Information Needs Assessment in Digital Environment

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Knowledge is of two kinds: We know the subject ourselves, or we know
to find information upon it.

-Samuel Johnson

Abstract: The information needs represent gaps in the current knowledge of the user. The professional can assess the information needs of clientele at two levels: first, by analyzing the characteristics of the community served; and second, by analyzing the needs of specific individuals when and where they seek information. Assessment of information need typically occurs through a communication process called interview of information user. The process of assessment of information need through interview can be divided in eight stages. These are determining the purpose, researching the topic, selecting interviewees, structuring the interview, conducting the interview, preparing the report, presenting the report and feedback & further refinement. These have been changed in digital era due to introduction of Internet, e-mail, online groups and blogs. Identifying information needs is a complex process as some of the respondents may think that it is a wastage of time as it is a somewhat time taking process and may attempt to test whether the information provider will provide the information or not. This paper takes up the change brought up due to introduction of digital means in all the eight steps mentioned in assessment of information need through interview.

Keywords: Information Need Assessment, Formal Interview, Information Professional, Digital

1 Introduction
In order to stay competitive on the cutting edge of science, scientists and technologists need the most up-to-date information. It is the role of the

information professionals to know the information needs of his/her clientele. Identification of information need is essential to the design of information systems in general and to the provision of effective information services in particular. In day-to-day work, lack of self-sufficiency constitutes information needs. The information needs represent gaps in the current knowledge of the user. Apart from the expressed or articulated need, there are unexpressed needs which the user is aware of but does not like to express. Third category of need is the delitescent or dormant need, which the user is unaware of. But the information service provider may be able to bring to light these needs. A need is specific and generally time bound, either immediate or deferred.

2 Information Need
In order to identify information needs one should adopt various methods to gather information on the various factors that influence the information needs. No single method or tool will serve entirely. A careful selection and blending of several techniques depending on the user whose need is being studied is necessary.

The information needs of users depend on work activity, discipline/ field/ area of interests, availability of facilities, hierarchical position of individuals, motivation for information, decision making, user of Information and Communication Technology (ICT) seeking new ideas, make professional contributions, establish priority for discovery etc. Information needs are affected by availability, accessibility and end use of information.

3 Information Need Assessment
The fundamental premise of the user needs assessment and evaluation efforts are that design should be user-centered, iterative, and adaptive. In order to study the information needs of individual or group one should adopt various methods to gather information on various factors that influence the information needs. The professional can assess the information needs of clientele at two levels: first, by analyzing the characteristics of the community served; and second, by analyzing the needs of specific individuals when and where they seek information.

The purpose of community analysis is to provide the professional with specific data/information related to community in general e.g. metallurgists, agriculturists, computer professionals etc. The knowledge acquired through a systematic process of data collection and analysis will enable the information professional to understand the environment in which they operate. This level of analysis is a critical first step in customizing library services for individuals and groups.

The second level of analysis is the one-to-one interaction with a user at the point when he or she has decided to seek information. The professional must diagnose the user's information needs as the first step in the professional/client interaction. At this point, the professional initiates a diagnostic process with the client and accepts responsibility for the outcome. This interaction must begin with the broad questions of "what, why, how, when, and where" and then narrow down to match the professional's perceptions of such client characteristics as level of literacy, cognitive style, and social construction of reality. Once this level of need-assessment is completed, the professional proceeds to the next stage of the service cycle: prescribing or recommending the source or sources from which the appropriate information may be acquired.

Professional knowledge enables the information provider to diagnose information needs, recommend information sources and services, implement those recommendations, and evaluate them. Several fields of study encompassed by the discipline of information science addresses the knowledge of information psychology, Sociology of information, Information organization management and Information engineering.

The major steps in the process of identifying information needs in the digital background are (a) study of subject(s) interest to the organization/user, (b) study of the organizational and its environment, (c) study of the immediate environment of user(s), (d) study of the user(s), (e) formal interview, (f) identification and recording of information needs, (g) analysis and refinement of the identified information needs. This paper will

be taking up formal interview, as a mode of identifying information needs in details and process, in light of latest developments in the digital field.

4 Digital Development and Formal Interview

Assessment of information need typically occurs through a communication process called interview in traditional means but it has morphed with the advent of ICT. This exercise enables the professional to identify the information centre user's needs and to recommend a source, or sources, of information. The primary purpose of the interview, whether it is brief or long, is to help the information scientist answer some questions. Answers to the questions clarify the problem(s) of the users and bring to the user the type and amount of information needed.

The contact with users can be taken up through phone, personal interview, chatting, e-mail, voice-mail, use of web-cam and video conferencing. The process of assessment of information through interview can be divided in eight stages. These are discussed below.

4.1 Stage I

Determining the Purpose: As the interviewer, we need to identify why we are conducting the interview(s) and what form the final product will take. Because the interview is a cooperative interaction, one must phrase the purpose so that others, such as the interviewees, can understand it.

4.2 Stage II

Researching the Topic: In this stage, the interviewer conducts background research before the interview. This allows one to develop relevant and thoughtful questions. Having a solid base of knowledge about the topic will also enhance one's credibility with the interviewees.

Secondly, where we search for information depends on the purpose of the interview and the end product or final report. Written sources of information include reference books, magazines and pamphlets, atlases and gazetteers, academic journals, newspapers, dictionaries subject abstracts and indexes. The subject specific websites and blogs provide an important resource for the information interviewer. The interviewer must have basic

knowledge of digital terminology and databases like Compendex, ACM Digital Library, Bioengineering Abstracts, SciFinder Scholar, IEEEXplore, INSPEC, Web of Science, USPTO etc.

Information professionals have to learn: (1) What kind of information is needed (2) How much is needed-a simple fact, a book, or a mass of materials (3) How is the information going to be used-for a talk, to answer an idle question, as a beginning for research (4) What degree of sophistication is required-a beginning article or an advanced monograph (5) How much time does the user wish to spend finding and then using the information.

4.3 Stage III
Selecting Interviewees: We need to select interviewees with care, keeping in mind the purpose of the exercise, i.e., what is needed to know? Who has that information? Does the person have the information I need? Is the person available for an interview? Will the person provide me with the information I need? Can the person freely and accurately transmit the information to me*?* Is the person technology savvy? If he has more preferences towards use of new digital means.

4.4 Stage IV
Structuring the Interview: Questions are the heart of any interview. After determining the purpose of the interview, conducting research and selecting interviewees it is time to put together the interview guide. This Guide will include all the questions and possible probes one would ask in the interview. This is the roadmap that will assist in gathering the required information, as well as developing a productive relationship with the interviewee. Although required development is taking place in ICT area, a lot is still to be done, as there is a vast digital divide. So for structuring the interview traditional questions should be kept at the beginning but definitely end with new technologies.

In the information interview, one should to ask questions that will elicit the needed information. Carefully worded questions can motivate interviewees to answer freely, accurately, and thoughtfully. The factors to be kept in

mind in phrasing questions that can help or hinder the information interview process are language, relevance, information level and complexity. Another aspect of crafting questions for the interview guide is asking the appropriate type of questions. Questions may be primary or secondary; open-ended or closed-ended, neutral, leading, or loaded.

Before having a formal interview with the user, the interviewer should prepare for each user a document giving rough estimate of a list of anticipated information needs of each user, type of information services required, existing information sources about services in the organization which are being used; and source and services that are available but not used. This estimate of draft information needs is the basic document for subsequent confirmation and modification by interviewing to confirm actual needs and to estimate pseudo needs. Some of the data gathered will require clarification from the user. Some of the information needs identified may turn out to be temporary interests.

The intended use of information has a greater bearing on the actual information required than the user's discipline. Hence, the interviewer should find out by appropriate questioning the following:
- What information
- In which form
- For which need
- How often/when needed
- Which role to perform

For each specific information need
- What kind/nature of information-facts (free of value judgments), opinion, view points, advice, technical details, statistical data, news, theory;
- In what form-digest, executive brief, table, graph, state of the art, trend report, original document: often, daily, weekly, monthly, as often as required depending on announcement/publication of such information;
- In what media-print, audio, visual presentation, digital
- In what quality-enough to read/see/hear and in how much detail

- With what priority- very high, high, low, etc.

What would be appropriate has to be ascertained from the user. The information need identifier should show the appropriate information service product to user to express his need.
As more and more information is available in soft format, the questionnaire should consider digital sources for a comprehensive coverage.

4.5 Stage V
Conducting the Interview: Central to conducting the information interview is establishing a productive interview climate. A productive interview climate does not happen magically; it develops in the interactions between interviewer and interviewee. Like speeches, interviews have an opening, body, and closing. As the interviewer, one would have to begin the interview in such a way that facilitates the interview process, ask questions that assist all parties in achieving their goals, and end the interview on a positive note. Along with personal contact the interview can be conducted through phone, video conferencing, web based devices.

It is to be noted that in order to have free exchange of ideas, it is better to have an appointment with users when they are free from important work. During the time of interview, information need assessing person should interact by giving examples of relevant information services and show how he can be helped in meeting his information needs. As far as possible, these examples must be from user's own subject field or related fields of interest, posting the actual problems in appropriate user friendly technology & terminology likely to be faced by the user. A good schedule of classification scheme or thesaurus of relevant subjects, help the user pinpoint his subject interests precisely, illustrating a few services which the user has already contemplated, together with opinions about different types of services required, by seeking their own ideas of services, showing different sources of information and formal channels prevailing in the organization, unearth the informal modes of communication used by the user.

It should be cross-checked to access whether a need is a true need or a pseudo need. It has been found from experience that there is a tendency especially among the executive either to exaggerate their information requirements or to overlook some of them as unimportant due to certain reasons. In the former case, there is the danger of the user being inundated with too much information and in later case he may not get some useful and pertinenent information. But the user should be made to make specific, the value of the need in relation to his specific function/task and level of the category of the user. This would help to assess whether a need is true need or a pseudo need. Interviewing the super-ordinate and the sub-ordinates may help to clarify these.

4.6 Stage VI
Preparing the Report: This step is much easier if one has: (1) the notes are from *Stage 2, Researching the Topic*, (2) taken careful notes when conducting the interviews, and (3) completed a post-interview assessment for each interview. In the post-interview assessment the objective is to evaluate the information obtained in the interview. The following points are to be satisfied: (1) Does the information I gathered fit with my interview's purpose? (2) Do I have all the information I need to write my report? (3) Is this information appropriate for my audience? (4) How accurate is the information I obtained from the interview? (5) What information is factual or verifiable? (6) What information involves the interviewee's inferences?

After completing the post-interview assessment, one should sift through all the information gathered in the interview(s) and other research to determine what information to include in the report and what information to leave out.

4.7 Stage VII
Presenting the Report: The format for the final report depends on: (1) the audience, (2) the topic, (3) the requirements of the assignment, and (4) one's communication skills. Often a final report involves the use of multiple communication channels, such as text and graphics or audio and visual media. For example, if one were to present information from a series

of interviews one might want to prepare an oral report that incorporates brief audio clips. The final report can be circulated and easily accessible to user by loading it on website (Internet/ Intranet), sharing on LAN circulating through e-mail.

4.8 Stage VIII
Feedback and Further Refinement: Feedback from information services rendered and suggestions form users about their changing interests, of the departments and of the organization, as a whole would be helpful. Periodic invited group discussions with users would throw much light on the changes taking place and likely to take place in future in the organization. This will definitely give a cutting edge to information provider

To sense the change and modifications in the information needs, their priorities and in anticipation of new potential information needs, and already identified information needs converting into demands, it is necessary to attend committee/task force/project/technical and other problem solving/decision making meetings (in which problems and projects are discussed) of which the user is a member. It may also be necessary to attend committee meetings in areas, which fall within the purview of the functions and responsibilities of the user.

5 Limitations
Identifying information needs is a complex process as some of the respondents may think that it is wastage of time as it is somewhat time-taking process and may attempt to test whether the information provider will provide the information or not. A user may not like to reveal his need, as he may like to show that he is above (any) requirement and that he knows his sources. To divert or mislead he may give or just because some one else is getting information s/he may give a pseudo need to receive the same information. A super-ordinate, to avoid a subordinate getting informed, may give it as a pseudo need and try to withhold the information received. Different users perceive same information differently as their information need. The flow of information and channels of communication are complex and add to the complexity; and individual preferences and behavioral aspects add a further dimension. Although the digital means are expanding their wings it is not fully available for open to access and this is

creating digital divide and is creating the problem for complete switch over and this has given a added responsibility of fulfilling the information needs of traditional user and technology savvy user.

6 Conclusion

Assessment of information need is an amorphous area of research in library and information science over the past four decades. The concept of information need is embedded in the studies of users, their environment; and information use. Identifying a need is one thing and satisfying the need is another. The process we have discussed above is not only useful in identifying the information needs, but also has a profound impact on finding ways and means to satisfy such needs. Simultaneously the interviewer would discover, as a bye product, several ideas, tools, methods and techniques of satisfying the users in meeting their information needs. At the same time it has also given the responsibility to interviewer to equip himself with the latest development in digital field. In other words if the information needs of one's clients is identified the this way, the documentation and information services that we would be rendering to satisfy these needs, would initiate action and bring changes in the users, their outlook and in the organization as a whole.

References

[1] Homer, J H. (1981). Patterns in use of information. *Journal of American   Society for Information Science*. 103-112

[2] Katz, D. & Kahin, R. L. (1978). The social psychology of organization. Ed 2. New York, John Wiley.

[3] Devadason, F. J. and Lingam, P. L. A methodology for the identification   of   information   needs   of   users. http://www.ifla.org/IV/ifla62/62-dev.htm