PREFERENCE STUDY OF E-RESOURCES IN MARINE SCIENCE BY SCIENTISTS AND ACADEMIC FACULTY

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ABSTRACT

Over the twenty five to thirty years, academic and research institute libraries are dramatic changes brought about by decreasing purchasing power and the growing impotence of electronic information resources. In India ten to fifteen years ago, common use of the internet and such formats as CD-ROMs was outdated, many scientists and faculty members though most were using every means they to acquire e-resources. This article analysis the purpose of usage of e-resources, how much time spent to searching of websites through search engines, in which places downloaded, what are the innovations in electronic information resource functionality will necessitate advances in electronic resources usage of scientists and faculty.

KEYWORDS: Electronic Information, Services, Scientists, Faculty members.

1. INTRODUCTION

Electronic information resources have become an increasingly substantial component of marine science research and academic institution libraries. Today, locally mounted and web accessible electronic resources command approximately eleven percent of the institutional materials budget and provide access to information for be yond the limits of the libraries print collections. Scientists and teaching faculty regarding their awareness and use of the institution and other research libraries electronic resources, predictably, their responses reveled the need for greater

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publicity on each new resource as it is acquired, training opportunities and the mechanics of remote access to resources.

2 PREFERENCE STUDY

Today preference are more concentrated on customization hence it is coined by Bankapur here as "Preference Study" to conceptualize all matters relevant to preferences of the users and help in the decision making aspects to study. Relevance's such as technology preference. Formats preferences, resources etc, play vital role in managerial aspects of the libraries. Today more studies have to done on this theme; preference is the best match which looks into various aspects like:

- Rich Collections in all forms
- Accessibility : Wherever you are
- Study area
- Library Staff
- Library Services
- More importantly Communication

3. REVIEW OF LITERATURE

An attempt has been made to review briefly the important related literature on e-resources and services particularly in ocean science libraries with a view to justify the need and relevance of the present investigation. Some of the core articles reviewed are as follows.

Bidhan Chandra Biswas, Sambit Kumar Hazra and Samir Kumar Jalal (2002) Anjana Bhatnagar (2003) Kannappanavar B.U (2001), have discussed the collection of library resources and services in the libraries of Agricultural universities. They have highlighted the financial management and the expenditure and also pointed out all traditional services in the libraries of agricultural universities into automated library services and

described the IT information resources, resource sharing, problems of the library and possible services. The articles written by them further deal with "Information Crisis," resource sharing, concept of interlibrary lending, co-operative acquisition of books and subscription of periodicals, collection development, sharing of bibliographical data, exchange of electronic documents and articles. Rekha Smrithi and Baruaah(2001), Kasi Rao.V, Ramesh Babu.B and Gopal Krishanan.S (2001) describe the information and telecommunication technologies in the library and information centers. Further they also discuss about several factors like training of library professionals, funds and information policy, modern information technology like IT applications and library services. Veeranjaneyulu.K (2001) Donic.J and Nirmala.P.J (2003); Jaya Singh(2003) in their articles have described the user need and have worked on library systems and IT based information services. Further they have discussed the aspects of the design and the use of document access and retrieval system based on library automation of KIT and also evaluation of the information retrieval system and their effective measures. Bhatt, R.K and Manorama Tripathi(2001), Dhiman Anilkumar (2001) Biradar B.S and Sampath Kumar.B.T.(2003), AnilKumar Dhiman(2001), Sasikala.C and Nagarathna G. Mani(2003), Satyanarayana.V.V.Vand Vijaya Bharathi.C (2003) In this article has describe the use of Internet, internet tools like world wide web email, telnet, Gopher, FTP, Archie, etc., importance of internet and relevance of internet in the world of academic libraries and also discuss the network providing information sources and services. They have described techniques of searching quality information, important parameters for evaluation of web based information resources. They have described the information sources available on Internet and also the electronic information sources, as CD-Rom databases, online databases, online services and other web resources. Singh K.P(2003), Bhavina J. Naik (2003) Online services to Bio Science Data Bases Trends and issues, describes various issues like information retrieval versus data retrieval online services, cataloguers databases, components of online services and functions. Further they deal with online information sources like e-

journals, e-books, e-data base, transition of traditional library systems into digital library systems and different projects like Gutenberg e-book project, University of California Digital Library Project and University of Pennsylvania Digital Library project. SatyanarayanaV.V.V and Sankara Reddy.M (2003) describe the changes of the library resources and services in the form of electronic storehouses, trends of Internet, printing and publishing, hard copy (print) format. E-version, importance of electronic resources and their publicity, processing and accessing, some online problems in infrastructure development. Ramdas.G (2003) Electronic Library and Products services:- discusses digital revolution in electronic information services, definitions, objectives, functions and features. He further discusses the services of electronic information. TrishanjitKaur (2002);Anandamurugan.M and Murugesapandian(2003) describe the electronic documents, modern library concepts such as digital libraries, objectives of electronic document services, electronic journals and networks, challenges in IT field-Information technology and life cycle of information, Internet and the new methods of providing digital reference services. .

4. OBJECTIVES OF THE STUDY

The main purpose of this study was to investigate the awareness, level of use of electronic resources, the perceived use of electronic resources on the academic productivity of teachers and problems faced by research scientists while using electronic resources in the south Indian Ocean science and fishery Libraries.

The following objectives of the study were to:

1. Analyze the dependency of academic faculty and research scientists on e-resources
2. Determine the perceived of the e-resources on their academic efficiency.

3. Study the purpose and frequency of using the electronic resources and services available in the library.
4. Know the different types of electronic resources and services available in research libraries.
5. To suggest suitable way to improve the use of e-resources in library.

1. Analysis and Interpretation of Data

Table-5.1 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 (130)	55 (23.0)	4	CFS Nellore	05 (4.0)	04 (3.2)	09 (7.1)
5	INCOIS, Hyderabd	18 (7.5)	05 (2.1)	23 (9.6)	5	Kerala University	03 (2.4)	02 (1.6)	05 (4.0)
6	NIO (Regoff), 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-5.1 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%).

Table 5.2. Availability of E-Resources in Library/ Information Centers

Sl No	Electronic resources	Scientists		Faculty members	
		Yes	No	Yes	No
1	Floppy Disks	21 (8.8)	218 (91.2)	08 (6.3)	118 (93.7)
2	CD-ROMs	228 (95.4)	11 (4.6)	119 (94.4)	07 (5.6)
3	Microforms	06 (2.5)	233 (97.5)	00 (0.0)	126 (100.0)
4	E-books	188 (78.7)	51 (21.3)	111 (88.1)	15 (11.9)
5	E-Journals	220 (92.1)	19 (7.9)	112 (88.9)	14 (11.1)
6	Online/CDROM databases	225 (94.1)	14 (5.9)	114 (90.5)	12 (9.5)
7	Cassettes	89 (37.2)	152 (63.6)	10 (7.9)	116 (92.1)

The data reveals that a large number of respondents said ‘yes’ for availability of CD-ROMs (95.4%), Online/CD-ROM database (94.1%), e-journals (92.1%) and e-books (78.7%). In case microforms (97.5%), floppy discs (91.2%) and cassettes (63.6%), large number of users said ‘no’ for the availability of e-resources. It may also be observed from Table 4.2 that there is no significant difference in the opinion of faculty members in relation to e-resources. Compared to research institute

scientists, marginally low percent of CD-ROMs, e-journals and cassettes are available in academic library.

Table No-5.3: Where do You Accesses the Electronic Resources

Sl No	Access to e-resources	Faculty Members =126			χ^2	Scientists=239			χ^2
1	Library	M	F	T		M	F	T	
	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)**	**2.057 (NS)**	**145 (60.7)**	**63 (26.4)**	**208 (87%)**	**0.889 (NS)**
	Total	**95 (75.4)**	**31 (24.6)**	**126 (100.0)**		**164 (68.6)**	**75 (31.4)**	**239 (100)**	
2	**Department**								
	a) Yes	**62 (49.2)**	**16 (12.7)**	**78 (61.9)**		**128 (53.6)**	**66 (27.6)**	**194 (81.2%)**	**3.335*** (10% Level)**
	b) No	**33 (26.2)**	**15 (11.9)**	**48 (38.1)**	**1.847 (NS)**	**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**								
	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)**	**0.001 (NS)**	**151 (63.2)**	**73 (30.5)**	**224 (93.7%)**	**2.421 (NS)**
	Total	**95 (75.4)**	**31 (24.6)**	**126 (100.0)**		**164 (68.6)**	**75 (31.4)**	**239 (100)**	

Table 5.3 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.

Table 5.4. Purpose of Using Electronic Resources: Scientists and Faculty Members

Table 5.4. Purpose of using Electronic Resources: Scientists and Faculty Members

Sl No	Purpose of using e-resources	Scientists=239				Std. Dev	F. Test	Rank	Faculty Members=126				Std. Dev	F. Test	Rank
		1	2	3	4				1	2	3	4			
1	Research/ Project	133 (55.6)	104 (43.5)	00 (0.0)	02 (0.8)	**0.55**	117.690 Significant at 1% level	**1**	40 (31.7)	84 (0.0)	00 (0.0)	02 (1.6)	**0.55**	59.388 Significant at 1% level	**3**
2	Lesson Plans	38 (15.9)	60 (25.1)	111 (46.4)	30 (12.6)	**0.91**		**8**	16 (12.7)	22 (17.5)	58 (46.0)	30 (23.8)	**0.94**		**9**
3	Accessing online databases	132 (55.6)	100 (41.8)	00 (0.0)	06 (2.5)	**1.41**		**4**	35 (27.8)	81 (46.0)	00 (0.0)	10 (7.9)	**0.77**		**4**
4	Means of Communication With Professionals	164 (68.6)	51 (21.3)	04 (1.7)	20 (8.4)	**0.89**		**2**	77 (61.1)	34 (27.0)	00 (0.0)	15 (11.9)	**0.98**		**1**
5	Forum for discussion	54 (22.6)	25 (10.5)	145 (60.7)	15 (6.3)	**0.91**		**7**	35 (27.8)	13 (10.3)	70 (55.6)	08 (6.3)	**0.96**		**7**
6	Publishing	31 (13.0)	67 (28.0)	118 (49.4)	23 (9.6)	**1.03**		**9**	05 (4.0)	47 (37.3)	60 (47.6)	14 (11.1)	**0.73**		**8**
7	Downloading e-resources	74 (31.0)	122 (51.0)	29 (12.1)	14 (5.9)	**0.81**		**5**	33 (26.2)	57 (45.2)	21 (16.7)	15 (11.9)	**0.94**		**5**
8	Professional development	149 (62.3)	60 (25.1)	24 (10.0)	06 (2.5)	**0.78**		**3**	64 (50.8)	45 (35.7)	13 (10.3)	04 (3.2)	**0.79**		**2**
9	Placements	38 (15.9)	147 (61.5)	35 (14.6)	19 (7.9)	**0.78**		**6**	22 (17.5)	68 (54.0)	19 (15.1)	17 (13.5)	**0.90**		**6**
10	Chatting	27 (11.3)	15 (6.3)	151 (63.2)	46 (19.2)	**0.84**		**10**	12 (9.5)	15 (11.9)	71 (56.3)	28 (22.2)	**0.85**		**10**
11	Entertainment	24 (10.0)	15 (6.3)	50 (20.9)	150 (62.8)	**0.98**		**11**	12 (9.5)	10 (7.9)	12 (9.5)	92 (73.0)	**0.99**		**11**

Note: 1.Fully agree, 2. Agree, 3. Partial agree, 4. Not at all

Note: 1.Fully agree, 2. Agree, 3. Partial agree, 4. Not at Large number of users uses e-resources and the purpose of using e-resources varied from scientists to scientists. As it is clear from the Table 5.4 that majority of scientists use e-resources for professional development (62.5%) followed by writing research project (55.6%). Quite a good number of scientists partially agreed that they used e-resources for chatting (63.2%), publishing (49.4%) and lesson plans (46.4%).

It may also be observed from Table 4.4 that like scientists, a large number of faculty members fully agreed that they used e-resources for means of communication with professionals (61.1%) followed by professional development (50.8%) and research project (31.7%). It is observed that a substantial number of faculty members agree that, they use it for research/project writing (66.66%), placement (54%), accessing online database (46%) and downloading e-resources (45.2%). Since communication among university faculties is essential, the Internet could be an effective tool in this process. The data confirms that faculty is ready to face the challenges thrown by the technology.

Table 5.5. **Ranking (Value) of Electronic Resources: Scientists and Faculty Members**

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Sl No	Ranking of e- resources	Scientists=239				Std. Dev	F. Test	Rank	Faculty Members=126				Std. Dev	F. Test	Rank
		1	2	3	4				1	2	3	4			
1	Visit the library website	37 (15.5)	167 (69.9)	22 (9.2)	13 (5.4)	**0.68**	**46.513 Significant at 1% Probability level**	**6**	24 (19.0)	83 (65.9)	13 (10.3)	06 (4.8)	**0.70**	**16.539 Significant at 1% level**	**1**
2	Search the online catalog	49 (20.5)	144 (60.3)	31 (13.0)	15 (6.3)	**0.77**		**5**	22 (17.5)	62 (49.2)	26 (20.6)	16 (12.7)	**0.90**		**6**
3	Search the databases	70 (29.3)	136 (56.9)	26 (10.9)	07 (2.9)	**0.71**		**2**	21 (16.7)	88 (69.8)	09 (7.1)	08 (6.3)	**0.70**		**3**
4	Use e-books	111 (46.4)	46 (19.2)	59 (24.7)	23 (9.6)	**1.05**		**4**	44 (34.9)	17 (13.5)	45 (35.7)	20 (15.9)	**1.12**		7
5	Browse e-journals	102 (42.7)	71 (29.7)	61 (25.5)	05 (2.1)	**0.87**		**1**	40 (31.7)	27 (21.4)	53 (42.1)	06 (4.8)	**0.95**		**5**
6	Access full text article	70 (29.3)	133 (55.6)	25 (10.5)	11 (4.6)	**0.76**		**3**	30 (23.8)	72 (57.1)	16 (12.7)	08 (6.3)	**0.79**		**2**
7	Online reference Sources	58 (24.3)	118 (49.4)	10 (4.2)	53 (22.2)	**1.06**		**7**	29 (23.0)	79 (62.7)	01 (0.8)	17 (13.5)	**0.88**		**4**
8	Fill online ILL form	15 (6.3)	83 (34.7)	19 (7.9)	122 (51.0)	**1.05**		**8**	04 (3.2)	51 (40.5)	16 (12.7)	55 (43.7)	**0.99**		**8**

Note: 1. Very important, 2.Important, 3. Somewhat important, 4. Not important

To know the popular e-sources the respondents were shown a list of e-resources and were asked to indicate their importance the same is presented in Table 5. 5, Library website and online catalogue are important for 69.9% and 60.3% of users respectively. Perhaps, not unexpectedly e-books (46.4%) and e-journals (42.7%) are very important nearly for the half of the respondents. Further ranking table shows that e-journals, databases and full text articles are highly utilized sources and ranked them first, second and third respectively. Availability (Table 5.5) and need would be the reason for higher utilization of these e-resources.

It clearly shows that, a majority of respondents (69.8%) amongst marine science faculties gave importance to search the database. It is followed by visit library website (65.97%) and online reference sources (62.7%). There is no doubt that the Internet has assumed the role of providing a medium of scientific information, and today users can no longer depend on conventional information sources to cope with the latest development in their respective fields.

On the same line of the study, a survey has been made by Kanniyappan and others (2008) at Anna University Library, Chennai. The study found that 53.33% of respondents used e-journals followed by www (35.35%), books (8%) and databases (3.33%). Thus, the high use of e-resources by the faculty of marine science confirm to the general trend.[4]

Table 5.6. Reasons for Influencing e-Resources: Scientists

Table 5.6. Reasons for Influencing e-Resources: Scientists

Sl No	Reasons	Scientists=239		χ^2	Faculty Members=126		χ^2
		Y	N		Y	N	
1	Fast access and delivery of information.	212 (88.7)	27 (11.3)	4.132***Significant at 10% level	102 (81.0)	24 (19.0)	0.072 (NS)
2	Provision of accurate and current information	191 (79.9)	48 (20.1)	6.789** Significant at 5% level	96 (76.2)	30 (23.8)	2.019 (NS)
3	Exploring wider area of information sources nearer to your topic	143 (59.8)	96 (40.2)	7.729** Significant at 5% level	86 (68.3)	40 (31.7)	1.523 (NS)
4	To share information/ research with distant colleagues	107 (44.8)	132 (55.2)	5.308*** Significant at 10% level	65 (51.6)	61 (48.4)	2.387 (NS)
5	Saves time my own communication (by using email) and search for information	38 (15.9)	201 (84.1)	9.293* Significant at 1% level	07 (5.6)	119 (94.4)	8.984** Significant at 5% level
6	Interact with my own resources within and outside minus the help of librarians	34 (14.2)	205 (85.8)	7.007** Significant at 5% level	03 (2.4)	123 (97.6)	6.607** Significant at 5% level

Note: 1. Y=Yes 2. N=No

Opinions of the scientists and faculty members is tabulated and presented in Table 5.6. It is evident from that, for majority of respondent's fast access and delivery of information (88.7%), the provision of accurate and current information (79.9%) and exploring wide area of information sources nearer to the interested topic (59.8%) are the reasons for accessing e-resources.

The opinions of scientists vary across that different designation of respondents. Therefore chi-square ($\chi 2$) test was performed to test the significance of the association between the designation of scientists and their opinions about influence of fast access and delivery of information on usage of e-resources. The chi-square value was found to be significant at 10% probability level. Therefore it can be inferred that there is a significant association between the designation of respondents and their opinion about the fast access and delivery of information is influencing the usage of e-resources.

In case of faculty members a large number of respondents mentioned as e-resources are fast access and delivery of information (81%), whereas 19% said 'No'. 76.2% accepted the scope for provision of accurate and current information, while 23.8% declined the same. 68.3% accepted that they would explore a wide area of information sources nearer to topic, whereas, 31.7% declined it. 51.6% said they could share information/ research with distant colleagues while 48.4% responded negatively. For very small percent of users, 'saves time' 15.9% and 'interact with my own resources' are reasons for accessing e-resources (Table 5.6).

Table 5.7. Time Spent on Use of e-Resources: Scientists and Faculty Members

Table 5.7. Time Spent on Use of e-Resources: Scientists and Faculty Members

Sl No	Time spent on e- resources	Scientists=239				Std. Dev	F. Test	Rank	Faculty Members=126				Std. Dev	F. Test	Rank
		<0.30hr	1hr	2hrs	> 2hrs				<0.30hr	1hr	2hrs	> 2hrs			
1	Visit the library website	155 (64.9)	52 (21.8)	17 (7.1)	15 (6.3)	0.88	95.447 Significant at 1% Probability level	7	52 (41.3)	55 (43.7)	06 (4.8)	13 (10.3)	0.92	49.329* Significant at 1% Probability level	7
2	Search the online catalogue	120 (50.2)	105 (43.9)	08 (3.3)	06 (2.5)	0.68		6	60 (47.6)	30 (23.8)	22 (17.6)	14 (11.1)	1.05		6
3	Search the databases	134 (56.1)	71 (29.7)	27 (11.3	07 (2.9)	0.80		5	03 (2.4)	79 (62.7)	22 (17.5)	22 (17.5)	0.81		4
4	Use e-books	110 (46.0)	09 (3.8)	114 (47.7)	06 (2.5)	1.02		4	62 (49.2)	12 (9.5)	13 (10.3)	39 (31.0)	1.34		5
5	Browse e-journals	14 (5.9)	164 (68.6)	38 (15.9)	23 (9.6)	0.72		3	16 (12.7)	01 (0.8)	57 (45.2)	52 (41.3)	0.96		2
6	Access full text article	20 (8.4)	55 (23.0)	134 (56.1)	30 (12.6)	0.79		1	02 (1.6)	13 (10.3)	71 (56.3)	40 (31.7)	0.67		1
7	Online reference Sources	40 (16.7)	26 (10.9)	146 (61.1)	27 (11.3)	0.89		2	11 (8.7)	07 (5.6)	69 (54.8)	39 (31.0)	0.84		3
8	Fill online ILL form	147 (61.5)	77 (32.2)	07 (2.9)	08 (3.3)	0.71		8	51 (40.5)	56 (44.4)	07 (5.6)	12 (9.5)	0.91		8

Along with the use of e-resources, how much time they spend on use of various e-resources is also important. To examine the same eight specific electronic sources viz., library website, online catalogue, database, e-books, e-journals, access full text articles, online reference work and ILL form are mentioned in the questionnaire. The response of the users are tabulated and presented in Table 4.7 the time spent on the use of individual source, 68.6% of scientists spent one hour to search e-journals followed by browsing the online catalogue (43.9%) and 64.9% less than half an hour to use e-books and it is followed by visit the library websites (61.5%) and search the database (56.17%). Whereas 61.1% of scientists spent three hours for online reference source. It is followed by to access full text articles (56.1%) and use e-books (47.7%). Although time required to fill the online ILL form is very less, but more than 50% of respondents took three hours, it may be because of lack of knowledge in using online ILL form or speed of the net would be very slow.

Opinion is also sought from faculty members about the amount of time spent on e-resources. The response of the respondents are tabulated and interpreted in Table 5.7.

5. 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 respondents said yes for availability of CD-ROMs (95.4%), online/CD-ROM database (94.1%), e-journals (92.1%) and e-books (78.7%), (Table 5.2).
3. 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 5.3).

4. The majority of scientists use e-resources for professional development (62.5%) followed by writing research project (55.6%). Quite a good number of scientists partially agreed that they used e-resources for chatting (63.2%), publishing (49.4%) and lesson plans (46.4%). Followed by a large number of faculty members fully agreed that they used e-resources for communication with professionals (61.1%) followed by professional development (50.8%) and research project (31.7%). It is also observed that a substantial number of faculty members agree that, they use it for research/project writing (66.66%), placement (54%), accessing, online database (46%) and downloading e-resources (45.2%), (Table 5.4).
5. The majority of respondents opine that fast access and delivery of information (88.7%), the provision of accurate and current information (79.9%) and exploring a wide area of information sources nearer to the interested topic are the reasons for accessing e-resources (Table 5.5).
6. Good number of respondents spent one hour for search database (62.7%), to fill online ILL form (44.4%) and visit the library website (43.7%). A countable number of respondents spent more than two hours for browse e-journals (41.3%), access to full text articles (31.7%) and use e-books and online reference sources (31% each) (Table 5.6).

6. 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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