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Information Seeking Behaviour of the Physicists of the Burdwan University and Kalyani University: A Comparative Study

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Abstract: *The paper deals with the Physicists of Burdwan University and Kalyani University how they they collect the information of their research purposes. The research scholars , teachers and the Faculty members of the Physics Department how they collect information for their research purposes and their use pattern of physics periodicals of the two Institutions such as Burdwan University and Kalyani University. The methodology followed Questionnaire method, Interview and observation methods.*

Keywords: Physicists

I. INTRODUCTION

User studies originated with the perception that by understanding user needs and information uses one could design effective information systems. Although Taube (1959)[1] did question the validity of user studies as guides to improving information services, the studies in the subject continued to grow in numbers. By 1977 their estimated figure was 1000.[2] In the initial stages the investigations were short on methodology which had led Taube to question their validity. But gradually the methods of investigation had improved. The new techniques included sophisticated social science concepts, appropriate techniques of statistical analysis, well designed survey instruments. Consequent upon their application effective case studies were reported. User studies are now refining using even more sophisticated sociological techniques and focusing on system-oriented studies and on background research on cognition and behaviour.

Although these studies cover almost all major proportion is devoted to subjects in science and technology. It would be worthwhile to overview these studies and determine trends in information uses and user needs exclusively in Physical sciences, give suggestions for improving user satisfaction.

INFORMATION GATHERING HABITS

A number of studies have been made in India to study the relative use of different media. Some of the important studies amongst others are by Krishan Kumar, Anand, Dhakar, Nagrathna, Haravu and Nagaraja.[6-10] at abroad SATCOM study by National Academy of Sciences and the National Academy of Engineering, ASLIB survey on requirements, IFROSS study by Bath University, etc. are some of the important studies on the subject under discussion. It is observed from these studies that the indicators used for determining the relative use of different media are:

- time devoted to the use of media
- Usefulness of the media in providing documents/information which are referenced in the papers published by the user
- Perceived usefulness of the media

Herring made a random-observation study of a sample of US industrial physicists in 1969 based upon time devoted to the use of media. This study however remained unpublished. But its findings and those of the studies made by Hannay[11a]and Case [11b] on two samples of chemists were evaluated by the National Academy of Sciences and the National Academy of Engineering and the findings reported in 'Physics Perspectives', NAS, Washington.[12] In this

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study different communication channels were ranked as follows: oral personal, pre-prints and reports, research journals, lectures and classes, books and reviews, written personal communication, and other. The important observations were:

1. Physicists, like chemists, spend a sizable proportion of their time, about 15 hours per week, in reception of scientific information, or in give- and oral communication;
2. Physicists spend very little time using abstracts, much less than the chemists;
3. Reading journals, pre-prints and reports, and books and reviews averages typically seven to eight hours per week for research for physicists. Probably chemists spend a little more time on those;
4. At least in large institutions, where opportunities for contact with colleagues are good, physicists are apt to spend much time in person – person scientific conversations.

Dhakar (1979)[8] reported that physicists spend 10.9 hours per week in searching and reading literature. (Mehta reported they spend 20 hours per week). She had ranked the sources of information used buy physicists as follows: review articles, abstracting and indexing journals, consultation with experts and colleagues. But Ravinder Pal Singh (1982)[13] ranked them as abstracting journals, review articles, original papers, books, experts, colleagues. These results are in striking contrast to the ones given by Herring.

Oral communication between physicists consumes 50 percent of their time which finding is confirmed in another study by Nagrathna (1971)[9]

The usefulness of the media could also be measured by selecting an item of information and evaluating the user response as to how he learnt about the same. Applying this technique Herring and Glass-Norwood[14] studied the sources of awareness of publications which the subjects of the sample cited in papers. Fishendon [15] also tabulated sources of awareness of useful hints of information (papers and reports). These findings are also reported in 'Physics perspectives'. Herring ranked different communication channels as follows: research journals, reprints and reports, oral communication, abstracting services, written personal (5%), books and reviews (4%) and others (6%0. The results reported by Glass-Norwood are as journals (37.85%), oral and written (27.0550, abstracting journals (5.15%), talks and meetings (3.15%), lectures (3.15%), preprints (6.15%), books and reviews (8.25%), and others (9.25%). Fishendon study ranked them as journals (36.50%), oral and written (13.15%), preprints (7.15%), abstracting journals (13.15%), current awareness service (18.25%) and others (11.80%). In addition to the findings already reported, some noteworthy observations are:

- Despite great amount of time spent in oral communication more leads to published items came from the use of journals than from oral sources. (Arecent study by Garg et al also reports this finding by reporting that 79.86 percent users got leads to sources of information in earth sciences from journals). [16]
- Browsing in journals is a major source of useful information accounting for almost as many leads as the other highly productive category, cross references. (A recent study by Kapoor also supports this finding by reporting that 69.33 of users gathered information by scanning publications.[17]
- Books and reviews provide a surprisingly small fraction of leads to physicists. But Menzel reports that chemists depend more upon books than physicists, though still much less than on primary and interpersonal sources.

Yet another indicator used for measuring the media usefulness is the subjective evaluation of their relative importance. Using the questionnaire technique Slatter and Keenan[18,] and Libby and Jaltman [19] evaluated the media preferences for current awareness functions, research and study. Slatter and Keenan ranked different media as: journals (24.25%), written and oral personal communications (20.25%), abstracting journals (18.25%), preprints and reports (12.15%), current awareness services (5.15%), other (3.70%). Libby and Jaltman ranked them as follows: journals (46%), written and personal oral communication (23%), abstracting services (22%), talks and meetings (5%), other (4%). From these findings it was observed that talks at meetings provide an important source of current awareness, probably comparable in average importance to preprints, and somewhat less important than journal browsing and personal conversations. They are less useful as source of detailed specifications.

In trying to understand the reasons for preferences for specific communication media Rosenberg, [20] Gerstberg and Allen, [21] and Allen[22] in their respective studies suggested that easy accessibility was the major determinant for use.

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Proximity to library or source of information obviously promotes its use. Menzel [23] also reported that in seeking information scientists follow those paths which place the smallest amount of strain on them.

Scope and Objectives : The survey would be conducted among the Research Scholars, Post graduate students and the Faculty members of the Department of Physics of the **University of Burdwan. And the Kalyani University.**

Objectives :

- Study the ways by which Physicists seek scientific information.
- Study how far the existing facilities are available or not
- Compare the information gathering habits of Physicists working in the Deptt. Of physics of the University of Burdwan and the other Science Deptt. Of the University of Burdwan.

Definition :Information seeking behaviour may be understood as the ways and modes by which Physicists seek scientific information. Physicists for the study have been defined as scientists having at least Master's degree in Physics.

Hypotheses

Keeping the purpose of the study in mind the following hypotheses are given below:

- When seeking scientific information the physicists depend more on verbal source than on published source.
- Scientific journals are the single most important source of information
- Physicists do their own searching rather than depend on the services provided by the library.
- Physics abstracts and the Internet searching is the most used abstracting services.
- Review journals/ articles are consulted to get information about current developments.
- Scientific meetings/ conferences provide information about what work others is doing.
- Time spent in searching and reading literature or in the laboratory about the same.
- Physicists do not generally maintain a systematic index of references to publication related to their field.

II. REVIEW OF LITURATURE

A survey of the past library literature reveals that a few studies have been carried out which are relevant to the present study. In this context, it is worth mentioning the work of Ching-chich chen on "the use of patterns of physics journals in a large Academic Research Library.

"Chen investigated the use patterns of the physics journals in the MIT Science Library. The finding are based an analysis of actual use data recorded from all volume and issue left by library users on study tables, and on the trucks in the photocopy areas form March 15 to June 30, 1971.

The primary method of data collection was used by her was a call slips, to circulation charge cards, completed inter-library loan forms, photocopy request forms, questionnaires written requests from users, and many others.

The method used in this study is an actual recording of all bound physics periodical volume and unbound left on the study tables and trollies the Xerox machines, to be reshelved by the Science Library stackers.

"The Science Library contains some 220 physics journals. The study reveals that only 138 journals 62.7 per cent) were used even once during the 3/-½ month interval. A core of 49 journals supplied 90 per cent of use, and those titles would cost 5105 per cent of the total single subscription costs of the 138 used titles 52. 3 per cent of the use occurs in journal volume less than 6 per cent old. English is the most used language of physics periodicals and the English periodicals account for 95.3 per cent of use. American journals 57.02 per cent of which are published by the American Institute of Physics supply 59.4 per cent of the total use.

Library may have more fiscally stringent times ahead of them. Each may experience more overcrowding of its shelves, and continued decline in financial support. It is reported that the doubling time growth of physics literate is 8.1 years; therefore, an even greater information explosion can be expected. Journal prices continue to increase,

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III. PHOTOCOPYING USE

The data was collected from photocopying request forms filled up by the users of the Science Library, Visva Bharati University later a rank list of a periodicals were prepared on the basis of number of photocopying request forms at Science Library Visva Bharati.

PERSONAL OPINION OF THE USER

This data was collected by circulating the questionnaire to the faculty members and research scholars of the Department of Physics Burdwan University Library to collect their personal opinion on periodicals use. First a questionnaire was prepared and standardized after taking the data from the users. Then the final standardized questionnaire was circulated to the research scholars, teachers and post graduate students , of the Burdwan University, Dept. of Physics. The duly filled up questionnaires were collected from the research scholars and teachers.

The questionnaires contained 12 basic questions on all aspect of periodicals use of the library. The data from questionnaire was analyzed. Later a rank, list for the core periodicals and another for allied subject periodicals was also prepared.

After the data was collected on the basis of the three above indicators, the correlation of ranks among the periodicals was observed. The given data of core periodicals was correlated with the other one Library such as Burdwan University Library.

IV. CONCLUSIONS AND SUGGESTIONS

Scientists spend much more time in informal communication channels of information than reading. And despite great importance and amount of time spent in informal communications more use is made of formal sources of information.

Periodicals and books and other printed matter are extensively used by scientists and most of the reading is identified by browsing through a comparatively small number of periodicals.

Use of periodicals measured through various variables separately such as in-library use, citation records often do not give similar results. Even the rank lists prepared by one indicator may vary from year to year. And thus the discarding or cancellation of periodicals on the basis of the results of a survey done by taking one indicator is not recommended.

One of the most striking use pattern in the data of almost every survey of periodical use is ‘ Bradford’s law of scattering’ (also referred to as Bradford’s * distribution or the bradford’s Zipf phenomenon or the 80-20 rule). Though there is no fix ratio as 80-20 but it is generally concluded that high percentage of demand can be satisfied by small number of periodicals and for rest small percentage of demand a library has to acquire larger number of periodicals.

The point of ‘ obsolescence’ and the ‘ half life’ of periodicals differ not only from subject to subject but from library to library. Even it may differ from periodical to periodical. Further, the research articles in periodicals are highly cited immediately after publication and continue to be cited frequently, during the next 12-15 hours. Scientific societies like AIP, American Chemical Society etc. Play a dominant as well as useful role in maintaining the tradition of validation of scientific literature.

Most agree that non-English language material is generally neglected by researchers whose primary language is English. The use of periodicals on the basis of language listed in their descending order is: English, German and French.

Periodicals published from USA have larger readership as compared to those from other countries.

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