Science vs social science

A study of information-seeking behavior and user perceptions of academic researchers

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Abstract

Purpose – The purpose of this paper is to examine the information-seeking behavior of science and social science research scholars, including service effectiveness, satisfaction level on different type of sources and various methods adopted by the scholars for keeping up to date.

Design/methodology/approach – Data were gathered using a questionnaire survey of 200, randomly selected, PhD students of science and social science departments of four universities in Kerala, India.

Findings – Although similarities exist between social science and science PhD students with regard to information-seeking behavior, there are significant differences as well. There is a significant difference between science and social science scholars on the perception of the adequacy of print journals and database collection which are very relevant to the research purposes. There is no significant difference between science and social science scholars on the perception of the adequacy of e-journals, the most used source for keeping up to date. The study proved that scholars of both the fields are dissatisfied with the effectiveness of the library in keeping them up to date with latest developments.

Originality/value – The study is based on actual situation and the result can be used for library service redesign for different types of users.

Keywords Consumer behaviour, Postgraduates, University libraries, Information services, India

Paper type Research paper

Introduction

The essence of research activity, the creative thinking of the researcher aimed at contributing new knowledge and understanding, has remained unaltered throughout the centuries. The research environment and the research process, however, have been undergoing, for quite some time now, dramatic changes, with the advent of innovative information technologies and their ever-growing utilization for scholarly purposes (Herman, 2001). This remarkable change has developed rapidly and has had a huge impact on access to information and on information-seeking behavior of scholars around the world.

Information need and information-seeking behavior, two of the most important research areas of the user studies, are two complementary concepts which are affected by many factors. Research results in these areas of user studies indicate that the type of information need and information-seeking behavior of scholars are dependent on their field of research, and vary from one discipline to another. Understanding such behavior helps us to design services and products which would transmit the required information most effectively (Ucak and Kurbanoglu, 1998). Krikelas (1983) defined information-seeking behavior as:

> Any activity of an individual that is undertaken to identify a message that satisfies a perceived need. In other words, information seeking begins when someone perceives that the current state of possessed knowledge is less than that needed to deal with some issue (or problem).

According to Wilson (1999, 2000), information-seeking behavior includes:

> Those activities a person may engage in when identifying their own needs for information, searching for such information in any way, and using or transferring that information.

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Information seeking is a fluid and situation-dependent activity where a seeker's actions are influenced by access to information, perceived quality and trust in the information source (Boyd, 2004). Information-seeking behavior is articulated in various forms, from reading printed material to research and experimentation. Research scholars, students and faculties vigorously seek recent information from various media available in libraries. Libraries must recognize the information needs of faculty and students in order to address those needs.

Information-seeking behavior and information needs differ among user groups. This study reports the results of the research conducted on the information-seeking behavior and user perceptions of PhD students of four major universities (University of Kerala, University of Calicut, Mahatma Gandhi University and Cochin University of Science and Technology) in Kerala, a state of India.

Background information

The universities in Kerala offer research opportunity in a wide range of disciplines. There are number of research-oriented departments in these universities. The university libraries of Kerala propose a variety of information services for their clients to support their learning and research needs. The university library system consists of the central library at the main campus and department libraries for each department. Multi-campus universities have set up campus libraries also. Information and Communication Technology-enabled services and resources like CD-ROMs, e-journals and online public access catalogues have been introduced to the selected university libraries for the study. The four universities under study is involving national-level consortium – UGC InfoNet Digital library consortium – which provides current as well as archival access to more than 5,000 core and peer reviewed journals and nine bibliographic databases from 23 publishers in different disciplines.

Objectives

The study intends to look at differences and similarities between science and social science researcher's with regard to different aspects of information-seeking behavior. This study therefore formulated the following objectives to:

- determine and compare information needs and information-seeking behavior of research scholars of science and social science disciplines;
- investigate the main sources of literature consulted by researchers;
- determine methods used for keeping up to date by the researchers; and
- study the level of satisfaction of research scholars on library resources.

Literature review

Extensive research has been done in the field of information needs and information-seeking behavior of different user groups. This literature review is not intended to cover all of the literature on information-seeking behavior; rather it highlights the comparative studies of information-seeking behavior of academic user groups, information needs of academic researchers and academic scholars' perceptions of libraries.

Ellis *et al.* (1993) investigated the information-seeking patterns of researchers in the physical and social science. They did not locate significant differences between these groups. They identified five main features for the information-seeking behavior of these groups with slightly different terminologies. In contrast to this study, Prasad and

Tripathi (1998) found significant difference in information-seeking behavior of physical scientists and social scientists. They enquired the methods used by scientists for gathering information. Scientists differed in their approach, information-seeking process, information needs and sources used. Jitka (1986) reported similarities and differences among representatives of academic in their approaches to seeking information online. Tiratel (2000) investigated the information-seeking behavior of Argentine humanities and social science scholars and found no substantial differences between them and scholars in Anglo-Saxon countries. Scholars in these two areas, regardless of country studied, have similar information-seeking behavior. Skelton (1973) reviewed that on the whole, scientists and social scientists do not differ to any large extent in their information-seeking behavior. They both use similar information sources, similar methods to retrieve information and both experience similar problems in dealing with information. However, the extent of use of different methods found varying. Jamali and Nicholas (2008) revealed that differences in information-seeking behavior exist among people with different academic status. They identified that those with higher academic status, such as professors, relied more on word of mouth and interpersonal communications such as conferences for keeping up to date, while PhD students were more likely to use alerting services.

Kuffalikar and Mahakulkar (2003) analyzed the information-seeking behavior of users of Nagpur University and found that internet surfing, conferences/seminars/workshops/refresher courses have widely helped the users in seeking current, updated information in their respective fields. The study also reported that user dependence was more on informal modes of communication than the formal. The study by Mahawar *et al.* (2009) on geologists revealed that most of them depended on conferences and seminars for up to date information.

Devarajan's (1989) study on information need and use pattern of research scholars in the University of Kerala found that the existing collection in the university library in Humanities was inadequate to meet the needs of research scholars. Shoham (1998) reported that professional periodicals and monographs are the most important tools for obtaining scholarly information. Ileperuma's (2002) study on the information-gathering behavior of arts scholars in Sri Lanka's universities found that scholars in arts subjects used publishers' catalogues as the most important source of new developments in their field. Herman's (2001) study pointed out that academics are progressively harnessing the new technologies to scholarly information gathering endeavors. Geetha (2004) in her study on the information needs and information-gathering behavior of research scholars in the Pure Science departments of the University of Kerala found that the collection of reference sources, indexing and abstracting sources, as well as computer-based information sources in the Kerala University library system was only partially adequate to meet research scholars' needs. Patil and Parameshwar (2009) found that electronic resources are much helpful in fulfilling research scholar's information needs.

Kawatra (1988) conducted a study to identify the impressions of scholars of three universities in Rajasthan, India toward adequacy of library resources, and their view on library services. He found that resources and services of the library were inadequate to meet the scholars' needs. Rajagopal (1989) found that majority of PhD scholars were not able to keep up to date with the latest literature in their area. Mallaiah and Badami (1993) in their study found that textbooks, dictionaries, encyclopedias, newspapers and magazines were sufficient to meet the academic and research needs. However, the periodicals and reports collection were found inadequate for research needs of scholars. Agrawal and Chakraborty (1995) reported the need for increasing existing collection and

implementation of various sophisticated services in libraries on which they conducted studies. Erens (1996) investigated how well university libraries meet research needs. The results suggest that library collections were perceived by users to be deteriorating, gaining access to important journals was becoming increasingly difficult and, as a result, satisfaction with libraries was declining. Siddiqui (2001) reviewed the state of university library collection and found that journals were not up to date and editions of books were too old. Rajeswari (2005) found that the research scholars were satisfied with information and library network's (INFLIBNET's) e-journal resources and services. Khan's and Zaidi's (2009) study on use of online databases by research scholars revealed that they largely used online databases for their research work and to update subject knowledge. Singh and Satija (2008) reviewed that agricultural scientists have great dependence in meeting their information requirements on their institutional libraries.

A considerable body of literature exists on the information-seeking behavior of scientists across disciplines. There is, however, a substantial lack of reading material on the PhD scholars' information needs in the digital era with special reference to a comparative study of scholars belonging to science and social science in India.

Methodology

The study used a questionnaire-based survey designed for data collection. The questionnaire was pre-tested on 20 research scholars of Cochin University of Science and Technology and they are not included in the randomly drawn sample to ensure reliability and effectiveness of the instrument. PhD students of four major universities in Kerala, that is, Cochin University of Science and Technology (CUSAT), Mahatma Gandhi University (MGU), University of Kerala (UK), University of Calicut (UC) participated in the study. These institutions are considered as the most reputable and well-established universities in the state. Library membership lists and annual reports were used for identifying the study population, which comprised 1,497 research scholars. Proportionate stratified random sampling method was used to produce a random sample. Each institution participating in the study constituted a stratum. Using a random number table, a sample size of 50 research scholars was drawn from each stratum. A total of 200 questionnaires were distributed and the response rate was 100 percent. The study confined to full-time research scholars enrolled in the universities.

The survey questionnaire that used to obtain the views of PhD students has mainly three parts, with part one for demographic characteristics of the respondents, part two for indicating their dependence on major sources or methods for keeping up to date with their research and the dependence on other libraries and part three was meant for library effectiveness and user perception of adequacy of library resources. The statistical package for social sciences (SPSS) was used for the analysis of the results.

Findings

Demographic characteristics of the respondents

The sample selected for the study showed slight female dominancy. Of the 200 respondents 112 (56 percent) were females. Half of the respondents belonged to the age group of 25-30 (51 percent). The respondents under the age group of 25 years were 35.5 percent. Majority of the respondents (38 percent) were having three years of use experience in their university libraries. Only 26 (13 percent) respondents had less than one year experience.

Keeping up to date

The respondents were asked to indicate their dependence on different sources or methods for keeping up to date with their research. Table I shows sources which were most frequently relied by the research scholars. Majority of scholars of both disciplines depended on e-journals (science 40 percent; social science 45.9 percent). Social science scholar's next preference is print journals (30.6 percent). In all, 18.4 percent of them depend on the internet for keeping themselves up to date. In the case of science researchers, print journals are their third choice. A total of 27 percent of them opined internet as their second choice for updating latest trends. Chi-square test revealed that (chi-square value = 14.618, df = 4, p-value = 0.006) there is significant difference between science and social science scholars' opinion on sources used for keeping up to date.

Library effectiveness vs keeping in touch with latest developments

Respondents were asked whether their library is effective in keeping them up to date with information created in their specific areas of interest. Table II shows that, of the 200 respondents, majority 73 (37.8 percent) felt that their library is somewhat effective in keeping them with latest literature, while 33 (16.8 percent) expressed inability of the library in this area. Only four (5.1 percent) perceived their library as "very effective". Chi-square test indicated that p-value is greater than the significant level. Hence, there is no significant variation between science and social science research scholars in their opinion on the library effectiveness on keeping scholars with latest trends.

Dependence of other libraries

Respondents were asked to indicate whether they depended on other libraries for searching and collecting information related to their research. The responses of scholars for this question are given in Figure 1.

Sources	Science (%)	Social science (%)
Print journals	17.0	30.6
E-journals	40.0	45.9
Internet search	27.0	18.4
Conference proceedings	16.0	4.1
Chat with friends	0.0	1.0

Notes: Chi-square value = 14.618; df = 4; p-value = 0.006

Table I.
Sources used for keeping up to date

Library effectiveness	Science		Social science		Total	
	n	%	n	%	n	%
Very effective	4	4	6	6.3	10	5.1
Effective	33	33	25	25.6	58	29.6
Somewhat effective	40	40	33	34.4	73	37.8
Ineffective	12	12	21	21.9	33	16.8
Very ineffective	11	11	11	11.5	22	11.2
Total	100	100	96	100	196	100

Notes: Chi-square = 3.323; df = 4; p-value = 0.505; n = 196

Table II.
Library effectiveness

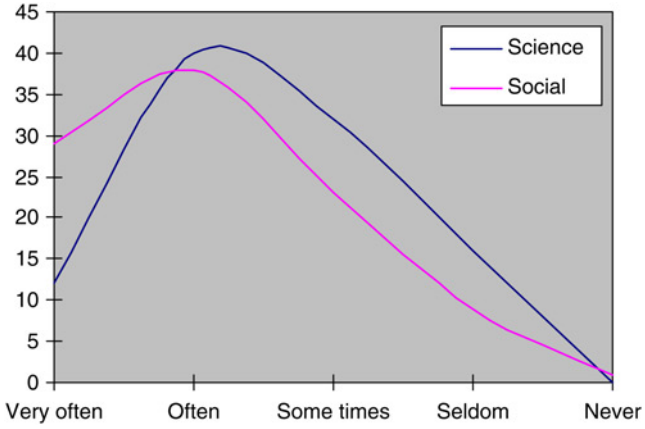

Figure 1.
Distribution of scholars according to their dependency on other libraries

The study found that majority of scholars from both disciplines depend on other libraries for information access (40 percent science scholars; 38 percent social science scholars). However, social science scholars were more dependent than science scholars. A total of 29 percent of respondents from social science were very regularly using other libraries for gathering information. The chi-square test (chi-square value = 10.422, df = 4, p-value = 0.034) also proved that there is difference between science and social science scholars' opinion on dependency on other libraries for information access. p-value is less than significant level.

User perception and adequacy of collection

Research scholars were asked to provide their assessment of the adequacy of their library collections: e-journals, databases, print journals and conference proceedings which are most relevant to them. Table III presents the relationship between the adequacy of these collections and the perception of respondents.

The study found that a majority (29 percent) of scholars from both disciplines perceived availability of e-journals as adequate. p-value (chi-square = 7.415; df = 4; p-value = 0.116) indicate that there is no significant difference in opinion between science and social science research scholars on e-journals available in university libraries in Kerala.

In the case of databases collection, p-value is less than significant level, 0.05 (chi-square = 11.583; df = 4; p-value = 0.021). Hence, there is a difference of opinion between science and social science research scholars on the availability of databases. Social science research scholars are more dissatisfied than science scholars.

The result shows that there was a variation in opinion between science and social science scholars on print journals in the university libraries in Kerala. While social science research scholars were satisfied with journal collection (very adequate 27 percent; adequate 38 percent), majority of the science research scholars (44 percent) indicated journal collection as "somewhat adequate" in their areas. The chi-square test proved that research discipline-wise difference is significant in the case of print journals (chi-square value = 26.824, df = 4, p-value = 0.000).

The majority of scholars from both science (31.3 percent) and social science (26.5 percent) found the conference proceedings collection "inadequate". To test whether there is any significant difference of opinion between science research scholars

Table III.
Adequacy of library resources and user perception

	Science										Social science									
	VA		A		SA		I		VI		VA		A		SA		I		VI	
Library sources	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
E-journals	11	11.3	29	29.9	25	25.8	9	9.3	23	23.7	18	18.2	29	29.3	20	20.2	18	18.2	14	14.1
Databases	7	7.1	10	10.2	43	43.9	28	28.6	10	10.2	9	9.4	24	25	24	25	27	28.1	12	12.5
Print journals	10	10	23	23	44	44	17	17	6	6	27	27	38	38	29	29	2	2	4	4
Conference proceedings	7	7.1	16	16.2	27	27.3	31	31.3	18	18.2	13	13	19	19.4	25	25.5	26	26.5	15	15.3

Notes: VA = very adequate; A = adequate; SA = somewhat adequate; I = inadequate; VI = very inadequate

and social science research scholars toward conference proceedings, chi-square test was applied and the result showed that p-value is greater than 0.05 (significance level). Hence, there is no significant difference between science research scholars and social science research scholars in their satisfaction on research report collection available in university libraries in Kerala (chi-square value = 2.840, df = 4, p-value = 0.585).

Conclusion

The findings of the study show that, although similarities exist between social science and science PhD students with regard to information-seeking behavior, there are significant differences as well. PhD students in both fields depend on e-journals for keeping up to date with their research. The use of internet and conference proceedings for current information was most prominent among science students, while social science students preferred print journals with little dependence on conference proceedings. Social science students depended on other libraries more compared to science students. There is a significant difference between science and social science scholars on the perception of adequacy of print journals and database collection which are very relevant to the research purposes. There is no significant difference between science and social science scholars on the perception of adequacy of e-journals, the most used source for keeping up to date. The study proved that scholars of both fields are dissatisfied with the effectiveness of the library in keeping them up to date with latest developments.

The result of the study matches with the findings of Jitka (1986) and Prasad and Tripathi (1998) who showed the significant differences and similarities that exist between social science and science research scholars with regard to information-seeking behavior. The study also established the findings of Herman (2001) and Patil and Parameshwar (2009), which showed the dependence of scholars on electronic resources or on new technologies to gather information. The result of the study may be used as an evaluation of university libraries in Kerala from the perspectives of two important categories of users.

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