Skill Development to Assess Information Needs and Seeking Behaviour of Structural Engineers in Research Environment

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Information scientists owe professional responsibility of designing such an information system that can ensure efficient, uptodate, relevant and quick retrieval of information needed by research workers. The need for such information is felt at every step of a research project right from its infancy to completion and finally publication or utilisation. Relevance is a deciding factor in measuring the performance of an informatian system. Study of users needs, information seeking and use behaviour is helpful in arriving at a fruiiful decision in formulating an efficient system. In order to achieve users satisfaction, such studies call for besides a deep knowledge of library and information science, the knowledge of statistical techniques, computer science, methodology of stuying research subject.

Relevant, comprehensive and upto-date information is a basic input to each facet of research and development. The primary responsibility of an information worker is to keep the information flow abreast through effective and appropriate channels to all those who need or are likely to need. As the volume of information as a whole is growing at a very fast rate, multidimensional in nature and with a fast rate of obsolescence also, recognising and acquiring relevant information and providing effective and purposeful services to users is becoming more and more complex. To match the users needs with vast fragments of information, various studies like use studies, users needs. behavioural studies are essential to be carried out, recorded, analysed and implemented, applied, and practised in a particular situation in a library or an information centre.

Scientific Research

Scientific research is the studious inquiry or examination; critical and exhaustive investigation or experimentation having for its aim the discovery of new facts and their correct interpretations, the revision of accepted conclusions, theories, laws in the light of newly discovered facts or practical application of new or revised conclusions, theories or laws (II).

Research has an important share in in progress of the society. Human activities are mainly governed by the latest develop-

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ments in each sphere of life for better comforts, safety, longivity and faster achievements in efforts.

Structural engineer at research desk

Basically a structural engineer engaged in research shares the responsibility of providing improved technology of analysis and design of complex structures and their components in order that these may be strong enough to withstand the natural loads or extra normal forces encountered on them. To find out the better, dependable, efficient and optimum results revision, evaluation of the existing methods, theories. laws, principles. practices, etc, are put for further study. The research worker has also to find out new dimensions, alternatives at lower costs, without sacrifieing the fundamental requirements of comforts, aesthetics life, etc.

Information seeking approach of scientists

Structural engineers seek their information in two ways :

Current Approach : To know what others have done or are doing or intend to do in the same or similar fields with the same or similar intensity/angle or diverted points of view to achieve the same or some other goal needs an upto date, comprehensive information details about the current research activities, progress reports, plans of the individual as well as institutions engaged in the same or similar research areas.

Exhaustive Approach : To satisfy the need for some specific piece of information essential in experimental work or under-

standing the work, demands to find and check through all the pertinent information channels existing in the library on a given topic, subject on which the research worker is engaged. This may arise when a new research project is taken up. This becomes even more urgent at the time when the results of a research are to be reported in the form of a report, paper in periodical, conference or a lecture or an application for filing a patent or alike cases. (2)

Recognising information needs

What actually scientists need during a research project must be recognised through careful observation of the activities of and interactions with the users at every stage; from selecting a research project to its completion using proper techniques. It is essential to shape the proposals, plans, evaluation of the information services in a proper perspective and to the optimum satisfaction of the users. (3)

Observation of users behaviour

How scientists interact with the system and what is the satisfaction ratio helps in evaluating the existing system and warrants the revision, modification, if necessary. Users preference in using information sources e.g. human sources including experts team members, project leaders of same or other projects, same or outside the campus, vicinity of the campus or far off places, contact face to face or on telephone, telex or postal communication, formal discussion or a chit chat, etc, is to be known to plan properly. Documentary sources include journals, codes and specifications, hand-

books, manuals, monographs and other reference books, reports, thesis, conference proceedings, books, etc. This helps in arriving at a logical conclusion that users want a particular type of collection development policy, organisation, maintenance and retrieval systems and procedures and also suggests to formulate suitable services

Users studies need proper interaction

User's studies are important for both the information worker in order that he may design proper services and the user so that the later can speed up his research progress utilising the relevant input. These studies can only be fruitful if these are conducted with full wit, wisdom and vigor. The techniques of conducting such surveys, generalisation of data analysis to get the results are essential and also the wide coverage of users population from the dependable inputs. An active participation of users in replying to querries, on their likings, priorities, reactions, etc, recorded impartially and without any hesitation on either part can definitely yield better and reliable results.

Pre-requisites of the users studies

Dr. Seetharama (10) prescribed a few prerequisites that a library and information person should possess before conducting a users study or survey in order to know the user's needs or attitudes in seeking information.

1. Familiarity with users' requirements on the subject of their pursuit : subject interest, academic background, psychological attributes, ablity to express ideas

precisely, attitude towards the use of library tools and techniques.

2. Familiarity with different aspects of the subject of research.

3. Knowledge of subjects helpful in study, tools, techniques, procedures, principles laws, etc.

Familiarity with the subject-knowing methodology

Information work and service always pertain to one or more discipline or missions. Knowledge of the concerned discipline or mission is essential for information work and service. The knowledge of the facets of the subject required for this purpose is quite distinct from that required for doing research in the subject. The knowledge outlines, scope, coverage, information units may be identified through a typical subject study.

A methodology of learning a subject for the purpose of information work and service has been designed, successfully tested through training programmes at DRTC (1). A keen industrious and intelligent observation, study and practice will definitely make the information worker well conversant and capable of handling and serving the pertinent information.

Methodology of acquiring subject knowledge

Dr. Bhattacharyya suggests (1) that subject knowledge may be acquired through step by step learning the following facets :

1. Definition of the subject ;

2. Terminological development ;

3. Scope and coverage ;

4. Divisions, subdivisions, sections and subsections :

5. Subjects to which it is applicable ;

6. Subjects applicable to its study ;

7. Classification facets :

8. Historical development : landmarks, trend of research and education ;

9. Sources of information—human, documentary and institutional ;

10. Information transfer process—notable studies, references in core journals, citations, primary reading, etc research methodology, user's behaviour, future plans and programmes.

The step by step collection, recording, editing assimilation of above points of information will be helpful in knowing the subject of the research worker to recognise their actual requirements.

Statistical techniques or quantitative methods

Statistical analysis is a procedure for making decisions in the face of uncertainity. As a tool helpful in decision making it has an almost universal appeal and is employed in all kinds of endeavours where objectivity and scientific rigor are important. Statistics has become a ubiquitous tool for all types of professional people who encounter quantitative data in their work or who make decisions based on such data. The group, naturally, contains professionals working in the field of library and information science (4).

Statistics as a subject and its various techniques as applicable to library and information science is termed as librametry and its knowledge is essential to apply at a particular situation for information work and service. This could be studied in the following facets :

1. Basic knowledge of statistics, survey methodology, selection of population, choice of contact and collection of data—Direct personal interview, questionnaire, observation, methods of putting data for analysis, methods of analysis, measures, probability, distribution, correlation, tests, variance, etc

2. Application of statistical techniques to library and information science-citation analysis, use studies, bibliometric distribution, various laws-scattering, marginal utility, life, obsolescence factors, etc. These are helpful in keeping the library stacks in active use (9).

Psychology and behavioural science

Users' studies primarily disclose the psychology of users during the use of library and its services, facilities and tools and so also with the information services. Their likings, preferences, dislikings, reactions, etc, about a particular or a part or to the whole system can be utilised in framing proper procedures, services, tools, etc. The study of these subjects and their basic principles, theories. examples and application possibilities along with the prior studies are essential to be known to a worker so that a fair and logical data may be collected,

analysed and result could be taken to do better service.

Socio-Economic studies

Knowledge of social sciences like sociology, economics is helpful in dealing with, the user's attitude in right perspective. The national and that of society priorities for all round development and the fitting of a particular research in that system, the pros and cons and the role of a particular information in the whole, the economic laws and principles, budgeting system, cost accounting, quantification, etc., for logical justification based on documentary evidence is necessary to be studied.

Management Science

Library and information centre being a social institution follow a number of activities that are quantifiable. These can be better controlled through laws and procedures of management science. Time and motion study, CPM and PERT, etc., can be utilised in cutting down the costs and bringing efficiency in the service.

Computer Science

Computers are capable of handling enormous data accurately and speedily. This quality (comprehensive, relevant and quick response) commands the users' liking and popularity and also confidence to depend upon the library and information persons if they make use of the computer in rendering their services. Nearly 50% of their (scientists) time is consumed in only scanning, selecting and finding relevant references out of the knowledge ocean. This time can be saved if the work (search-

current and retrospective, keeping various records and doing a number of routine jobs, preparing bibliographies, matching users profiles with the literature published, etc) can be done through computers. The knowledge how computer can be used effectively should be gained and used. Knowldge of computer programming is desirable but not essential in the present context as there a number of software packages are available that can do particular or general purpose services. Only what is essential is to prepare the input according to the specifications of the package, operate a personal computer or a terminal and get the programme run.

Man power development; course contents

The present age stresses upon the modernisation and automation. Library and Information Science bear the responsibility of keeping aware the community and the society and providing the latest knowledge, techniques avallable world over. The library and Information personnel should be equipped with all such latest techniques that are essential and helpful in carrying out his job satisfactorily. The training centres: universities, and D R T C or I N S D O C imparting the advance training leading to post-graduation in the field must incorporate theory and practice of these courses in their training programmes so that the participants may keep pace with fast advancing technologies. This could be done in the following ways :

1. For fresh students, these courses should form a part of their regular studies.

2. For working persons these courses

may be taught in short term, refresher courses programmes.

3. Organising the work shops, seminars and special lecture series on these topics from time to time.

4. Preparing a series of working documents like "do it your self" or "learn it your self":

5. Organising practical demonstrations and providing opportunities to use the skill, equipment ,etc, and to evaluate the performances of the participants in order to correct their knowledge so gained.

Studies at SERC

Structural Engineering Research Centre, Roorkee was established by the Council of Scientific and Industrial Research, (CSIR) to carry out applied research to meet out the needs in Structural Engineering in the country. A number of studies on the basis of users, expectations, demands and the limitations of resources available were carried out and published. In the context of life, utility and obsolescence factor applicable on the literature of structural engineering periodicals on the basis of citation analysis a study was reported (6). Law of scattering was tested to formulate the subscription policy of foreign journals (5), use factor to assess the utility of subscribing to a journal was observed (7). An attempt to identify the information needs of the scientists was reported (3). Present study is a result of close interaction and observation with the scientist using the library services for a period of time. The scientists prefer taking advice or consulting their colleagues, seniors, project leaders, professors at uni-

versity departments to find solutions, advice and getting new project proposals on the current problems better known to them. They prefer articles appeard in current journals or conference proceedings to books. They also prefer personal assistance of library staff to available tools like catalogues. A detiled study is still underway and need analysis of the data and a proper format for presentation.

Conclusions

Users, reaction always guide to plan for a suitable, effective and workable system commanding better satisfaction. Library and Information centres being service oriented instituitons call for systematic, speedy comprehensive and relevant supply of purposeful information to research workers contributing towards saving their research time and energy. Proper knowledge of subjects like statistics, management, economics sociology, psychology, behavioural science, computer and their fruitful utilisation and application in preparing and rendering modern services is essential. To build up properly trained man-power, the training centres and educational institutions should incorporate these important topics in their schedule of teaching so that library and information worker can do justice to their users and profession.

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