| 1 | Books | 176 (73.6) | 41 (17.2) | 22 (9.2) | 1.4 | 79 (62.7) | 31 (24.6) | 16 (12.7) | 1.5 |
| 2 | Journals | 160 (66.9) | 68 (28.5) | 11 (4.6) | 1.4 | 72 (57.1) | 33 (26.2) | 21 (16.7) | 1.6 |
| 3 | Theses | 203 (84.9) | 21 (8.8) | 15 (6.3) | 1.2 | 98 (77.8) | 15 (11.9) | 12 (9.5) | 1.3 |
| 4 | Conference Proceedings | 211 (88.3) | 21 (8.8) | 7 (2.9) | 1.1 | 102 (81.0) | 15 (11.9) | 9 (7.1) | 1.3 |
| 5 | Patents / Standards | 189 (79.1) | 48 (20.1) | 2 (0.8) | 1.2 | 102 (81.0) | 21 (16.7) | 9 (7.1) | 1.4 |
| 6 | Research Reports | 172 (72.0) | 60 (25.1) | 7 (2.9) | 1.3 | 100 (79.4) | 21 (16.7) | 5 (4.0) | 1.2 |
| 7 | Abstracting Journals | 209 (87.4) | 28 (11.7) | 2 (0.8) | 1.1 | 112 (88.9) | 11 (8.7) | 3 (2.4) | 1.1 |
| 8 | Bibliographies | 238 (99.6) | 1 (0.4) | 0 (0.0) | 1.0 | 126 (100.0) | 0 (0.0) | 0 (0.0) | 1.0 |
| 9 | Encyclopedias | 239 (100.0) | 0 (0.0) | 0 (0.0) | 1.0 | 125 (99.2) | 1 (0.8) | 0 (0.0) | 1.0 |
| 10 | Directories | 239 (100.0) | 0 (0.0) | 0 (0.0) | 1.0 | 126 (100.0) | 0 (0.0) | 0 (0.0) | 1.0 |
| 11 | Yearbooks | 230 (96.2) | 8 (3.3) | 1 (0.4) | 1.1 | 110 (87.3) | 7 (5.6) | 9 (7.1) | 1.2 |
| 12 | CD-ROMs (DVD) | 163 (68.2) | 58 (24.3) | 18 (7.5) | 1.4 | 89 (70.6) | 21 (16.9) | 16 (12.7) | 1.4 |
| 13 | Online, | 188 (78.7) | 45 (18.8) | 6 (2.5) | 1.2 | 84 (66.7) | 29 (23.0) | 13 (10.3) | 1.4 |
| 14 | Internet | 239 (100.0) | 0 (0.0) | 0 (0.0) | 1.0 | 85 (67.5) | 24 (19.0) | 17 (13.5) | 1.5 |
| 15 | Subject portals | 237 (99.2) | 2 (0.8) | 0 (0.0) | 1.0 | 122 (96.8) | 4 (3.2) | 0 (0.0) | 1.0 |
| 16 | Cassettes | 229 (95.8) | 10 (4.2) | 0 (0.0) | 1.0 | 114 (90.5) | 7 (5.6) | 5 (4.0) | 1.1 |

It is good to know that for all forms of information sources, a large number of users depend on institutional library. In the case of reference sources like encyclopedia, directories, bibliographies, nearly cent percent of users depended on their institutional library. A considerable number of scientists depended on other R&D libraries for journals (28.5%), research reports (25.1%), patents/standards (20.1%), books (17.2%) and online databases (18.8%). The range of 2% to 9% of users depended on other academic libraries for books, CD-ROM databases, theses, journals etc.

Whereas in the case of faculty members, working in marine and fisheries department a large number of them depend on their institution library. Cent percent of respondents have accessibility to bibliographical tools and directories and maximum number of respondents have accessibility to encyclopedia (99.2%), subject portals (96.8%), cassettes (90.5%), abstracting journals (88.9%), yearbooks (87.3%) and conference proceedings, patents & standards (81% each). Like scientists, faculty members depended on other R&D libraries for periodicals (26.2%), books (24.6%), online database (23%) and patents/standards & research reports (16.7% each) (Table - 4.)

Table No-5: Where do you Accesses the Electronic Resources

| Sl No | Access to e-resources | Faculty Members =126 | | | χ^2 | Scientists=239 | | | χ^2 |
|-------|-----------------------|----------------------|--------------|----------------|------------|----------------|--------------|----------------|----------------------|
| | | M | F | T | | M | F | T | |
| 1 | Library | | | | 2.057 (NS) | | | | 0.889 (NS) |
| | a)Yes | 05 (4.0) | 04 (3.2) | 09 (7.1) | | 19 (7.9) | 12 (5.0) | 31 (13%) | |
| | b)No | 90 (71.4) | 27 (21.4) | 117 (92.9) | | 145 (60.7) | 63 (26.4) | 208 (87%) | |
| | Total | 95 (75.4) | 31 (24.6) | 126 (100.0) | | 164 (68.6) | 75 (31.4) | 239 (100) | |
| 2 | Department | | | | 1.847 (NS) | | | | 3.335*** (10% Level) |
| | a) Yes | 62 (49.2) | 16 (12.7) | 78 (61.9) | | 128 (53.6) | 66 (27.6) | 194 (81.2%) | |
| | b) No | 33 (26.2) | 15 (11.9) | 48 (38.1) | | 36 (15.1) | 09 (3.8) | 45 (18.8%) | |
| | Total | 95 (75.4) | 31 (24.6) | 126 (100.0) | | 164 (68.6) | 75 (31.4) | 239 (100) | |
| 3 | Home | | | | 0.001 (NS) | | | | 2.421 (NS) |
| | a) Yes | 06 (4.8) | 02 (1.6) | 08 (6.3) | | 13 (5.4) | 02 (0.8) | 15 (6.3%) | |
| | b) No | 89 (70.6) | 29 (23.0) | 118 (93.7) | | 151 (63.2) | 73 (30.5) | 224 (93.7%) | |
| | Total | 95 (75.4) | 31 (24.6) | 126 (100.0) | | 164 (68.6) | 75 (31.4) | 239 (100) | |

Table 5 and Figure 5 provide the place, where the users actually access e-resources. It is a surprise to know that a large number of faculties (61.9%) and scientists (81.2%) access e-resources in the department. It is followed by library where 7.1% of faculties and 13% of scientists access e-resources. Home is the last place where 6.3% each of faculty members and scientists access e-resources.

To substantiate the result of the study, research conducted by Sujatha and Mudhol (2008) can be cited here. The study reveals that a large number of respondents access the electronic information sources through the facility at their individual departments (69.5%).³

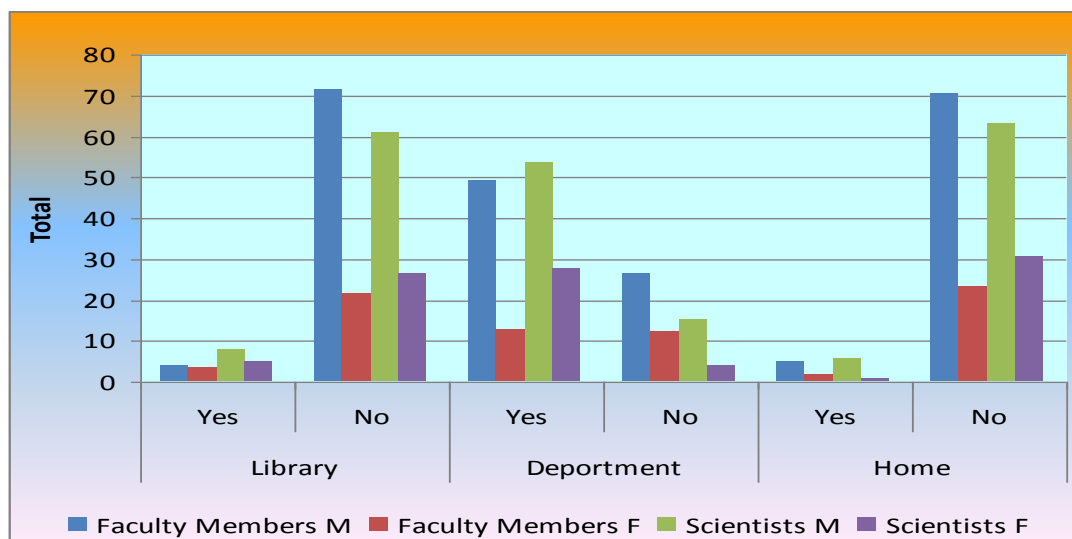


Fig. 5. Where do you Accesses the Electronic Resources

Findings

1. The sample population used in the present study contains more number of male scientists (68.2%) than female scientists (31.8%) and more number of male faculties (75.4%) than female faculties (24.6%), (Table 5.1).
2. A large number of scientists most frequently used Internet facility (83.7%) and is ranked first among various channels of information, followed by searching online database (67.4%) and electronic journals (CD-ROMs) (57.7%), which are ranked second and third respectively (Table 2).
3. A maximum number of faculty members used Internet facility (77.8%), searching online database (47.6%), electronic journals (45.2%) as modes for accessing information and which are ranked first, second and third respectively (Table 2).
4. The majority of marine scientists used journals which are ranked first, Internet is ranked second, online resources third, CD-ROMs/DVDs fourth and research reports fifth in position. It is a surprise to know that the book is placed in the tenth rank and patents and standards are placed in the fourteenth position (Table 3).
5. The majority of faculty members more often used journals as sources of information (73%) followed by online resources oftenly (57.9%) and books (56.3%), CD-ROMs/DVDs (54.8%) and research reports (51.6%). More number of users used abstracting journals (59.5%), conference proceedings (54%) and theses (47.6%). As per expectations occasionally used sources are encyclopedia (57.1%) and directories (50%), (Table 3).

6. A considerable number of scientists depended on other R&D libraries for journals (28.5%), research reports (25.1%), patents/standards (20.1%), and books (17.2%). The range of 2% to 9% of users also depended on other academic libraries for books, CD-ROM databases, theses, journals etc. Based on the opinion of users, one can say that their institutional libraries are meeting their information needs at maximum extent. It is also observed that the weighted average is in the range of 1.0 to 1.4. In case of faculty members working in marine and fisheries department a large number of them depend on their institution library (Table 4).
7. Cent percent of respondents have accessibility to bibliographical tools and directories and a maximum number of respondents also have accessibility to encyclopedia (99.2%), subject portals (96.8%), cassettes (90.5%), abstracting journals (88.9%), yearbooks (87.3%) and conference proceedings, patents and standards (81% each). Like scientists, faculty members opined that they depended on other R&D libraries for periodicals (26.2%), books (24.6%), online database (23%) and patents/standards and research reports (16.7% each), (Table 4).
8. A large number of faculties (61.9%) and scientists (81.2%) access e-resources in the department. It is followed by library where 7.1% of faculties and 13% of scientists access e-resources. Home is the last place where 6.3% each of faculty members and scientists access e-resources (Table 5).

Suggestions

1. Relevant institutions and bodies adopt a coordinated and coherent strategic approach to e-resource provision and access, based on research community needs.
2. E-resource conversion by resource holders pays particular attention to secondary before primary e-provision.
3. All those providing e-resources address means and mechanisms for access from general information discovery systems such as Web engines.
4. National institutions, funding bodies and library representatives collectively address the development of licensing and fair use protocols for e-resources that balance the claims of providers and users.
5. National institutions and funding bodies conduct an in-depth analysis of the requirements and options for long-term e-resource duration, preservation and use.
6. The central government and other research institutions ensure that Universities and Fishery Institutions researchers have sufficient access to appropriately-trained technical support staff.
7. Marine Science researchers actively seek guidance on access to, and provision of, e-resources.
8. Fishery researchers actively promote user community interests to both e-resource funders and providers.

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