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STUDY ON TECHNICAL COMMUNITY'S DATA DEMANDS AND INFORMATION-SEEKING BEHAVIOR IN THE DIGITAL WORLD

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1. Introduction

The most fundamental component of the decision-making process is information. Everyone need knowledge on a variety of topics, even in their daily lives. People want knowledge at all levels of their lives, from the organizational to the personal, from the highly educated and experienced to schoolchildren, from a very famous person to an average person, in order to make the best decisions possible.

The Latin stem of the nominative information, which is derived from the verb "informare," seems to be the source of the term "information." Data becomes information when it is processed or has value added to it. Information becomes knowledge when it is further processed and reasoning is applied to it. This level frequently involves analytical processing such as reasoning, inference, extrapolation, and other complicated mathematical procedures.

"Information" was defined by Shannon and Weaver (1949) as "any input that causes a response, lowers the level of ambiguity." Line (1974) defined information need as what a person need for his or her job, study, enlightenment, production, and so on. "Information" is defined by Ford (1980) as "the structure of any text capable of modifying the picture structure of the receiver."

Information, according to Chen and Hernon (1982), includes all knowledge, ideas, facts, statistics, and creative works of mind that are transferred in any manner, both officially and informally. Debons (1988) defined information as the cognitive condition of awareness of a specific representation and physical shape (as being informed) (data). This tangible depiction aids in the learning process. According to Hernon and Chen (1982), information demand arises anytime individuals are confronted with circumstances that need some type of knowledge to resolve.

"Information" is defined by Webster's International Dictionary (1994) as

a) Ready-to-use facts or numbers, as opposed to those integrated in a formally structured body of knowledge.

b) The process of impressing the shape of an object of knowledge on the apprehending mind in order to induce the state of knowing.

Information is defined as a collection of facts that are structured in such a manner that they have worth beyond the facts themselves. In a nutshell, "information" is data that has been processed. Information is an organized series of symbols that may be read as a message, in the strictest technical meaning. Signs may be used to record information, and signals can be used to transfer it.

Any event that has an impact on the status of a dynamic system is referred to as information. Information is the message (utterance or expression) that is being transmitted from a conceptual standpoint. In various situations, this idea might have a variety of diverse interpretations. The following are the two primary forms of information: informal information and formal information.

Formal Information is a term that refers to information that is provided in a formal. In general, information refers to a thought, an idea, a statement, facts, and news, among other things. The modern information environment is diverse, with a plethora of information sources and providers, a variety of information access methods, and content redundancy from various sources. Each and every action taken by a human being is connected to data. The majority of people learn this via observation, experience, and experimentation (Sinha, 2013).

Information is now available from a variety of sources. The accessibility of information from digital sources has changed everyone's information seeking and accessing patterns.

2. STATEMENT OF THE PROBLEM

Information collecting has gotten increasingly complicated and costly in recent years. The twenty-first century is being referred to as an age of information revolution, and libraries are evolving and migrating toward the utilization of both conventional and electronic information sources. Library users' behaviors are evolving in tandem with their search patterns in order to conduct successful information searches. Academic library customers,

who are mostly members of the scientific community, play a critical role in the development of a knowledge base and need current information in the area on a regular basis.

Users visit libraries in search of information, which has an impact on how they utilize library resources. Users believe that the library is unable to meet their demands and that they are spending time looking for and acquiring information based on their needs. With these factors in mind, the current research was designed to evaluate the information seeking behavior of management users in order to meet the demands of library users in the digital information era.

Information seeking behavior research has also led to the development or creation of a variety of models, ranging from factor relationship models (Wilson, 1981, Wilson, 1999), sense-making models (Dervin et al., 2003), search process models (Kuhlthau, 1993), task-based models (Bystrom and Jarvelin, 1995), and non-linear models (Bystrom and Jarvelin, 1995). (Foster, 2004). These models were developed based on a variety of empirical research on various sorts of users, but practically all of them tried to demonstrate how people "use" and "go about" the process of finding information.

Later chapters go into the aforementioned models in more depth. These models address the information seeking pattern of Assam's scientific community, as a result of shifting patterns in information seeking due to the advent of ICT/digital age. The goal of this research is to characterize the information demands and information seeking behavior of university library users, particularly the Assamese scientific community, in the contemporary context, as well as their usage of information to support their research and scholarly communication. This research was also created to address and answer the following questions: How do library users seek and get information, and what are the challenges that arise as a result?

Are these library services delivered to library customers in an effective and efficient manner?

How can they get their hands on the materials they want from the library?

Is it difficult for them to get information?

What kinds of information resources do library patrons appreciate, and where do they look for them?

What additional elements impact the "information seeking behavior" of library patrons?

Many information literacy initiatives have been developed by academic institutions and library services in an attempt to improve the skill set of the scientific community (Hanson, 1973, p. 13; Riyahi, 1995; Xia, 2006; Khosrowjerdi & Alidousti, 2010), but many of them are based on assumptions about what respondents should do, why they do it, and whether or not their searching strategy is idiosyncratic.

In response to the aforementioned issues, an effort was made to conduct a research on the subject of information demands and information seeking behavior among scientific community in the digital age of university library users in Assam.

3. REVIEW OF LITERATURE

Bankole (2013) evaluated the use of internet services and resources by scientists at Olabisi Onabanjo University, Ago Iwoye, and Nigeria. The finding has shown that use of internet use was widespread to all scientists as majority of them were using it every day. The majority of respondents accessed the Internet from a commercial cyber cafe´ followed by homes. Email was the most popular internet service, while Google, followed by Yahoo and Scholar Google, were the most used search engines. The majority of the scientists preferred for getting information from the internet, while less than one-third still prefer the traditional library.

Hwang [et. al.] (2014) carried out a study to investigate and analyze the usage patterns of electronic book users and their perceptions of e-books from various perspectives of academic libraries in South Korea. This study has shown that most e-book users at the university libraries in Korea aware about e-books through the Web sites of university libraries. It was also found that users with higher levels of education are well aware of e-book services at libraries and often use the services. Most users learnt about e-books through the library Web sites or its catalogs and that corresponded to the current routes to utilize e-books.

Arshad and Ameen (2015) examined the usage patterns of a university library website to find out user's behaviour of monthly use. The findings of this study have revealed that the university library website was heavily used by users. Free scholarly journals, resources downloaded, e-journals, e-books and donated personal collections were among the top most used resources and services. Renaud [et. al.] (2015) conducted a study on mining library and university data to understand library use patterns. The results of the study have shown that it was difficult to determine the correlation between library use and student achievement. A major outcome of the effort was that the collection and secure analysis of research data completed in a much more efficient manner than if the partnership has been made.

4. RESEARCH METHODOLOGY

The purpose of this research was to learn more about the information demands and behaviors of Assam's scientific community. The study region chosen for the research is the state of "Assam" in Northeast India, where four institutions (two central universities and two state universities) are located:

- Assam University, Silchar (Central University);
- Gauhati University, Guwahati (State University);
- Dibrugarh University, Dibrugarh (State University); and
- Tezpur University, Tezpur (Central University).

The population of the study further consists of university library users of these universities. The sample of the study was described by using random sampling technique and it was decided to take 600 samples in total (150 from each university) for the present study. The details of sampling have been given in later part of this chapter.

Identifying the Scientific Community

On the basis of the nature of research study, the following categories of university library users were taken into consideration which comprises:

- Under-graduate students;
- Post-graduate students;
- Research scholars; and
- Faculty members.

Research Method Adopted

For this study, "Survey Method" of research was used to collect data from the scientific community library users of central and state universities of Assam; which consists of Assam University, Silchar; Gauhati University, Guwahati; Dibrugarh University, Dibrugarh and Tezpur University, Tezpur. During the survey, respondents from various science departments were survey for the collection of data by using questionnaire from four universities under the study. These departments consist of Computer Science, Geography, Engineering, Information Technology, Pharmaceutical Science, Earth Science, Botany, Zoology, Chemistry, Physics, Mathematics, Biotechnology and Petroleum Science.

Sampling Procedure for Survey

While surveying the universities and collecting data from the individual scientists various techniques have been adopted, which has described below.

"Stratified Random Sampling" technique was used in the case of data collection through questionnaire from the individual scientists in different stages. To understand the user information seeking behaviour, users have been divided into three main categories: (a) Student, (b) Faculty Member and (c) Research Scholar.

In order to cover respondents from each university, equal numbers of questionnaire have been distribution to them as per sampling procedure, which has shown in Table: 3.1. Altogether, 600 (six hundred) questionnaires were distributed to the library users. Out of 600 respondents, 150 questionnaires were distributed to the respondents of each university. The respondents have been divided into three categories, viz. UG/ PG students, research scholars and faculty members and are distributed as per Table: 3.1.

Moreover, "Purposive Sampling" is used to collect data from librarian of those universities to know specifically about the library facilities and services. Thus, 4 (0.7%) questionnaires were also distributed to each librarian of those universities.

Table: 3.1 Sample Design for the Present Study

University	Faculty			Research Scholar			Student	Librarian	Total
	Professor	Asso. Prof.	Asst. Prof	JRF	SRF	M.Phil / Ph. D			
AU	10	15	25	10	10	30	50	1	151
GU	10	15	25	10	10	30	50	1	151
TU	10	15	25	10	10	30	50	1	151
DU	10	15	25	10	10	30	50	1	151
Total	**40**	**60**	**100**	**40**	**40**	**120**	**200**	**4**	**604**

Tools for the Collection of Data

The tools of data collection translate the research objectives into specific questions/ items, the responses to which will provide the data required to achieve the research objectives. In order to achieve this purpose, each question/item must convey to the respondent the idea or group of ideas required by the research objectives, and each item must obtain a response which can be analyzed for fulfilling the research objectives. The problem of research is not solved unless a proper tool is selected and used for data collection. Data required to clarify all the ideas in the mind of the researcher are to be collected by the researcher properly (Bhattacharjee, Bhattacharjee & Sinha, 2013, p. 18). The following tools were used for collection of data pertaining to the present study:

- Questionnaire; which is subsequently followed by
  - oInterview-schedule; and oObservation-method.

5. Result and Findings

Distribution of the Study's Total Questionnaire and Responses from the Scientific Community

A total of 600 questionnaires were distributed among the scientific community of four different government universities in Assam, consisting of students, research scholars, and faculty members, from which the respondent's feedback for this study was collected.

During the specified period, only 534 duly completed questionnaires were received out of a total of 600 questionnaires distributed. However, 13 questionnaires were rejected because they were missing information in several areas. As a result, the total number of respondents is 521, as shown in Table 5.1.

Thus, the overall response rate is 521 out of 600 questionnaires distributed to respondents under the study (86.6 percent). The response rate is relatively high because the researcher worked hard to get as many responses as possible from the respondents.

Table: 5.1 Number of response received from Scientific Community (N=600)

	Distributed	Received	Percentage within university
TU	150	137	91.3
DU	150	134	89.3
AU	150	132	88.0
GU	150	118	78.6
Total	**600**	**521**	**86.8**

(Source: Computed from returned questionnaires)

Table: 5.1 shows that out of 150 numbers of questionnaires, which have been distributed to each university separately, the responses received from Tezpur University (TU) was highest (137; 91.3%) which is followed by Dibrugarh University (DU) (134; 89.3%); Assam University (AU) (132; 88.0%) and Gauhati University (GU) (118; 78.6%) respectively.

University/ Category Wise Questionnaire Received from Scientific Community

The study consists of three distinct categories of library users; which comprises of students, research scholars and faculty members. As per sample design, it was decided to distribute 150 (25%) questionnaires to each university which comprises 50 (33.3%) numbers of “Student”, 50 (33.3%) numbers of “Research Scholar” and 50 (33.3%) numbers of “Faculty Member” respectively.

Table: 5.2 Number of Response Received from Each University/ Category (N=521)

			University				**Total**
			AU	*TU*	*GU*	*DU*	
Category	Student	**Number**	**49**	**50**	**45**	**47**	**191**
		% within Category	25.7%	26.2%	23.6%	24.6%	100.0%
		% within University	37.1%	36.5%	38.1%	35.1%	36.7%
		% of Total	9.4%	9.6%	8.6%	9.0%	36.7%
	Research Scholar	**Number**	**44**	**41**	**39**	**44**	**168**
		% within Category	26.2%	24.4%	23.2%	26.2%	100.0%
		% within University	33.3%	29.9%	33.1%	32.8%	32.2%
		% of Total	8.4%	7.9%	7.5%	8.4%	32.2%
	Faculty	**Number**	**39**	**46**	**34**	**43**	**162**
		% within Category	24.1%	28.4%	21.0%	26.5%	100.0%
		% within University	29.5%	33.6%	28.8%	32.1%	31.1%
		% of Total	7.5%	8.8%	6.5%	8.3%	31.1%
Total		**Number**	**132**	**137**	**118**	**134**	**521**
		% within Category	25.3%	26.3%	22.6%	25.7%	100.0%
		% within University	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	25.3%	26.3%	22.6%	25.7%	100.0%

(Source: Computed from returned questionnaires)

The survey result as shown in Table: 5.2, reveals the university wise and category wise responses received from the respondents of each university. The category wise responses have shown that majority of respondents belongs to "Student" category (191;

36.7%) which is followed by "Research Scholar" category (168; 32.2%) whereas 162 (31.1%) numbers of respondents belong to "Faculty Member" category.

Further, Table: 5.2, also has shown that responses received form individual university with "% within Category", "% within University" and "% of Total". Assam university consists of 49 respondents belong to "Student" category [25.7% within Student Category, 37.1% within Assam University and 9.4% within Overall/ "of Total"] whereas 44 respondents belong to "Research Scholar" category [26.2% within Research scholar Category, 33.3% within Assam University and 8.4% within Overall/ "of Total"] and 39 respondents belong to "Faculty Member" category [24.1% within Faculty Members Category, 29.5% within Assam University and 7.5% within Overall/ "of Total"].

The responses from Tezpur university consists of 50 respondents belong to "Student" category [26.2% within Student Category, 36.5% within Tezpur University and 9.6% within "Overall"/ "of Total"], and 41 respondents belong to "Research Scholar"

category [24.4% within Research scholar Category, 29.9% within Tezpur University and 7.9% within Overall/ "of Total"], whereas 46 respondents belong to "Faculty Member" category [28.4% within Faculty Members Category, 33.6% within Tezpur University and 8.8% within Overall/ "of Total"].

The responses from Gauhati university consists of 45 respondents belong to "Student" category [23.6% within Student Category, 38.1% within Gauhati University and 8.6% within "Overall"/ "of Total"], followed by 39 respondents belong to "Research Scholar" category [23.2% within Research scholar Category, 33.1% within Gauhati University and 7.5% within Overall/ "of Total"], whereas 34 respondents belong to "Faculty Member" category [i.e. 21.0% within Faculty Members Category, 28.8% within Gauhati University and 6.5% within Overall/ "of Total"].

Dibrugarh University consists of 47 respondents belong to "Student" category [24.6% within Student Category, 35.1% within Dibrugarh University and 9.0% within "Overall"/ "of Total"], followed by 44 respondents belong to "Research Scholar" category [26.2% within Research scholar Category, 32.8% within Dibrugarh University and 8.4% within Overall/ "of Total"], whereas 43 respondents belong to "Faculty Member" category [26.5% within Faculty Members Category, 32.1% within Dibrugarh University and 8.3% within Overall/ "of Total"

6. CONCLUSION

The current study's results indicated that, with the changing landscape of information seeking behavior, users are shifting to a new information searching approach, in which users wish to access their necessary material by clicking library. The present libraries and information systems are unable to meet the needs of the target group of users, namely the Scientific Community. One of the most significant components of library and information science research is proposing a model of a new information system that may meet the demands of the users under consideration. Because libraries and information systems exist to serve their users, they must be reengineered for overall development in order for users to be pleased. In this context, the investigator has examined the Scientific Community's Information Seeking Behavior, and the findings have validated the investigator's creation of a model through which they may, as predicted, satisfy their demands. If the suggested model is adopted, the Scientific Community under investigation will be able to get the information they need in the

new environment. Meeting the demands of the user community will encourage academic and research endeavors that will, in turn, contribute to national development in general and Assam/North-East India in particular in the future.

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