CHAPTER 8

CONCLUSIONS AND SUGGESTIONS

Research, in general, aims at either expanding the horizons of knowledge or bridging a known gap or giving different meanings and dimensions to the known facts and theories. In any case, the findings which were based on a scientifically selected sample are generalised and conclusions and recommendations are drawn for the entire population from which the sample was drawn. In this way, inductive logic is in operation while conclusions and recommendations are derived.

In case of the present study, scientists and engineers working in Graphite industries in India were selected as sample and the focus was on the library attached to Graphite India Ltd., Bangalore. The findings of the previous two chapters are true for scientists and engineers working in a chemical industry, for that matter any Indian industry and a library attached to it. These are presented here.

8.1 Conclusions

The conclusions drawn here are about the users, their information seeking behaviour and what libraries should do to meet their information needs.
8.1.1 Users

In the industry, 6.95% persons (eight in the sample of 115) are at senior managerial levels of guiding the research projects. In addition, 76.56% (88 in a sample of 115) are senior engineers and scientists and the rest are fresh persons with less than five years experience.

As regards to the subjects content of information sought, it was undoubtedly centring around their main product related aspects. In this case of course, it was Synthetic Graphite its manufacturing processes, chemical, physical properties, aspects of engineering required in developing its utilities, potential user industries of graphite, commercial aspects regarding export, import and transportation fall under the purview of the subject coverage.

At junior level more of technical information is sought. The senior persons in managerial cadre look for different type of information. Persons at senior level need information for marketing, application, product innovation, export-import related information.

8.1.2 Information Seeking Behaviour

In special libraries, information seeking behaviour is much different. Since the users are experts in their respective subject areas and are
familiar with the collection of the library, they don't need to read a book cover-to-cover either for an examination or for recreation. What users look for, their purpose, motivation, extent of dependency on formal and informal sources and their reaction to delegating the information seeking tasks, time spent on information gathering are the factors that speak of their behaviour in this regard. These factors are covered here.

The following conclusions were drawn about the information seeking behaviour of scientists and engineers.

1. Regarding the nature of information, the technical information accounts for the first five ranks and that required for marketing and business/commerce takes the back-seat.
   *(for detailed ranks please see p.93)*

The nature of information sought by these respondents indirectly speaks about the level at which they are operating. Since the organization structure in any industry or institution is a pyramid, there are less number of persons at the senior, managerial level and more at the technical or operational level. Therefore, technical information appears to be more sought after.
2. The purposes such as updating knowledge in their respective field of specialisation, evolving innovative ideas, collecting data for the use in processing and production, checking/evaluation of results and check authenticity of specifications/data were predominantly observed in senior, managerial level personnel.

On the other hand, middle-management or operational level engineers and scientists search/gather information to treat and process data, to create and use of equipment, to prepare for seminars/conferences/presentations and to design and develop new products/components.

3. While purpose for which information is sought, is an external pressure, motivation is an internal urge. It is a set of long-term goals or objectives or reasons for gathering information.

The first five motivating factors are more inward looking qualities, such as achieving desired results in work, acquiring and updating one's own knowledge, self-improvement, maintain professional competence and self-fulfillment.

The later motivating factors correspond to outward or extrovert personality. These include recognition, pursue own research, have an edge
over other competitors, get visibility among peers and colleagues, preparation for project review and to write and publish.

In short, it can be said that the first five are more work-centred motivating factors are more predominant than self-centred or career-centred. The results suggest that all the scientists and engineers are at the third and fourth order of Abraham Maslow hierarchy of needs. This means they are motivated by social needs or a sense of belonging and self-esteem and esteem of others too.

4. Owing to the production-centred thinking in the management, academic related information seeking has low priority. This is evident by the type of formal sources referred by the scientists and engineers. The fact that periodicals / journals, conference papers/proceedings get low preferences and documents such as handbooks, patents, standards and specifications are given more importance by the scientists and engineers.

5. Scientists and engineers keep themselves alert in acquiring information from different types of sources available.
a. The scientists and engineers are well aware of the sources of information. They know about "bibliographies or review articles and Secondary Sources."

b. Searching through 'Library Catalogue', 'Browsing in Library Shelves', 'News Alerts (Library publications)' and 'Browsing in book-shops' is rare, and it is a typical behaviour pattern observed in the users in special libraries.

c. Scientists and engineers prefer to seek help from some human agency such as 'colleagues / fellow professionals', 'library staff' and 'experts in the field' than inanimate formal tools like 'library catalogue'.

6. In a production-centred organization scientists and engineers depend on several informal sources of information. The most of their informal information sources/tools are within the organisation. Low emphasis on 'Training Courses' and 'Participations in Seminars' confirms that it is a production-centred organisation, not emphasising academic based thinking.
7. The use of both formal and informal sources are observed in equal proportions. This is followed by those who use only formal sources. There is an equal number of individuals who use more of formal or the informal sources. The least number of individuals prefer only informal source.

8. Majority of scientists and engineers spend between 7 to 10 hours a week. This finding once again reflects the production-centred thinking of the Management. Generally, in academic organizations time spent for information gathering is more than twice this.

9. There is no distinct pattern regarding delegation of information gathering work. There were an equal number of persons who 'Never' delegate, who delegate 'Occasionally' and those who do it 'Moderately'. Of course, some -and they are few in number- have the habit of delegating such work frequently.

10. The type of information gathering tasks that are delegated include factual data (Design and Physical Properties related Data), search for latest references, analysis and digest literature / information. These delegations not only save the time senior persons, but also are ideal for training junior scientists in any organization.
Besides, those who look after the experiments and processes should be in a position to find the factual data and latest information.

11. The different reasons for delegating the information gathering task indicate a sound sense of management among the scientists and engineers. 'To involve team members' and 'Lack of time' are very genuine reasons for delegating. And even the reason at third rank 'Unfamiliarity with the information sources' is possible because of the proliferation of reference tools and busy nature of their work.

That the 'The task is tedious and monotonous' may not be a good reason for delegating.

12. The majority of the scientists and engineers consider searching information to be important, so they do not delegate. There are several advantages of non-delegation. It is a common experience that while searching one document, certain other equally or more important information is found. If this task is delegated such an accidental gain is lost. Similarly, by not delegating, familiarity with the library collection improves.

Where scientists do not have assistants to delegate, no special observation can be made.
The reasons at rank three ie 'Find it difficult to brief the exact requirement' and 'Do not believe in others collecting information for me' are negative in nature. Both reflect lack of confidence in themselves and others when it comes to delegating information gathering tasks. It also speaks of a lack of communication skill and tact in handling people.

13. The expression of the areas where users need improvement is the ultimate measure of their information seeking behaviour. Although it differs from library to library, it can still be generalised.

a. Least processing time, so that library material is made available quickly.

b. Inform the users what is received in the library without any delay.

c. What is not available in the library, is perhaps more important than what is available.

14. The processes that relate to the above identified areas of service have to be mapped to know the areas where improvement is required.

15. By simulation and use of IT lever, the process can be reengineered. Valuable resource can be saved and better cost-effective service can be rendered.
Just the way the specific objectives and findings lead to conclusion, the method applied and the experience gained leads to suggestions that are useful in any industrial library.

8.2 Suggestions

Based on the study carried out the following suggestions can be made.

1. Since libraries and information Centres are service organizations, they must try to understand their customers' information needs and the information seeking behaviour.

2. They must be encouraged to express their precise feeling about the services and the systems of the library. Their help has to be sought in identifying the areas for improvement.

3. The areas for improvement may be explicitly suggested by the users, but librarians have to verify whether it really leads to user satisfaction in the long run, by cross-checking with users' information seeking behaviour.

4. Reengineering is an ideal and fairly successful method of implementing improvements. It is worth noting that when reengineering is applied the following three things are implied.

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- Customer-centred thinking;

- IT lever; and

- Zero-investment.

Thus, there can not be any loss due to reengineering. There are only benefits to be gained.

5. The process mapping and the principles applied in reengineering (see p.39 to 56) help in understanding the processes in relation to their importance to the customers. Thus, it improves communication within library and also with its customers. Therefore, such exercise should be done at least once in three years.

6. The application of BPR should be used for better marketing of library not only among its users, but also among those who manage. This exercise should be used to get better resources from the management.

7. Once BPR is done, it is as good as adherence to Total Quality Management (TQM). However, TQM does not merely mean improving the performance, it also mean sustaining it in the future.

8. Librarians should try to acquaint with new management techniques to improve the quality of
In the process of conducting this study, all the ideas that occurred and information gathered were not used owing to the academic nature of the study and a strong commitment to the stated objectives. These thoughts may be used by the other researchers. Following are three studies recommended for future.

a. Similar studies should be carried out for comparison on industries manufacturing sugar, paper, iron and steel.

b. Comparison of information seeking behaviour and application of reengineering should be done between chemical and other industries like automobile.

c. With similar studies comparison can be made between production-centred and service-centred organizations such as hotel/catering and travel/tourism industries.

Looking back it can be seen that this study has touched various disciplines such as behavioural psychology, management science, information technology and library and information science. Such an inter-
disciplinary study reminds the lecture (February 1998, in Bombay and Madras) of Prof Richard Halsey, Dean Emeritus, School of Library and Information Science and Policy, Nelson A Rockefeller College of Public Affairs and Policy, University at Albany, State University of New York and also, National Regional Coordinator, Whitecuse Conference on Library and Information Service Task-Force. His observation that there is ABCDEF of librarianship which indicates evolution in the subject. What he meant by ABCDEF is the changing role of librarianship. According to him these letters represent the following roles the profession has taken.

A Archival
B Bibliographical
C Circulation
D Dissemination
E Electronic
F Fusion

Reengineering achieved in library environment through information seeking behaviour of the users is an attempt to attain this perfect fusion. Let librarianship take the best of this gift of management science for its progress.