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Faculty Information-Seeking Behaviour in the Changing ICT Environment: A Study of Commerce Colleges in Mumbai

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Introduction

The kind of information required by the user, methods adopted in searching information, environment affected, time spent, problems faced and solutions made, the satisfaction/dissatisfaction arising from the information gathered and the relationship of the user with the system – all come under purview of a user study. A user study is the means for systematic examination of the characteristics of information behaviour of the users.

Progress in information technology has offered today's information seekers different opportunities to access the information resources in variety of formats, including commonly-available electronic information sources, such as CD-ROMs, databases, Web-OPACs, and the Internet. In some instances these are replacing the print-based information sources as the primary media for the storage and communication of recorded information.

The increase in information available on the Web has affected information-seeking behavior, with many types of information in many different locations all available in one place.[1] Information-seeking behaviour involves personal reasons for seeking information, the kinds of information which are being sought, and the ways and sources with which needed information is being sought.[2] ICT has caused changes in the representation of knowledge, from analog to digital. The shift has led to:

- *New information formats*: Multimedia information can be created, stored and distributed in digital format as CD-ROM or on hard disks, removable hard

disks (external hard disk, pen drives) flash cards and other digital storage media.

- *New ways of distributing and accessing information*: Tools to access information, fulltext and multimedia information can be accessed from remote sites via telecommunications facilities.
- *New information services*: Tools to access information can be used even from remote sites via LANs and WANs

Information-Seeking Behaviour

The need for information is one of the cognitive needs of humankind. Information need causes information-seeking behaviour and these concepts complement one another. Information need and information-seeking behaviour are affected by many factors. Information-seeking behaviour is expressed in various forms, from reading printed material to research and experimentation. Scholars, students, and faculty actively seek current information from the various sources available in libraries, e.g., encyclopedias, journals and, more currently, electronic media.[3]

Information-seeking behavior dependes on the reasons for seeking information and the starting knowledge of the individual. Marchionini describes it as, "Information-seeking is a special case of problem solving. It includes recognizing and interpreting the information problem, establishing a plan of search, conducting the search, evaluating the results, and if necessary, iterating through the process again."[4]

Numerous theoretical treatments have been proposed to characterize the information-seeking behaviour, which is complex cognitive process (Belkin et al., 1982, Kuhlthau, 1991, Marchionini, 1995, Saracevic, 1997, Sutcliffe and Ennis, 1998, Jarvelin and Ingwersen, 2004). Information seeking is a basic activity indulged in by all people and manifested through a particular behaviour. It is also an aspect of scholarly work of most of the academic librarians who strive to develop collections, services, and organizational structures that facilitate information seeking.

Review of Literature

The literature review plays a very important role in the research process. It is extremely difficult to review the entire body of user research. Many significant contributions have been made by psychologists, sociologists, behavioural scientists and others in addition to library and information science personnel. As a result, the literature is scattered across many disciplines and wide-ranging resources.

Krikelas (1983) examines the elements of user studies and presents them as unified concepts within a model of information-seeking behaviour.[5] The concept of information-seeking behaviour, information needs, information gathering, information giving and source preference are discussed. User Information seeking behaviour and user Characteristics in seeking information are two entities. These two entities are studied and gave emphasis on correlation of these two entities in information-seeking by Sridhar (1987).[6] Author used multiple investigation methods and data collection tools and techniques in his study to determine the characteristics and information-seeking behaviour of the users and relate such behaviour to their characteristics.

Marchionini (1995) explains information-seeking behaviour and changing environment, including the ways that the electronic environment has influenced users.[7] He highlights the human-computer interaction for information-seeking.

Ellis and Haugan (1997) discuss the different models of information-seeking

patterns. They explore the role of information and information-seeking.[8] Authors identified eight major characteristics in the information-seeking patterns; surveying; chaining; monitoring; browsing; distinguishing; filtering; extracting and ending. They identify identical or very similar categories of information-seeking behaviour to those of previous studies of academic researchers.

Wilson (1999) presents an outline of models of in formation seeking and other aspects of information behaviour.[9] He shows the relationship between communication and information behaviour in general with information-seeking and information searching in information retrieval systems. Author also presents an alternative problem solving model for information searching and various levels of information behaviour.

Study of communication patterns and information-seeking behaviour of users working in ICMR institutes is made by Basimalla (2000).[10] Seeking Information from the Internet often starts from a search engine, using either its organized directory structure or its text query facility. Thelwall and et al. (2001)[11] give new approach for specific information where a website that enables a user to search the individual websites. The Google, Altavista and Hotbot offer the facility to integrate additional information into a more advanced request.

Research in information-seeking behaviour, motivation, critical thinking, and learning theory was explored by Weiler (2005).[12] Author compared in a search for possible motivating factors behind students' dependence on television and the internet for their information needs. The research indicates that only a very small percentage of the general population prefers to learn by reading.

Stenmark and Jadaan (2006) have made a study of Intranet users' information-seeking behaviour using search log files.[13] They collected and analysed three different years like 2000, 2002 and 2004 to study the shifting trend of information-seeking behavior in intranet search.

Ellis, et al. (1993),[14] attempted to propose and describe the characteristics a general model of information-seeking behaviors based on studies of the information-seeking patterns of social scientists, research physicists and chemists, engineers and research scientists in an industrial firm. Ellis's elaboration model describes the features of information-seeking activities as generic.

Search of literature was made by using books, LISA on CD-ROM, E-prints in Library and Information Science, articles from journals and works of T.D. Wilson, David Ellis, and Gary Marchionini. Most of the studies are based on foreign authors and Indian studies are to some extent minimum. The Indian study on information-seeking behaviour in electronic environment is not in depth as compare to western countries. Instead the study in India focused on the Internet.

There is exhaustive literature reviewed by authors but important only highlighted in this article. The study cited above indicates that considerable work has been done on information-seeking behaviour.

Objectives

The present study has the following objectives mainly on information-seeking behaviour characteristics in ICT environment.

1. To identify the frequency of use of the library by the faculty.

2. To find out the types of computer based services used.

3. To know the purpose of information-seeking

4. To see the amount of time spend on information-seeking.

4. To identify the problems faced by faculty in information-seeking and methods adopt in resolving these problems.

5. To know the environment affecting faculty information-seeking.

6. To suggest suitable ways and means to improve the library resources and services in college libraries.

Research Methods and Data Collection

Method

A questionnaire was used to solicit both qualitative and quantitative data. Questionnaires were distributed among the faculty members of 46 Commerce Colleges in Mumbai city. A total of 200 questionnaires were distributed and 143 completed questionnaires were received, resulting in a response rate of 71.5 %. While distributing questionnaires, care was taken to ensure that users of different age groups, designation and gender were represented adequately in the population.

Steps and Tools

- Filled and returned questionnaires had been gathered and numbered in order of arrival.
- When possible "open questions" have been codified and codes turned into data.
- All collected data have been transferred in a spreadsheet Excel.
- The tool used for analysing sample survey data has been SPSS System.
- Those "open questions", impossible to be codified, had been gathered, collected in order of topic, interpreted, analysed and reported.

Data Analysis and Interpretation

Designation-wise Gender Ratio of Respondents

Table 1 reveals the Designation-wise Gender Ratio of Respondents. It is observed that, of the total 143 respondents, 75 (52.45%) are Lecturers, 50 (34.97%) are Lecturers in Senior Scale and 18 (12.58%) are Lecturers in Selection Grade. Out of total 143 respondents, 63 (44.06%) are male and 80 (55.94%) are Female.

Table 1: Distribution of respondents – Designation wise Gender Ratio

Designation	Male	Female	Total No. of Faculty
Lecturer	25 (33.33)	50 (66.67)	75 (52.45)
Lecturer (Senior Scale)	27 (54.00)	23 (46.00)	50 (34.97)
Lecturer (Selection Grade)	11 (61.11)	7 (38.89)	18 (12.58)
Total:	63 (44.06)	80 (55.94)	143 (100)

Distribution of respondents - Teaching Experience wise

Table 2 reflects the teaching experience-wise distribution of respondents. Majority of respondents, that is, 48 (33.57%) up to 5 years teaching experience, followed by the respondents 33 (23.07%) between 6 and 10 years. There were 25 (17.48%) respondents having teaching experience between 11 and 15 years. A nearly equal number of respondents, 22 (15.39%), have more than 21 years of teaching experience, and 15 (10.49%) respondents have teaching experience between 16 and 20 years.

Table 2: Teaching Experience -wise distribution of respondents

Designation	Up to 05 Years	6-10 Years	11-15 Years	16-20 Years	21 and Above	Total
Lecturer	48 (64.00)	8 (10.67)	10 (13.33)	4 (05.33)	5 (06.67)	75 (52.45)
Lecturer (Senior Scale)	00 (00.00)	25 (50.00)	10 (20.00)	8 (16.00)	7 (14.00)	50 (34.97)
Lecturer (Selection Grade)	00 (00.00)	00 (00.00)	5 (27.78)	3 (16.67)	10 (55.55)	18 (12.58)
Total	48 (33.57)	33 (23.07)	25 (17.48)	15 (10.49)	22 (15.39)	143 (100)

Faculty Visit to Library: Frequency of Visit to Library

Users were asked about their frequency of visit to library. Table 3 indicates that the majority 64 (44.75%) of faculty members visit the library once in a week. The 55 (38.46%) respondents visit their college everyday. Few respondents 14 (09.79%) and 10 (07.00%) visit their library more than once in a week and once in fortnight respectively.

Table 3: Frequency of Visit to Library

Frequency of Visit	Lecturer	Lecturer (Sr. Scale)	Lecturer (Sl. Grade)	Total No. of faculty
Everyday	46 (83.64)	04 (07.27)	05 (09.09)	55 (38.46)
Once in a Week	12 (18.75)	39 (60.94)	13 (20.31)	64 (44.75)
More than once in a week	10 (71.43)	04 (28.57)	00 (00.00)	14 (09.79)
Once in Fortnight	07 (70.00)	03 (30.00)	00 (00.00)	10 (07.00)
Total	75 (52.45)	50 (34.97)	18 (12.58)	143 (100)

Faculty Visit to Library: To Use Computer based Services

Respondents were asked about their use of computer based services when they visit their respective college libraries. Options were given that; they can mark all services that applicable to them. Table 4 gives the picture on use of computer based services. Out of all respondents 59 (41.25%) use OPAC, 08 (05.59%) search CD ROM databases, 49 (34.26%) search online database, 111 (77.62%) browse internet and followed by 121 (84.61%) use of e-mail facility, 67 (46.85%) access e-journals, 63 (44.05%) scanning and printing.

Table 4: Use of Computer based Services

Computer based Services	No of faculty
To use OPAC	59 (41.25)
To Search CD ROM databases	08 (05.59)
To Search Online databases	49 (34.26)
To Browse Internet	111 (77.62)
To use email facility	121 (84.61)
To access e-journals	67 (46.85)
To scan/Print	63 (44.05)

Keeping abreast of current developments

Table 5 indicates that 110 (76.92%) respondents keep abreast of current developments through reading current journals/magazines. About 125 (87.41%) respondents are through reading latest books in their field, 91 (63.64%) respondents through Browsing current issues of electronic journals 33 (23.07%) respondents through Searching online databases 102 (71.33%) respondents through Browsing websites of companies / organisations 19 (13.29%) respondents through Accessing e-books 14 (09.79%) respondents through E-mail alerts from publishers 35 (24.47%) respondents through awareness services from library like CAS & SDI 73 (51.05%) respondents through Interaction with colleagues and experts 74 (51.75%) respondents through Attending conferences, workshops, etc 03 (02.10%) respondents through Email discussion groups and 56 (39.16%) respondents through Other methods.

Table 5: Methods adopted to keep abreast of current developments.

Sr. No	Method for keeping abreast of current developments	No of faculty
1	Reading current issues of print journals / magazine	110 (76.92)
2	Reading latest books in the field	125 (87.41)
3	Browsing current issues of electronic journals	91 (63.64)
4	Searching online databases	33 (23.07)

5	Browsing websites of companies / organisations	102 (71.33)
6	Accessing e-books	19 (13.29)
7	E-mail alerts from publishers	14 (09.79)
8	Through awareness services from library like CAS & SDI	35 (24.47)
9	Interaction with colleagues and experts	73 (51.05)
10	Attending conferences, workshops, etc	74 (51.75)
11	Email discussion groups	03 (02.10)
12	Other methods	56 (39.16)

Respondents were asked about different methods adopted by them to keep abreast of current developments. Options were given that; they can mark all methods that are applicable to them.

Purpose of Information-Seeking

Table 6 demonstrates about respondents' purpose of information-seeking. Majority of respondents 126 (88.11%) say the purpose of information-seeking is to prepare class notes for teaching. To supplement the lecture, more respondents 89 (62.24%) seek information. In equal proportion respondents 80 (55.94%) and 72 (50.35%) seek information for their research work, and writing papers, and presenting papers respectively. Very few respondents 06 (04.20%) seek information for general awareness and recreational purpose respectively.

Table 6: Purpose of Information seeking

Sr. No	Purpose of Information seeking	No of faculty
1	General awareness	055 (38.46)
2	Preparing class notes for teaching	126 (88.11)
3	Preparing / supplementing lectures	089 (62.24)
4	Research work	080 (55.94)
5	Preparing answers to questions	029 (20.28)
6	For writing papers & Presenting papers	072 (50.35)
7	For guiding research students	016 (11.19)
8	Reading / Thinking purpose	034 (23.77)
9	Discussions	033 (23.07)

10	For recreational purpose	006 (04.20)

Amount of Time spent on information gathering

Table 7 gives an overall picture of information gathering activity. Up to 3 hours of activity in information gathering, all respondents spent time on photocopying, scanning, and printing. Majority of respondents 137 (95.8%) spend their time on accessing e-books and less than 50% respondents that is, 61 (42.7%) spend their time on interacting with the colleagues/experts. Almost equal number of respondents 127 (88.8) and 128 (89.5) spend their time on E-mail alerts, correspondence and browsing e-journals on internet respectively.

Considering amount of time spent between 4 hours and 6 hours on information gathering, majority of respondents 66 (46.2%) spend their time on interacting with the colleagues/experts. Very few respondents 4 (28%) spend time on Accessing e-books. Nearly equal number of respondents that is, 34 (23.8) and 35 (24.5) spend their time on searching journals/magazines and searching for related websites respectively.

Very few respondents spend their time on information gathering activity between 7 and 9 hours and more than 10 hours per week. It is also clear that, more number of hours spend on information gathering activities like browsing e-journals on internet, searching for related websites, and email alerts. This shows that the online activity is more than the traditional activities (Fig. 3).

Table 7: Amount of Time Spent on Information gathering activities:

Sr. No	Information gathering activity	Amount of time spent per week (Hours)			
		Up to 3	4-6	7-9	More than 10
1	Searching journals / magazine	106 (74.10)	34 (23.80)	03 (02.10)	00 (00.00)
2	Searching for books	119 (83.20)	24 (16.80)	00 (00.00)	00 (00.00)
3	Interaction with colleagues / experts	061 (42.70)	66 (46.20)	10 (07.00)	06 (04.20)
4	Browsing e-journals on internet	128 (89.50)	09 (06.30)	02 (01.40)	04 (02.80)
5	Searching online databases	123 (86.00)	16 (11.20)	00 (00.00)	04 (02.80)
6	Searching for related websites	102 (71.30)	35 (24.50)	00 (00.00)	06 (04.20)
7	E-mail alerts, correspondence	127 (88.80)	14 (09.80)	00 (00.00)	02 (01.40)
8	Accessing e-books	137 (95.80)	04 (02.80)	00 (00.00)	02 (01.40)
9	Photocopying	143 (100)	00 (00.00)	00 (00.00)	00 (00.00)
10	Scanning & printing	143 (100)	00 (00.00)	00 (00.00)	00 (00.00)

Problems faced in information-seeking

There are various problems one can come across while seeking information.

Several problems faced by the faculty members in information-seeking. The responses about these problems are presented in table - 8. It reveals that, the respondents often face problems like 'information scattered in too many sources' and 'too much information on internet'. The respondents some times they face problems such as 'needed information is not available in library', 'incomplete information in sources', 'do not know how to use online catalogue', 'do not know how to use electronic resources', 'lack of information skills to search', 'internet speed is slow'. The respondents never come across the problem with 'library staff that is unwilling to assist them' in information-seeking.

Table 8: Problems faced while seeking information

Sr. No	Problems faced	X	SD
1	Needed information is not available in library	3	0.8624
2	Library staff is unwilling to assist	5	0.6160
3	Incomplete information in sources	3	0.7526
4	Do not know how to use online catalogue	3	1.2072
5	Information scattered in too many sources	2	1.3338
6	Do not know how to use electronic resources	3	0.9376
7	Too much information on internet	2	1.2938
8	Lack of information skills to search	3	1.0958
9	Internet speed is slow	3	0.9490

Note: X Mean, S.D- Standard Deviation

1- Almost Always 2 –Often 3- Sometimes 4-Rarely 5-Almost Never

Methods adopted to resolve the information-seeking problems.

There are several methods adopted by the faculty members to solve the information-seeking problems. The responses in this regard are presented in table 9. It reveals that the methods adopted to resolve the information-seeking problem are 'prefer an individual, independent work', 'use of search engines on Internet', 'consult more and more sources' i.e., it is an agreeable fact by all the respondents are 'often' follow these methods as mean value is '2'. 'some times' only respondents adopt the methods such as 'use of more than one library', 'take support of my colleagues', 'make efforts to learn internet search skills' and 'learn how to use electronic resources'.

Table 9: Different Methods used to resolve information-seeking problems

Sr.No	Methods used to resolve information-seeking problems	X	SD
1	I make use of more than one library.	3	1.2282

2	I prefer an individual, independent work.	2	0.8217
3	I take support of my colleagues	3	0.7267
4	I make use of search engines on Internet	2	0.6677
5	I will make efforts to learn internet search skills	3	1.1596
6	I consult more and more sources	2	0.9587
7	I learn how to use electronic resources	3	1.0672

Note: X - Mean, S.D- Standard Deviation

1- Almost Always 2 –Often 3- Sometimes 4-Rarely 5-Almost Never

Environment affecting information-seeking

Table 10 discloses the environment affecting information needs and information-seeking behavior. A total of 36 respondents (25.17%) say information overload is affecting their information need and seeking behaviour, while 124 (86.71%) state that the changing ICT environment affects it. While 73 (51.05%) say changing patterns, 57 (39.86%) say cross questions raised by students, 55 (38.46%) are affected by extra work given by higher authority, and 38 (26.57%) affected by different types of sources developed in the library.

Table 10: Environment affecting information needs and seeking behavior

Sr. No	Environment affecting information need and seeking behavior	No of faculty
1	Information overloaded	36 (25.17)
2	Changing ICT environment	124 (86.71)
3	Changing pattern of new syllabus	73 (51.05)
4	Cross questions raised by students	57 (39.86)
5	Extra work given by higher authority	55 (38.46)
6	Different types of source developed in Library	38 (26.57)

Findings and Suggestions

Suggestions are followed by the findings in the following paragraphs wherever necessary.

Background Information:

Out of total 143 respondents, 63 (44.06%) are male and 80 (55.94%) are female. A totla of 48 (33.57%) have up to 5 years teaching experience, with 25 (17.48%) having teaching experience between 11 and 15 years (Table 2).

Frequency of Library Visit and Use of Computer-based Services:

It is general understanding that the frequency of users' visit to library depends upon the resources, organization, maintenance and value added services that provides. It is found that less than 50% of users visit their college library everyday and very few users visit their college library once in fortnight (Table 3). The survey indicated that the majority of respondents use internet and email facility among the computer based services available in library. Very less users search CD ROM databases (Table 4). Internet is therefore described as the backbone of the information superhighway. Libraries should encourage the faculty in use of library by providing Current Awareness Service in general and Selective Dissemination of Information service in particular. Libraries also develop their collection in different formats with a variety of resources.

Information-Seeking Behaviour Characteristics:

To study the information-seeking behaviour characteristics users were asked to choose the options that all applicable to them. Therefore users' represent multiple behaviours for the following individual character.

Keeping abreast of current developments in their field:

It is evident from the data that, the greater part of the faculty abreast of current developments in their field through reading current issues of print journals / magazine, reading latest books in the field. To balance this more-number of users browsing current issues of electronic journals and through browsing websites of companies / organisations. Almost equal number (more than 50%) of users abreast current developments through interaction with colleagues and experts and attending conferences, workshops, etc (Table 5). This shows that, the faculties are equally need information on print as well as in electronic form even in changing ICT environment. Libraries need attention on library resources so that it is balanced. Librarians need proactive move towards Faculty orientation on electronic resources, internet usage and infrastructure development.

Purpose

of Information-Seeking

Majority of faculty say the purpose of information-seeking is to prepare class notes. Other faculties seek information to the supplement the lecture. Nearly in equal proportion, the users seek information for their research work, and writing and presenting papers respectively. (Table 8). The purpose of information-seeking is mainly on lecturing. The authority should take a step in encouraging the faculty to attend the conferences, seminars and writing papers. This trend may change in near future because of UGC strict guideline on career advancement in 6th pay commission.

Amount spent on information gathering

It is clear that, more number of hours spend on information gathering activities like browsing e-journals on internet, searching for related websites, E-mail alerts, and correspondence. This shows that the online activity is more than the traditional activities. (Table 7). This shows the trend of use of electronic resources is more than the print. Therefore college libraries have to make an effort to develop the more and more electronic resources. They also provide free internet services to users to make acquaint with the online resources.

Problems faced in information-seeking

It is observed from the data that 'information scattered in too many sources' and 'too much information on internet' is the problem often faced by users. The users some times face problems such as 'needed information is not available in library', 'incomplete information in sources', 'do not know how to use online catalogue', 'do not know how to use electronic resources', 'lack of information skills to search', 'internet speed is slow'. (Table 8). These problems indicate that users don't know

how to use the online resources effectively. They need information search skills. It is also indicated that libraries should develop the state of the art infrastructure in all respects or they should upgrade existing ICT infrastructure.

Methods adopted to resolve the information-seeking problems

Users often 'prefer an individual, independent work', 'use of search engines on internet', 'consult more and more sources' to overcome the information-seeking problems. To overcome the problems users' also sometime adopt the different methods such as visiting more than one library, take support of their colleagues, 'make efforts to learn internet search skills' and 'learn how to use electronic resources'(Table 9). The above views alert librarians that, there is an urgent need of library support services & online information search skills. It indicates that, the orientation is need of the hour on type of library resources available in print and electronic form. It is timely suggestion for librarians that they should give orientation to users on types of resources available on internet and training on information search strategy.

Environment affecting the information-seeking

Changing ICT environment is affected the information-seeking for the majority of users. Nearly equal number of users state, they affected by cross questions raised by students and extra work given by higher authority. So also by equal proportions of users affected by information overloaded and different types of source developed in Library (Table 10). It is clear that most of the users affected by the changing ICT environment. Library awareness service is essential in this regard. Library should start information literacy programme. It is important for the library to make aware to the users time to time about different forms and types of sources developed by library.

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